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PART FIRST.

Analytical and Critical Reviews.

Review I.

1. *Manual of Materia Medica and Therapeutics.* Being an Abridgment of the late Dr. Pereira's 'Elements of Materia Medica.' By F. J. Farre, M.D. Cantab., F.R.C.P., Senior Physician to St. Bartholomew's Hospital, and Lecturer on Materia Medica in St. Bartholomew's College; assisted by Robert Bentley, M.R.C.S., F.L.S., Professor of Botany in King's College, and Professor of Materia Medica and Botany to the Pharmaceutical Society of Great Britain, and by Robert Warington, F.R.S., F.C.S., Chemical Operator to the Society of Apothecaries, and Vice-President of the Chemical Society. London. Pp. 614.
2. *Note-Book of Materia Medica, Pharmacology and Therapeutics.* By R. E. Scoresby-Jackson, M.D., F.R.S.E., Physician to the Royal Infirmary, Lecturer on Materia Medica and Therapeutics at Surgeon's Hall, Edinburgh, &c. Edinburgh. Pp. 412, with Supplement.
3. *Neligan's Medicines, their Uses and Mode of Administration.* By Rawdon Macnamara, Fellow, Member of Council, and Professor of Materia Medica, Royal College of Surgeons in Ireland; Surgeon to the Meath Hospital, &c. Seventh Edition. Dublin. Pp. 934.
4. *A Manual of Practical Therapeutics, considered chiefly with Reference to Articles of the Materia Medica.* By Edward

John Waring, F.R.C.S., F.L.S., Surgeon in Her Majesty's Indian Army. Second Edition. London. Pp. 956.

5. *A Manual of Materia Medica and Therapeutics, including the Preparations of the British Pharmacopœia* (1867) *and many other Approved Medicines.* By J. Forbes Royle, M.D., F.R.S., and Frederick W. Headland, M.D., B.A., F.L.S. Fifth Edition. London. Pp. 824.
6. *The Essentials of Materia Medica and Therapeutics.* By Alfred Baring Garrod, M.D., F.R.S., F.R.C.P., Professor of Materia Medica and Therapeutics at King's College, London, Physician to King's College Hospital, &c. Third Edition. London. Pp. 479.
7. *Therapeutics and Materia Medica: a Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History.* By Alfred Stillé, M.D., Professor of the Theory and Practice of Medicine, and of Clinical Medicine in the University of Pennsylvania, &c. 2 vols. Third Edition. Philadelphia. Pp. 824 and 864.
8. *The Institutes of Medicine.* By Martyn Paine, A.M., M.D., Professor of the Institutes of Medicine and Materia Medica in the University of the City of New York, &c., &c. Eighth Edition. New York. Pp. 1145.
9. *A Dictionary of Materia Medica and Therapeutics.* By Adolphe Wahltuch, M.D., L.R.C.P. Lond., Honorary Member of the Obstetrical Society of Prague, &c. London. Pp. 482.
10. *The Action of Medicines in the System.* By Frederick William Headland, M.D., B.A., F.L.S., F.R.C.P., &c. Fourth Edition. London. Pp. 449.
11. *Lectures on some of the Applications of Chemistry and Mechanics to Pathology and Therapeutics.* By H. Bence Jones, A.M., M.D., F.R.S., Late Physician to St. George's Hospital. London. Pp. 308.

That the whole subject of therapeutics is in a most unsatisfactory state every one seems ready to admit; but how to improve its position is a question to which there also seems to be very various answers. That this, the oldest department of medical knowledge, for the practical ever comes before the theoretical, should be in such a predicament, is scarcely encouraging, and it is anything but complimentary to ourselves or our forefathers that men should be only now beginning to talk of studying the natural history of disease if, after all, that fine-sounding phrase means anything. Those who advocate this method of attaining

a sound knowledge of scientific medicine, tell us that we should, before trying to study the means of curing disease, ascertain, as far as possible, what tendency there is to self-limitation or even to self-cure on the part of disease. But, at the very outset, we are met by serious obstacles; we have to define what is meant by disease as contradistinguished from health—a matter of no little difficulty, if, indeed, it be at all possible. We must consider how diseases originate, whether, *ab extra*, by causes acting only for a limited period, or *ab intra*, by causes acting over a more prolonged space of time. In most of the former class there would seem to be a distinctly self-limiting power, as in most diseases of the zymotic class, especially the exanthemata. Another difficulty springs up in studying diseases of this class. How are we to account for their non-recurrence in the individual? Are we to accept the doctrine that their presence occasions the waste of some material in the body which, being destroyed, the morbific influence has no longer any effect on the purified organism? or does it introduce something new which is henceforwards to exert a preservative influence on the system? This difficulty belongs, however, rather to the domain of pathology than to that of therapeutics, although its place is in the borderland which both separates and unites two closely allied subjects. The former difficulty, however, that of the duration, &c., of the so-called zymotic diseases is one which has a vital bearing on therapeutics. Diseases of this kind have been carefully observed, and it has been noticed that, in almost every case, even in that of syphilis, there is a tendency in the disease to wear itself out, the period of its cessation being more or less distinctly marked in different instances. It has further been noticed that the remedies at our disposal have very little influence on the progress of these diseases, and that we are powerless to arrest their course once the poison has been fairly introduced into the system; but that our efforts, if rightly directed, may have a most material influence on the fatality of the disorder. A poor labourer will sometimes get over an attack of typhus, even in the slums and alleys where he has been inoculated with the plague; but his chances of recovery are infinitely increased by good food, fresh air, and careful nursing. Unfortunately, we have been in too great a hurry to apply this observation to diseases of all kinds. The good old comfortable belief in the efficacy of physic has given way to a bold scepticism as to the value of any remedies, with, in all cases, a mental reservation as regards such a remedy as quinine in ague. Hence it is that men talk of studying the natural history of disease. Now, what we understand by the natural history of disease is, say in typhus, the course which the disease would run were there no modifying circumstances to

interfere with it—which involves, in the first place, the somewhat dangerous study of the disease in the slums where it harbours, and where its victims live, no external aid, in the shape of unusual food or medicine, being extended to the sufferers from first to last. We need scarcely say that, in a country like England, such a procedure is out of the question: and with it goes the pleasant fiction of studying the natural history of disease.

But all diseases are not zymotic; all do not originate *ab extra*. Some are what are termed constitutional, and would appear to depend on some cause or causes acting over a prolonged period within the citadel of the system itself. Take, for instance, those badly understood affections—gout and rheumatism—in some of their forms, at least. Such a disease as gout does not appear to possess any of the self-limiting quality of typhus; and hence observations applicable to the one may not be true of the other. Again, with regard to their natural history. As in typhus, no one would be justified in refusing proper food and air; so in rheumatism no one would venture upon the refusal of judicious diet and proper warmth; but if to these we add the use of an occasional purgative, a diaphoretic, or an opiate, we are no longer studying the disease under the circumstances whereby it is produced, but with new and artificial surroundings and influences. This is not the natural history of the disease. Still, these researches have not been without their result; they have shown, at least, that certain diseases may be encountered by such simple means as proper food, air, and nursing; but, unfortunately, the inferences made have not stopped here.

The subject of disease in man is a study so complex, so many modifying circumstances have to be considered, that we can scarcely wonder at the tendency to take things for granted so commonly observed in the history of our profession. From time to time new schools have risen, resting on new theories, and practising new plans of treating diseases. Each of these has taken something for granted in their original conceptions of disease, and, consequently, in their therapeutical notions. A theory, or at least a hypothesis, is essential as the basis of a system of therapeutics. One man may say that he has found a certain remedy useful in one form of disease, another in another, but these are only isolated instances—simple facts of observation, whether entailing a fallacy or not, does not now matter. But a *system* of therapeutics requires something more. A theory or hypothesis must be founded on the observed facts to render these generally useful. The tendency unfortunately has been to found theories on an insufficient induction,—to lay down abstract principles for guidance, when there was no room for such; in short, to rely on authority rather than observation.

The recent great and decided advances in our pathological knowledge have been held out as an example and an encouragement in therapeutical inquiry. But to benefit therapeutics, pathology must go still further. It is not enough to show that certain morbid structures are composed of certain elements, cellular or otherwise. It may be said that when matter has assumed its cellular shape, it is beyond the domain of therapeutic forces. It is rather in the intermediate stage, ere yet matter has assumed its final characters, that we may hope to induce any specific change, *i. e.* by rendering its nutritive transformations more or less perfect. But to do this we need something more than our present views and knowledge of pathology, we want more information from the points where therapeutics and pathology are conterminous—exactly the points most difficult of access. Some really master mind is wanted to bring all pathological facts thoroughly *en rapport* with each other. Such a measure would be of unspeakable advantage to therapeutics as it would to pathology. We hear of the humoral pathology, the neuro-pathology, and the solidest or cellular pathology; were all these partial views rooted up, and one broad theory of disease substituted for the many narrow ones now current, we might have hopes of therapeutics as of pathology: but when shall these things be?

Medicine consists of two parts—an art and a science, if, indeed, the latter can be so designated; but if we desire to see our art rest on a scientific basis, supposing that to be possible, much has yet to be done. Our notions as to the physiological actions of many remedies is of the vaguest possible description, utterly unworthy of the name of science. Even our therapeutical terms are obsolete, belonging to the days of atrochemists and physicists; for what meaning do the terms *tonic* and *alterative* convey to the modern, but non-medical understanding? Definite ideas must be expressed by definite words or symbols. But this is not the case in modern therapeutics. Even with regard to what might be supposed to be the thoroughly understood processes of stimulation and narcotism, Dr. Anstie has shown how little really accurate knowledge we possess; if so, what must its condition be in other and less understood departments of therapeutics.

We therefore thoroughly and heartily sympathise with such indefatigable workers, as Bence Jones and others, in this country, and Hoppe Seyler, Rosenthal, &c., &c., on the continent, who have attempted to secure a scientific basis for therapeutics in the unmistakeable phenomena of natural science. We are not of those who look upon the stomach merely as a gigantic test-tube, nor do we suppose that all the phenomena of

mental life can be explained by means of the instruments sufficient for determining most problems in natural science; we admit the existence of some governing principle, call it *natures archæus*, the *vital principle*, *force*, *heat*, or what you will, which controls and regulates many vital actions and phenomena; but nothing is more fatal to scientific progress than the admission of such a principle as an ultimate cause in explaining phenomena, for we thereby pass from the region of the known to that of the unknown, confessedly beyond the reach of science. It is really far safer, and, for scientific purposes, infinitely preferable, to hold that nothing of which we are cognizant in the animal frame, is beyond the reach of careful investigation, than to conclude that certain phenomena are inexplicable because they are controlled, regulated, or modified by what we term living vital force. From researches conducted, as those of the Tübingen school have been, we may obtain a sound foundation whereon a superstructure may safely be built. Another promising line is the ascertaining more correctly than we have hitherto done, the physiological effects of remedies on man himself. In this respect Dr. John Harley's experiments with conium and the allied neurotics are of importance. We have learned from them not only the best and surest forms of the remedies to be employed, but also the dose necessary to produce a given physiological effect; when we desire a similar action in cases of disease our way is therefore made plain before us.

Much of the so-called clinical experience of the value of remedies is utter rubbish. Inferences or even vague impressions are put down as well ascertained facts, or the anxiety of the inquirer gives a tinge to the supposed result either in one way or another. It is perfectly true that there are more false facts than false theories in medicine; a tolerably good illustration of this occurs to us this moment. Most of our readers will remember the supposed discovery of the valuable effects derivable from Sarracenia purpurea in small-pox, which came to us from America; the report was generally received with caution, and soon shown to be baseless; nevertheless, contemporary literature affords instances where a substance, now generally admitted to be valueless, is asserted to have effected wonders. At least one instance was an illustration of defective observation, the recorder of the case having taken no pains to contrast or compare it with another in which the ordinary remedies, or no remedies, were given. Here we have one of the most important elements entering into the causation of modern medical scepticism, one of the principal causes of our therapeutical defects. Men take no care to fit themselves for scientific observation and research, they think themselves qualified if they know *what to observe*, not

how to observe what comes before them. In many instances conclusions are rapidly rushed to, the observer looking through the mist of his preconceived notions, even obstinately shutting his eyes to any adverse circumstances. This indicates a defect in preliminary training which the modern system of education may, in time, be expected to obviate; but another evil is equally important, if not more so—the mistaking of ordinary phenomena for the results of special interposition, say the consequences of the disease for the effects of the remedies or, *vice versâ*, much uncertainty is hereby produced, nor is it so infrequent among ignorant men as we should be glad to believe. There is now-a-days no lack of brilliant discoverers and inventors who will find out half a dozen new remedies in a session; but when they have finished their work the sound therapeutical investigator has to commence his. He has again and again to vary the conditions, to elicit all that is adventitious in the apparent effect of the remedy, to ascertain its true action in health and disease, for these are by no means invariably identical.

There is a certain difficulty to be overcome by all who would infer the action of a remedy on man from its influence on the lower animals; by such investigations alone we can never be sure until the experiment has been tried whether this drug will act in the same way in the two organisms, for many substances are poisonous to man and harmless to some of the lower animals, as (thanks to Dr. W. Mitchell) in the now well known case of pigeons, as far as opium is concerned; but this is a patent difficulty. Another one, probably less known to the profession generally, although painfully so to therapeutical inquirers, is the multiplicity of investigations which have been made on the same subject, many apparently with discrepant results. In some instances, though not in all, the discrepancy may be accounted for by the different phenomena investigated by different experimenters, thus, take Pelikan's researches and compare them with those of Kölliker; it will soon be seen that they have little resemblance the one to the other, for the phenomena which each inquired into, although all the result of the same therapeutical agent, were essentially distinct. We have here also to deal with many false facts.

Overlooking or overcoming the difficulties in their path, inquirers may be said to have at their disposal three methods of therapeutical investigation. The first of these is the physical or chemical, whereby the physical or chemical relations of substances to different constituents of the human body may be ascertained. In this way we may cite Cunze's researches into the action of arsenic, the innumerable applications of the laws of diffusion and dialysis as laid down by Graham, inquiries into

the nature and cause of diabetes, with the treatment consequently recommended, the value of lithia and potass in the treatment of gout, the action of chloroform and other anæsthetics on the blood, with many others. In the majority of instances where chemistry or physics can be successfully called into play, the substances to be investigated are simple in their character, or readily distinguished by some characteristic feature. When such is not the case a method more strictly physiological must be employed. We have at our disposal experimentation on the lower animals and on human beings in a state of health. The former is all very well as a sort of essay, a kind of trial test as to the quality and influence of the drug; but it is rare that we can at once proceed from researches of this kind to the use of any remedy for the benefit of disease; the intermediate probationary stage must be passed. Its effects should be tried on a healthy individual of the human species. By these two combined we have obtained many valuable and undoubted acquisitions to our *Armamentaria Medica*. Probably, however, the means whereby most of our medicinal agents have been acquired, partake more of the nature of chance, as in the well-known instance of the discovery of cinchona bark, than of the strictly scientific. Still, in many cases, subsequent investigation has played an important part in procuring for such remedies general recognition and acceptance. This kind of investigation has, on the other hand, done much to banish medicines—at one time considered to be of value—from our lists of remedies. It has shown on what the activity of the substances depends, and thereby enabled us to procure others possessed of similar but more powerful properties. This is well pointed out in the expurgation of a considerable number of vegetable astringents, and stimulant gum resins from our modern pharmacopœias. It has further compelled us to expunge native remedies, the contents of old herbals, and to supersede them by others not indigenous but infinitely more powerful. This fundamental knowledge has done a good deal to advance therapeutics, and to give accuracy to our notions of medicinal effects, for who would now think of ordering the uncertain cherry laurel water who has its active principle prussic acid at his disposal? So the separation of the various alkaloids of opium has shown the cause of the complex action of that drug. Quinine has in most instances superseded cinchona, and there are many other illustrations of the same point. It may therefore be said that although a remedy has been discovered by accident, or has been transmitted to us by our forefathers, it will not now-a-days maintain its position if it cannot stand the rigorous tests suggested by modern science. Still, with the practical English mind, it is neither chemistry nor physiology which will command

universal acceptance for a remedy, promising though the former field may be both in the direction chiefly pursued in Germany, and in that followed by Crum-Brown, Fraser, and Broadbent in this country; for although numerous researches on the lower animals may have shown that a substance has a certain definite and powerful effect, it must stand or fall in accordance with clinical experience. This is at once the most certain, and the least certain, the surest, and the most difficult branch of therapeutical inquiry; its certainty will depend on the hands into which the research is entrusted, and it is easy of access to any one to whom is confided the care of suffering fellow mortals. But this fact also renders it difficult, for men must bear in mind their responsibility. Experiment is only permissible in a direction already shown to be safe and beneficial to our sick fellows. There should be no pure experiment at the bedsides of our patients.

One cause of the modern scepticism which has followed the cleansing of our Augean stable, the very same being a hopeful indication for the future, is the simplicity of modern prescriptions. When some twenty or thirty substances were combined in one theriaca, or other compound, on the chance of some one suiting the patient's complaint, it was impossible to assign any specific action to its components. When, however, a single substance is prescribed as nearly as possible in a state of chemical purity, the difficulty of determining its action is infinitely lessened, although it is far from being completely removed. Yet this process of elimination, by showing how many substances might be dispensed with, has, in the minds of some, led to scepticism as to the efficacy of all. Another great difficulty in this form of clinical research has been to secure conditions exactly similar in a number of instances; two good illustrations of this occur at the moment. Most men have heard of the great success which has attended the employment of acupressure in the hands of Pirrie and Keith, of Aberdeen, and the use of carbolic acid by Lister, in Glasgow. Yet it cannot be denied that in the hands of London surgeons especially, both modes of treatment have lamentably failed. Why is this? We can only reply that the conditions of the trials must have differed; we cannot impugn the veracity of either party, we must therefore fall back on the conditions, as having varied, and so given rise to the different results. Something of the same kind might be said with regard to bromide of potassium; many practitioners even now are sceptical as to its value as a remedy. The question is whether they have given it in suitable cases. Again and again we have seen this remedy when given in doses rapidly increased to twenty grains three times a day, speedily arrest epileptic convulsions altogether, or modify them to an *aura* merely, and this too in patients

who had suffered from such fits for years. We have seen that while they continued to take the remedy they might keep well for months. Sometimes thinking that they were completely recovered, patients have discontinued its use without advice or sanction; the consequence has been an immediate relapse and renewed accession of the convulsions, again to be arrested by bromide of potassium, and finally to disappear with its prolonged use. We cannot say that this sequence is invariable, but its frequency is great enough to induce us to accept the remedy as a welcome and powerful accession to our armamentarium.

As matters now stand our knowledge of therapeutics is essentially empirical, and men are apt to knit together isolated facts of any kind to give them shape and consistence, by a theory or hypothesis however far-fetched. To this tendency many of the absurdities of medicine are due. Oppressed by the weight of one or two facts, overlooking many others of equal importance, but less palatable, the homœopath maintains the doctrine of *similia similibus curantur*, and thrusting on the legitimate practitioner the opprobrious title of allopath, would pin him down to the Hippocratic dogma, *τὰ ἐναντία τῶν ἐναντίων ἐστὶν ἰήματα*, "contraries are the remedies of contraries." Both doctrines are narrow and confined; both may contain a kernel of truth, but the skilled physician cannot allow himself to be hampered by any such imperfect inductions; it is his duty to cure his patient, and it matters not what sect may have appropriated any remedy, or tagged on to it any wind of doctrine, it is his duty as it is his pleasure, that having experience of its usefulness, he should employ it for the benefit of his patient, and thereby add one more fact to our stock of empirical knowledge. The time has not yet arrived for treating patients in accordance with "scientific therapeutics," meanwhile we must do our best with the stock of knowledge bequeathed to us by our forefathers, and strive to add from time to time some new *true facts*, which will do more good than a score of *false theories*.

In this direction it might, as we have already hinted, be even more useful to clip than to extend the list of our materia medica. Nothing strikes one more in reading an account of a little-known remedy than the multiplicity of its alleged effects, some of which are not unusually totally antagonistic to each other. What are we to conclude from this?—false observation again—the discoverer of the remedy may have fancied he observed the results recorded, but that may be no criterion of their accordance with facts; his mind may have been darkened by prejudice, or blunted by carelessness. Scores of illustrations might be cited from the volumes whose titles head this article.

Fashion has not a little to do with the spread of therapeutical inaccuracy, a remedy coming into fashion is used for all sorts of cases, rightly or wrongly, and gradually slips out of sight again, but its name and assigned properties remain to cumber our lists of useful remedies. Take three substances—buchu, pareira, and uva ursi; each has had its day. Can we assign to either its real place and its exact value? we fear not. Take sarsaparilla, a drug at one time lauded to the skies as a remedy for syphilis, but one which is now-a-days rarely prescribed at all, and still more rarely given as it ought to be given. How many new remedies have been introduced within the memory of every man, and how few have stood the test of time; still of many the ghosts haunt us, and should be laid once for all.

But after all it is the theories rather than the facts with which we have to contend, and nowhere is this better shown than in the classifications of the various articles of the materia medica adopted by different authors. One set deal with the ultimate effects of remedies, and classify them as tending to stimulate or depress vital activity. Another look to the organs which the remedies appear to act upon, as in Dr. Pereira's system. A third section still thinks only of the mode in which medicines operate. In this last category we find most of the fallacies which from time to time have arisen and flourished in our professional world. Notable among these is the homœopathic doctrine of *similia similibus curantur*, the foundation of homœopathic practice and therapeutic classification. But the opposite doctrine, *contraria contrariis curantur*, is equally narrow and equally objectionable with the former. The time of its loudest expression was in the days of the iatro-chemists, who comfortably classified all diseases and all remedies as *hot and cold, moist and dry;* a hot disease was to be cured by a cold remedy, and *vice versâ*. Stimulation, depression, elimination, revulsion, all have had their turn, and we are now as far off from the truth as ever. This must always be the case if men will trust to artfully-framed hypotheses rather than to careful observation. There has in time past been too much dogmatism, too much listening to authority, the authority not infrequently consisting of wild speculation, having actually no foundation in observation or experience. Of this the Brunonian doctrines are an example, having been brought forward by Brown the pupil to spite his master Cullen. His doctrine of stimulation rapidly spread on the Continent, and many and fierce were the combats between its followers and those of the opposite school.

The materials at our disposal for the reconstruction of therapeutics are probably only too abundant, but with time and care much may be done. Our predecessors have erred in too much

theorising; it is possible we may err in the opposite direction. At all events the error has not already been committed, and we may safely do our best to increase the general stock of facts, large though these may already be. The principal thing we must look to is the quality of our facts: one good observer is worth more than all the bad ones put together. We should neither be too sceptical, nor too prone to belief; of the two the former spirit is better for scientific purposes even should it not be the best for the interests of our patients. Sound work in therapeutics is much harder than in pathology, and that is one reason for the greater advancement in the latter. Still we may be hopeful.

In the various volumes whose titles head this paper, we find abundant illustrations of our remarks on therapeutics generally. Take the works of Bence Jones and Headland, for example, we can thereby understand one reason for the unsatisfactory condition of our therapeutical beliefs. Dr. Bence Jones, as we have already hinted, is an enthusiastic chemist, who selecting certain diseases apparently characterised by well marked chemical phenomena, is inclined to take these disorders as samples of all others, as indications of the medicine of the future. We accordingly find certain disorders classified as diseases of suboxidation and certain others of peroxidation for which, of course, would be required remedies of an opposite tendency. We also find that to express his views more thoroughly Dr. Bence Jones has classified his remedies as those which promote oxidation directly or indirectly, and those which retard oxidation directly or indirectly. In another group, he has placed those remedies which promote or retard nutrition directly or indirectly. We do not suppose that the author referred to would relegate all known medicinal agents to one or other of these groups; still, this classification or attempt at classification, however far falling short of perfection, has this marked and decided advantage over most others, that it concerns itself about no mysterious entity or hypothetical modes of action or effects. It carries its meaning on the face of it.

Now let us see what is said of iron, naturally one of the most important agents to be considered in any chemical system of therapeutics. Dr. Bence Jones tells us that of the iron introduced into the stomach, part is rendered insoluble and passes off by the bowels, part is absorbed and immediately thereafter thrown out by the kidneys, whilst a third portion diffuses into every tissue, and in especial attaches itself to the red blood corpuscles, those bodies which are more immediately concerned in the circulation of oxygen. "Hence speaking generally," says Dr. Bence Jones, "the more iron we absorb, the more blood

globules we form, the richer also the muscles become in hæmoglobin, and the more oxygen is taken to the capillaries, and the more oxidation proceeds in the tissues and in the blood." To this view we shall not object be it true or be it false; but the weakness of a system of classification like this may be readily exposed by pointing out what follows in the same category. Almost immediately follow the alkalies, which are described as potent oxidizing agents, as are also chlorine, bromine, and iodine. Now, let us for a moment compare the effects of these substances in the animal economy. Iron, bicarbonate of potass, and iodine, are so frequently prescribed, that no one can well have helped coming to some conclusion as to their effects, if not as regards their mode of action. But what is the case? would any one prescribe these substances, indiscriminately, or substitute the one for the other, and expect the same result in all instances? If he did, we can only say that he would be grievously disappointed. In fact, iron would seem to have an action totally diverse from, if not completely opposite to, those of iodine and the fixed alkalies. The last two are spoliative remedies; under their prolonged use the patient is weakened; but this is far from being the case with iron, it may promote oxidation or it may not, but its effect is essentially to strengthen not to weaken the human frame. Hence any comparison with other remedies merely because they both happen to be oxidizing agents—this, however, not being their most prominent characteristic—will not hold good. We might select other illustrations, but these are sufficiently pointed to show that, granting these substances to have the common effect of oxidizing agents, such an action, looking at their diverse effects, cannot be the only clue to their mode of influencing the system, still less the guide to their proper administration.

Now let us turn to Dr. Headland's work; here we are met face to face with the doctrine of *vital action*. This author says, "We are led to infer that the influence of medicines must for the most part be vital in its nature—that it must be such as could only be exerted in the living body."

What a bugbear in the way of scientific progress this doctrine of vital force has proved; it is such a comfortable way of shelving an uncomfortable inquirer to introduce a force about which nobody does or can know anything! It has again and again been attacked in these pages, yet it still continues to flourish; it is not exactly in our way, yet we cannot resist the temptation of saying a word on the subject. Up to the time of Lavoisier, every process in the human body was looked upon as the result of vital action, and as regulated by occult influences. He first showed that respiration and oxidation were to a certain extent

synonymous terms, and in conjunction with Laplace proved that heat is generated in the body in exactly the same way as in an ordinary fire. Magendie did much to remove circulation and absorption from the same list, and now we trust digestion will soon be on a similar and even more secure footing. Everywhere the doctrine that a peculiar specific force rules and regulates all actions in living beings, is giving way to the doctrine that force is one and the same, however veiled in its manifestations, and however varied the forms of matter through which it makes itself known. In the presence of such facts, any attempt at making vital force the fundamental doctrine of a system of therapeutics is ill-judged. Dr. Bence Jones's attempts at classification are for this very reason more satisfactory than Dr. Headland's more elaborate system. The former is at least eminently suggestive as much by its deficiencies as by its merits. Dr. Headland's is as it were *ne plus ultra;* its fundamental doctrine is occult influence, whereby we are at once carried beyond the reach of mortal inquiry.

Dr. Headland is, however, far too able a man to allow himself to be hampered with this dogma, when it is evidently untenable; the pity is he should have burdened himself with it at all. If we take his restorative group, of what he terms hæmatic medicines, we find that this comprehends *aliments, acids, alkalies, tonics, chalybeates,* and *solvents,* of which it seems to us that only one really conveys the notion of vital action, that is, *tonics.* Carbon taken as food acts the same way in producing muscular motion as it does in giving force to a steam engine. The chemical affinities of acids and alkalies are not different within the body from what they are without it; so we might say, with the exception mentioned, of the others. Again, in his explanation of the use of alkalies in gout and rheumatism, Dr. Headland looks at the subject entirely from a chemical stand-point; the matter seems to him easy of explanation on ordinary principles, and no vital action is introduced. Let us hope that in time it may be so of all diseases and all remedies. No doubt that period is far distant; but if such a position be attainable, the propriety of filling men's minds with vitalistic theories, and their memories with words that mean nothing, is to say the least of it questionable; whereby it may be rendered possible to avoid the use of both is another, and, perhaps, a more difficult matter. We the more regret to find fault with Dr. Headland's work, inasmuch as it contains much that is admirable, much that is sound and practical, with a good deal of the kind of theory to which we object. Still a critic is nothing if not critical.

An important obstacle in the way of therapeutic advance is

illustrated by both of these works; again and again we come across inferences stated as observed facts; no distinction is drawn between that which has been actually proved, and that which is merely hypothetical or inferred. Turning at random to Dr. Headland's work, we open at page 337, where the author is speaking of the relative value of purgatives and astringents in the treatment of diarrhœa. "The symptom *i. e.* diarrhœa," he says, "depends upon the fact of something being found in the blood which ought to be excreted from it. The matters to be excreted are irritating, and such an excitement may be caused in the glands by their passage out, that even after the necessary secretion, an inordinate and unnatural flux may be maintained." In the first instance, therefore, he advises a purgative, in the second an astringent. To his practical conclusions we most cordially accede; they are sound enough and judicious enough to satisfy any one; but when we come to consider the reasoning whereby the procedure is justified, we cannot avoid being struck by the altogether hypothetical character of the secretion either in the blood or out of the blood, and the total ignoring of such simple explanations as those afforded by half digested food, irritant poisons, and so on as causes of diarrhœa. This style of argument is not inherent in vitalistic doctrines, although these undoubtedly foster a loose kind of logic. Moreover, they not infrequently lead to explanations involving occult causes when a *rationale* far more intelligible and much more simple exists in the physical and chemical properties of the medicinal agent, or in the better understood laws of physics.

We shall select two instances from Dr. Headland's work. This author tells us, at page 350, that "In cases of congestion on account of cardiac disease, digitalis, which by powerfully weakening the force of the heart, both diminishes congestion and favours absorption, is a most efficient promoter of the natural function of the kidneys." Here we have to encounter the old stumbling-block of over-action, with its concomitant dogmas. A simple enough process is enveloped in a mist of words. The heart is neither more nor less than a self-acting forcing-pump, working in the middle of a closed tube. If its valvular apparatus goes wrong, so that a certain quantity of the fluid is driven backwards at each stroke, the fluid must accumulate on that side, and the balance of the circulation be thereby disturbed. The accumulation will begin first where the current is slowest, *i. e.* in the lower extremities; but afterwards the whole venous system, including the renal veins, becomes choked up, until at last the engine fires of the cardiac pump are drowned out, and death takes place, if the individual has not been previously carried off by some inter-current malady. What would an en-

gineer do if he had no means at his command whereby to remedy the valvular mischief? Surely not weaken the force of his engine, but, by adding strength and regularity to the pump-stroke, try to make up for its serious valvular leak. So do we when we give digitalis, for it is not by weakening the heart's action that we can get rid of the venous accumulation in the lower limbs and kidneys, and substitute the natural diffusion of a constantly renewed current, rich in diffusible material for the transudation of an almost stagnant mass of blood-serum, and corpuscles. It is probable, however, that digitalis acts directly on the capillaries of the body generally as well as on the heart itself. Again, when treating of certain other diuretics, volatile and saline, Dr. Headland, in speaking of their modes of action, totally overlooks the physical property of diffusibility. In the introductory portion of his work he speaks of the purgative and diuretic effects of salines, with reference to their endosmotic action. On this point his remarks are very good, although we might be inclined to join issue with him on certain particulars. We shall now, however, limit ourselves to diuretics. We therefore maintain that the clue to the diuretic effects of many substances rests essentially on their diffusibility. We are told that "alcohol, ether, and nitric ether, act powerfully, both on the kidneys and on the skin." The author might have justly added, "and on the lungs also." Alcohol, when taken into the system, escapes, partly altered, partly unchanged, by the lungs and by the kidneys. It carries with it a certain amount of watery fluid, hence the urine is limpid and abundant. Soon, however, the secretion of this watery urine stops; there is excess of solid matter in the circulation; thirst is felt, and the urine becomes scanty and high coloured.

We again express our regret at having to find fault with Dr. Headland's work. We perfectly admit the difficulty of framing any hypothesis as to the modes of action of many medicines; but the established notions are too much calculated to do harm to be passed by without remark.

Turning next to the work founded on that of the late Dr. Pereira, and edited by Dr. Farre and Messrs. Bentley and Warrington, we find that into 614 pages is compressed the matter which in the last edition of Dr. Pereira's great work occupied upwards of 2500 pages. The epitome to which we refer is not in accordance with the last edition of the 'British Pharmacopœia,' and will not, therefore, now come prominently before the public. This we believe is so far fortunate, for the work is in reality spoiled. An abridgment of Pereira was a mistake. The big work was not a student's book, and could not well be made so, what should have been

done was to revise the careful and elaborate volumes left behind him by the distinguished therapeutist, to bring them thoroughly into accord with modern notions, to reject what was false or antiquated, but to leave them still a monument of the zeal and industry of their author. The abridged edition is neither one thing nor another; as it now stands it contains much which Dr. Pereira, had he been alive, would have expunged or altered; whilst much is excluded which he would certainly have inserted in his text. The fault we find is, that while undergoing alterations, enough has not been done to bring the work abreast of modern science. Two instances will suffice as well as a hundred. Take the article on chloroform; nothing whatever is said in it of any researches of recent date, nor is there any indication of the great amount of knowledge which has been now collected as to the causes of death in individuals under the influence of chloroform. In fact, the editor would seem to have stopped with Dr. Snow, and to have ignored almost everything since his day. Take, again, an illustration from the article on a substance of equal, if not even greater, importance than chloroform—we mean opium. Turning to the portion, which relates to the use of opium in inflammatory affections, we find such expressions as these:—"After bleeding the patient to syncope, a full opiate is to be administered." "In acute pneumonia when bloodletting has been carried as far as the patient's safety will admit, but without the subsidence of the disease, I have seen the repeated use of opium and calomel of essential service." Now, without entering into any discussion as to the rights or wrongs of bloodletting, we can at least safely say that such expressions are not consonant with modern medical practice, and ought not to be included in a work apparently intended as a text-book for the modern student of medicine. Again, if we turn to the list of disinfectant substances here given we might expect, considering the importance which hygienic medicine—if we may use the expression—is every day more and more assuming, that in a work of this kind, *i. e.* not a purely elementary one, a list (as complete as possible) of these useful bodies, as well as some hints as to their relative modes of action would be included. What do we find? Permanganate of potass is given in the list, but not a word is said of its mode of action, whilst some very useless substances are so honoured; then again, carbolic acid is not even mentioned, although in extensive use since 1859 at least. We have said enough, however, to prove one point, and that is, if Pereira's work is to be remodelled, the work must be done thoroughly, or not at all.

The next work we take up is also a posthumous production,

that of the late Dr. Neligan, edited by Rawdon Macnamara. What we have to complain of in this instance is that we have now more Macnamara than Neligan, for instead of being diminished in size, as is the case with Pereira's work, this by Dr. Neligan has been nearly doubled in its dimensions. Neligan's work was for a long period the favorite text-book in many schools, both in Ireland and Great Britain; but we question much if its utility has been increased by the additional matter Mr. Macnamara has introduced. One obnoxious feature is the constant sense of the editor's personality thrust upon us by the continued reiteration of the *I.* Cases are introduced, the most important feature associated with which would seem to be that they were treated (generally successfully) by Mr. Macnamara. Another objectionable characteristic is the introduction of the names of Dublin manufacturing chemists. Their English *confrères* may, we think, justly complain of this, which, in a lecture, may be very useful, but in a book intended for the general medical public, in all parts of the kingdom, is to be deprecated. Words wrongly spelled are not uncommon; this is especially noticeable in the instances of the names of foreign authorities, and the inflections of the Latin terms in the materia medica. Still, on the whole, these are minor faults. The book is a good book, but would be the better for condensation. The practice, by the way, of arranging substances according to their modes of action, is very inconsistent in a text-book of materia medica. Many substances have a variety of effects, and one never knows where to look for such, as they may be found under various headings in different parts of the work.

The plan adopted by Drs. Royle and Headland and by Dr. Garrod, of first giving a description of the articles according to their natural history arrangement; and in a concluding chapter describing, under different headings, the therapeutic effects of these substances is, we think, preferable. The plan adopted by Dr. Garrod in former editions of his book, of giving no such clue to the effects of various remedies is also one, we think, to be deprecated, implying, as it does, the recollection of every article of the materia medica when a substance possessing a desired influence is to be selected. There is thus afforded no clue to the grouping together of medicinal substances, and any arrangement, however faulty, is better than no classification at all.

But, to return to Mr. Macnamara's work, we would notice a good practical hint connected with decoction of poppies. He says that the decoction is much improved by having the seeds left in the capsules, these imparting to the decoction a mucilaginous principle, soothing to an inflamed surface, but that it may be rendered still more valuable by the addition

of half an ounce of laudanum and a couple of drachms of the carbonate of potass to each half pint of the decoction. The potash acts as a detergent on the skin, and enables the active principles of the poppy to be more closely applied to its texture. There are many good hints of this kind scattered throughout the book, but they not infrequently occur in out-of-the-way corners, where they are too apt to escape notice. The plan which is followed by the author may be illustrated by selecting an example from the organic division of the materia medica, or, as in this work these substances are classified according to their actions, we shall say, from the list of narcotics select opium. In describing opium, Mr. Macnamara first gives an account of its preparation, which is followed by its characters, and this, in its turn, by the physical properties of the different kinds of opium. Mr. Macnamara here falls into a slight error (slight errors are the bane of the book) in speaking of the Rumex *capsules* covering Smyrna opium as *seeds*. Then follows a fair *résumé* of the chemistry of the substance; but here, again, minute accuracy is wanting when dealing with the mode of detecting opium. The pharmacopœial tests and the ordinary adulterations of opium are next described, after which we come to its physiological effects and therapeutic uses. The various preparations with their doses, and a list of incompatibles, conclude the section. It will thus be seen that Neligan's plan is essentially preserved; and a very good plan it is as long as materia medica and therapeutics have to be studied together.

We must now leave this volume, and direct our attention to two popular English works—'Royle's Manual,' edited by Dr. Headland; and Dr. Garrod's 'Essentials of Materia Medica and Therapeutics.' Were we to separate our subject, as is often done in Germany, into pharmacognosy and pharmacology, we should be inclined to relegate Dr. Royle's work to the class dealing with the former, rather than to that treating of the latter subject; it is rather a work on the materia medica than one on therapeutics. In its inorganic portion the chemistry of the substances described occupies too much space, and comprehends details which belong rather to the domain of pure chemistry than to its application to medicine (and while we are finding fault we may as well say that the introduction of the double chemical notation as in the present pharmacopœia, instead of a retention of the old one merely, would have been advisable). In the case of such a substance as sulphur much need not be said of its chemical properties in a purely medical treatise, yet out of the three and a quarter pages devoted to its consideration in this work, not much more than the quarter relates to its therapeutics. Again, in the case of mercury, thirteen pages are occupied with

the descriptionof itself and its compounds; only one page is devoted to the consideration of its effects on the system; and a line or two is appended to each preparation, indicating in general terms its uses in disease. Full details as to chemical transformations and manufacturing processes are of interest; but the portions of real value to the medical man are those referring to action and application. This work, as well as the abridgment of Pereira, we have noticed contains many figures of medicinal plants. At the end of the book is a very short chapter on the actions and uses of remedies, in which they are classified according to their effects on the system. This somewhat makes up for the small space devoted to their consideration in the body of the work; but the work is essentially one for the advanced student, or for the man who desires to make himself master of the subject of pharmacognosy or pure materia medica, rather than of therapeutics. In all essentials the views here expressed are those contained in Dr. Headland's work on therapeutics, which we have already considered.

Dr. Garrod's is, perhaps, the favorite text-book among students; for their use it is specially framed, and we cannot but say that its popularity is well merited. In the present edition what was objectionable has been, as far as possible, remedied, especially in those portions relating to chemistry, which have been thoroughly revised and several inaccuracies removed. Both the old and the new notation are given, but the old is, we think, very properly considering the present state of feeling on the matter, subordinated to the new. It is a book for students rather than for practitioners, and most of the former now studying in our London schools have been instructed in accordance with the new system of chemical notation. The portions relating to the actions and uses of the several remedies have been also carefully revised, in some parts extended, and in many remodelled. The paragraphs if short are exceedingly *àpropos* and to the point; if more extended, they would be less useful to the student. The last chapter on therapeutics we have already alluded to; it adds much to the usefulness of the book. Dr. Garrod properly insists on simplicity of prescription if we want to obtain anything like an accurate knowledge of the action of drugs. At the same time he points out the value of judicious combinations as of salts and senna in the common black draught, to which we might add iron with quinine in many cases of debility, acids and alkalies, with bitters and so on. The author also describes the various methods of introducing medicines into the system, with the relative advantages of each. In his classification of remedies, the author divides medicines into those which act on the blood, those which affect the nervous system,

those which affect the heart and circulatory organs generally, and those which act on special organs, along with two subordinate divisions made up of external remedies and mere chemical agents as disinfectants. Now, without entering into any discussion of the scientific value of this classification as to exactness and comprehensiveness, we may, we think, admit its usefulness especially to the student. If a man has got a clear and distinct idea of what he wants a remedy to do, this arrangement, which is, perhaps, little more than a kind of *memoria technica*, will enable him to find out the substance apparently most suitable for the case without any very great difficulty. It is not by any means scientific equal of the classification adopted by Bücheim, but we are not prepared to say that it will prove less useful; and this should never be forgotten when dealing with a student's book.

The late Dr. Scoresby Jackson's Note Book is also essentially a student's book, but it has the disadvantage of having been published previous to the appearance of the last edition of the 'British Pharmacopœia.' Owing to its lamented author's death, revision so as to put the book in accord with the pharmacopœia of 1867 was intrusted to the able hands of Dr. Angus Macdonald, the successor of Dr. Jackson in the chair of Materia Medica, at Surgeon's Hall, Edinburgh, and the result has appeared as a separate appendix. Such a plan, however, is always unsatisfactory, and the book suffers accordingly. We are the more sorry for this, as in some respects we are inclined to rank Dr. Jackson's work as the best we know for student's purposes. It is more evenly balanced than Royle or Neligan, and it is not so limited in its scope as is Garrod's work. A feature which it possesses we consider of great utility: there is an introductory portion relating to the sources of medicines, their active principles, their preservation, the characters of the various officinal formulæ, the nature of prescriptions, and the art of framing them, with many other matters not generally included in works of this class. When in former days every one had to serve an apprenticeship, a knowledge of the different kinds of pharmaceutical preparations was practically acquired; now-a-days, however, this system of apprenticeship is continually losing ground, and it becomes the more necessary that men should be elsewhere taught something of the principles at least of pharmacy. Too little stress is laid on the art of writing a good prescription; students are not sufficiently instructed in this matter, and hospital practice, where most of the substances prescribed are kept ready mixed, is not the best school for acquiring such a knowledge. Some very good rules and recommendations are laid down by Dr. Jackson as to the uses of remedies, but in his prescriptions he adheres to the old arrangement of basis, adju-

vant, corrigent, and vehicle which is not, perhaps, in exact accordance with our modern notions of simplicity. Much is said as to the rules for giving medicines, but we have seen in no modern book advice superior to that given by old-fashioned Gaubius in his work on 'Prescribing.' Many men would do well to read his aphorisms now. The contents of the 'Note Book' are not limited to those of the Pharmacopœia; many other substances useful as medicines are shortly described, and their uses as far as known succinctly enumerated.

Between Waring's 'Manual of Therapeutics' and the volume just considered there are a good many points of resemblance and certain characteristic differences, the most important of the latter depending on the intention or purpose of the book. Waring's treatise is one adapted for the practitioner rather than for the student, and is, perhaps, more useful to the Indian medical officer than any other work of the same description. This was to be expected from the author's prolonged and intimate acquaintance with the medicinal substances afforded by our Indian possessions. The work itself is a monument of indomitable perseverance, having been undertaken and, we may say, accomplished in one of the most remote spots of Further India; but notwithstanding a most complete and careful revisal in the second edition, the volume bears traces of this mode of origin, for to write a great work on therapeutics the author must have at his command not only the resources of a large and carefully selected library, but have the means of testing at the bedside the doctrines he is called upon to enunciate. In this work by Dr. Waring we have collected together an enormous number of therapeutical memoranda, some of great value, some of less than no value at all; it is this inequality which deprives the book of a portion of its utility. It is really rather a dictionary of therapeutics, for it is arranged on the alphabetical plan, than a select treatise on the same subject. It bears some resemblance to the German work of Clarus, but is inferior to it in certain particulars, although superior in others. One of the most important defects noticeable is the almost total neglect of the physiological action of the various remedies enumerated; that is to say, their effects on the diseased system are considered to the almost total exclusion of their influence on the healthy body. To obtain a sound foundation for therapeutics, the latter must be considered as well as the former; they afford a means of determining whether a remedy has been judiciously or otherwise selected in a given case, and should never be neglected in any work devoted to therapeutic science. Apart from these objections, which are after all trifling compared with the great value of the book, we must confess that it is

likely to be of good service to the practitioner, who is often put to his wit's end in selecting a remedy appropriate to a given case. So also in varying remedies from time to time as is often necessary and advisable, the practical hints with which the work abounds will be found especially useful. The kind of index of diseases with their remedies found at the end of the book will not be without its uses. Altogether, in a future edition, this work would be better for condensation rather than extension, except in that which refers to the physiological actions of medicines. Notwithstanding, there is no book in the list above enumerated more likely to be of use to the busy practitioner.

Dr. Wahltuch's work is also intended for the use of the practitioner rather than for that of the student; its arrangement is tabular. The various preparations of the British Pharmacopœia are given in order, and one peculiar feature is that the synonyms of the preparations are given in Latin, English, French, German, Italian, and Russian. In some respects this plan is good, in others objectionable; one strong point against it is that preparations possessed of the same names are used in different countries of varying strengths; and this uniform nomenclature, without uniformity of strength or composition, might give rise to seriously inconvenient results. Another column contains briefly the characters and composition of the substance; a third, its physiological and therapeutical effects; a fourth, the dose and form of administration; a fifth, the preparations into which the substance enters; and, finally, there is a column containing illustrative prescriptions selected from various sources. It will be easily understood that these several columns cannot always be of the same length in the instance of each substance. A great waste of space is the consequent result, with, of course, enhanced price, and, it must be confessed, from the columns running across the page instead of from above downwards, with considerable inconvenience. Towards the end of the volume the various remedies are classified according to their therapeutical influences, as alteratives, anæsthetics, and so on. We do not seem to be altogether able to follow the author here, for sometimes we find very curious substances under certain headings. No exact rule would seem to be followed beyond the arbitrary and varying pleasure of the author. Further, this and other portions of the work are disfigured by far more than the ordinary proportion of words wrongly spelled, which we fear cannot be altogether attributed to the printer. Altogether, then, in pronouncing on this work, we find in it a good deal that is likely to be useful, the result of protracted labour; but we can only wish that the

labour had been rather more protracted, and the work turned out in a more perfect state.

With a considerable feeling of relief, for it pains us to find fault with a work which must have cost much time and trouble, we turn to the consideration of Stillé's now well known work, one which is popular on both sides of the Atlantic. In this department of medical knowledge America has contributed her fair share in the esteemed works of Wood and Stillé; but it is with the latter we must chiefly concern ourselves. The United States' 'Pharmacopœia' contains several articles not included in our officinal lists; most of these are indigenous to America. Many are but little known in this country; and whilst some deserve little or no esteem, a considerable proportion ought to be more generally introduced and more generally employed. The *Cornus florida*, or dogwood, is a remarkably good, simple bitter. Of still greater value is the *Prunus Virginiana*, the inner bark of the *Cerasus serotina*, which grows abundantly in various parts of the States. This substance is of remarkable efficacy in certain forms of dyspepsia, and also in some kinds of heart affection. Other remedies of a like kind may be enumerated. It is probable that *Rhus toxicodendron*, if more carefully investigated, might also come into more general use; having fallen almost exclusively into the hands of homœopaths, its reputation has, perhaps, unjustly suffered. *Veratrum viride*, even though now officinal, has not yet attracted in this country the attention which it deserves; it has been extensively employed both in America and on the Continent. Its uses are varied, but appear to depend on its power of controlling the circulation; it has been found of great value in such diseases as acute rheumatism, pneumonia, heart disease, and some others. It amply deserves more widely extended recognition. Of somewhat similar character is *Cimcifuga racemosa*, which is also a good deal used in America, and appears to be especially useful against rheumatism of an acute character.

Dr. Martyn Paine's book is, to say the least of it, curious; it contains a vast amount of matter gathered from all sorts of sources, all of which the author brings to bear on his own peculiar theories. Dr. Paine has two well-marked characteristics from the point of view whence we contemplate his writings. He is an intense vitalist, and a thorough believer in bloodletting. Indeed, with regard to the latter portion of his creed, he endorses the belief of Botalli, viz. that "one hundred thousand men perish from the want of bloodletting, or from its not being timely employed, when one perishes from excessive bleeding where prescribed by a physician." This, of course, refers to the period when bleeding was more common than it now is. Com-

ment on such a dogma is unnecessary. Dr. Paine may be right, and we may be wrong; we can, however, assure him that there are not many now of his opinion, at least in these islands. His favorite notion, for the origination of which, indeed, he claims all honour, as to the mode in which remedies act, is that they give rise to reflex nervous action, which influences the affected part according to the character of the original stimulus, or, as he expresses it, produce "a substitution of pathological conditions by remedial agents, through reflex nervous action, more favorable to the law of recuperation, than such as had been impressed by the truly morbific causes and their progressive nature." We have already said enough to convince most people that this law is not universal, if, indeed, it exists at all. Dr. Paine does not believe in the validity of physiological experiments made with drugs, in order that we may obtain some insight into their mode of action in disease; he even rejects arguments drawn from the effects of drugs administered to a healthy human being. Again we say Dr. Paine may be right, and we may be wrong; but we have on our side the men whose opinions are best worth having when such matters are undergoing discussion. Further, Dr. Paine will have nothing to say to chemistry as an aid to the physiologist, still less to the therapeutist; in fact, he speaks of "the fallen fabric of organic chemistry." Again we must say that Dr. Paine puts himself in opposition to men whom we are accustomed to consider the first of the day, to say nothing of such humble individuals as ourselves. We need hardly state after this that Dr. Paine is strenuously opposed to what we are accustomed to consider the grandest generalisation of modern times—the correlation of forces, the conservation of energy. Still, the perusal of such a book as that written by Dr. Paine is not without its advantages; it shows, at least, that there are two sides to a question; and no one can deny the ability and energy with which Dr. Paine maintains his position.

From what has been said in noticing each work successively, it will be seen that our introductory remarks as to the unsatisfactory position of therapeutics have been fully justified. Each work contains a mine of information; but what we now want is exactness, not extent of knowledge. Every day sees new applications of the exact sciences to the study of vital phenomena; and it is this accuracy, now becoming more and more apparent in other departments of physic, which makes us recoil from the accumulated stores of crude and badly digested information bequeathed to us by our predecessors. Therapeutics are really now in a better position than they have ever heretofore enjoyed; it is only the advances of other departments of medicine which exposes these defects. What we now want is not the brilliant

discoverer, but the painstaking man of science. The *rôle* is not, perhaps, so distinguished, nor so pleasant. It is certainly far more useful.

Review II.

Clinical Lectures and Reports. By the Medical and Surgical Staff of the London Hospital. Vol. IV. 1867-68. Edited by Dr. Clark, Dr. Down, Mr. Hutchinson, and Mr. Maunder. Pp. 521. London.

The present volume of the 'London Hospital Reports' is in no way inferior to its predecessors either in the interest or the variety of its contents. The following is an abstract of the reports and lectures of which it consists, and we may mention that some of the papers are illustrated by well-executed engravings.

Further Observations on Lumbar Colotomy for the Relief of Intractable Diseases of the Rectum, with four cases of operation. By W. Curling.—This paper is a continuation of former communications made on the same subject by the author, and his object is to show that great relief from distress and pain, and in some instances even prolongation of life, have resulted from the operation. The first case was one of cancer of the rectum, and although the patient died ten months after the operation, his sufferings were very materially relieved, and he recovered sufficient strength to be able to walk about until the disease advanced to its fatal stage. He obtained regular evacuations for a considerable time from the artificial anus. The next case was one of intractable stricture of the rectum in a farm labourer, and an artificial anus was established in the left loin by means of Mr. Curling's operation. The result was very satisfactory as far as the relief of the pain and other inconveniences was concerned, but the constitutional improvement was not so great as was to be desired, owing probably to the cachectic condition of the patient and his indigent circumstances. In the third case the patient was an unhealthy-looking woman, in whom the indications for the operation were not favorable, and Mr. Curling performed it only at her own urgent request. It was followed by constant sickness, and death from exhaustion ensued in eight days afterwards. The fourth case was one of

obstruction from carcinomatous stricture of the colon in a woman with deformed spine. The obstruction had lasted twelve days; the abdomen was greatly distended and tympanitic, and its walls were so thin that the course of the distended transverse colon could easily be distinguished. Mr. Curling concluded that the cause of the obstruction was stricture of the sigmoïd flexure of the colon, and he proposed colotomy as the only measure likely to give relief. He accordingly performed the operation, which was followed by temporary relief, and the patient took food well for three days, when her strength gradually failed, and she died six days after the operation.

Four Lectures on Compression of the Brain. By JONATHAN HUTCHINSON, F.R.C.S.—In these lectures Mr. Hutchinson describes several cases of compression of the brain which have fallen under his notice, and he points out, as the result of his experience, the great difficulty of forming an accurate diagnosis of this condition during life, more especially as the descriptions given by authors do not always coincide with the facts actually observed. The symptoms said to be due to compression are sometimes caused only by laceration, and, on the other hand, compression is sometimes present when its characteristic symptoms are absent or obscure. Again, examples of unmixed compression are very rarely met with, and in the great majority of cases the injury is complicated with concussion and laceration of the brain, and a mixed group of symptoms is the result. Mr. Hutchinson adduces a very remarkable example of the difficulty often attending the diagnosis of compression, in the case of a man in whom the upper surface of the hemisphere of the brain was hollowed into a sort of basin of the size of an adult fist in consequence of an effusion of pus between the dura mater and the cranium. But the existence of compression was not even suspected during life, although the patient was attended by half-a-dozen hospital surgeons, including Mr. Hutchinson himself. It was conjectured by the appearances observed after death that the purulent effusion was due to syphilitic inflammation of the cranial bones, and if the diagnosis of effusion had been made during life, it is evident that relief would have been afforded by the use of the trephine.

In his concluding remarks Mr. Hutchinson observes that the diagnosis of compression is full of difficulty, for on the one hand this condition is frequently suspected when it is not present, and on the other it is sometimes overlooked when it really exists. In some cases it is caused by effusion of blood between the dura mater and the bone, after injury to the head; in others it results from extravasation into the arachnoïd sac;

in a third class from abscess between the dura mater and the cranium; and lastly, from inflammatory effusions within the arachnoid membrane, or into the brain substance. Besides these causes of compression which fall under the notice of the surgeon, there are others, perhaps more common, which occur in medical practice. In speaking of effusions of blood between the bone and dura mater, Mr. Hutchinson observes that they are specially important, because they are generally supposed to be capable of relief by treatment, and yet, as far as he is aware, the annals of modern surgery do not relate any cases in which life has been saved by trephining in such a condition. He infers that death usually occurs too quickly and too suddenly to permit of either diagnosis or treatment. Mr. Hutchinson makes no remarks as to the compression said to be caused by depressed bone, because he has never seen a case in which there seemed definite reason to believe that depression produced symptoms, although it is possible that they may be caused when the depression is very great, and the fragment very large.

A Case of Stricture of the Œsophagus after swallowing Caustic Potash; Gastrotomy proposed but not performed. By Jonathan Hutchinson, F.R.C.S.—The case recorded is that of a lady who drank by accident some fluid in a tumbler, and which, although resembling porter in colour, was, in fact, a substance consisting chiefly of caustic potash in a state of deliquescence, and used by distillers. The lady's husband also tasted some of the fluid, and finding it to be very caustic, supposed it to be sulphuric acid; and the medical attendant who was called in, being informed that sulphuric acid had been swallowed, administered magnesia and milk, of course without much benefit. The lady and her husband both suffered from soreness of the mouth and throat for some days afterwards, but in three weeks they were very much better, and the husband entirely recovered, but in the lady the symptoms of a contracting stricture of the œsophagus were gradually developed. She was unable to swallow anything except the thinnest fluids, and only in very small quantities. Bougies were employed, and two strictures were encountered, the first being passed, but the other being impassable. When Mr. Hutchinson was called to see the patient, she appeared to be rapidly sinking, and could swallow nothing. He again tried bougies of various sizes, after the lady had been placed under the influence of chloroform, but although the upper stricture was easily passed, the lower one was impassable even by a No. 8 catheter. Under these circumstances, and under the impression that the patient would inevitably sink unless some decided steps were taken for her relief,

Mr. Hutchinson proposed the operation of gastrotomy, to which proceeding assent was readily given, and the next day was fixed for its performance. Fortunately, however, the lady became so much better in the interval that the operation was delayed, and during the succeeding week she continued to improve in the capacity for swallowing, and took daily fair quantities of food. As time advanced, her condition still continued to improve, and without any use of bougies she took fluid nutriment perfectly well. A year after the proposal of the operation the lady was in better health than she had enjoyed for many years, although she still suffered from the stricture, and she could swallow solids only when carefully minced. She had also gained two stone in weight. Mr. Hutchinson candidly observes that this lady had a very narrow escape from a very dangerous operation, although he contends that its recommendation was fully warranted by the prevailing rules of surgery. He states that the case made so great an impression on his own mind, that he cannot conceive any circumstances which could in future induce him to abandon the bougie and resort to gastrotomy. He also takes occasion to observe that there are several other surgical procedures of a very dangerous nature, which are sometimes resorted to with fatal consequences, and which might be advantageously omitted, not only without danger to the patient, but probably to his great advantage, and the saving of life.

A curious case in which Incontinence of Urine was the first and almost the only Symptom of Prostatic Retention, with Secondary Disease of the Kidneys. By JONATHAN HUTCHINSON, F.R.C.S.—In this case the patient suffered from involuntary discharge of urine, which at first suggested the probability of diabetes or Bright's disease, but no sugar or albumen could be detected. Dr. Peacock thought that, although some of the urine was voided, a large residuary quantity might be retained; and this opinion proved correct, for on the employment of the catheter a large quantity of water was drawn off. The patient now ceased to suffer from incontinence, but he also ceased to pass his urine voluntarily, and the use of the catheter was required daily. Mr. Hutchinson found on examination by the rectum that the prostate was enlarged, but still the catheter encountered no obstacle at the neck of the bladder. The condition of the patient became rapidly worse, and yet no definite cause could be assigned for the symptoms, and death ensued after a state of somnolence. The post-mortem examination revealed the facts that the ureters were as large as small intestines; that the right kidney was a mere bag filled with fluid; that the left was much enlarged and inflamed; that the bladder

was of large size, with thick fasciculated walls, and that the prostate was moderately enlarged, but that an almost pedunculated lobe projected from it into the bladder. Mr. Hutchinson observes that the whole kidney mischief was secondary to concealed and unsuspected retention, which had probably existed for some time, and that if the condition had been recognised at an early period the remedy would have been found in the use of the catheter, or in the establishment of a permanent fistula above the pubes. In the case described, however, the patient complained of so little uneasiness, and attended so regularly to his business every day, that no serious danger was apprehended even by himself; and the only complaint he made was, that he frequently wetted his bed, and lost his urine while walking.

On Ligature of a Main Artery to arrest Acute Traumatic Inflammation. By C. F. Maunder.—Mr. Maunder observes that the withdrawal of blood in the treatment of inflammation has generally been recognised as a valuable method of treatment; and even although general bleeding has been little employed of late years, yet the local abstraction of blood by leeches and scarifications is still adopted with success. He argues that if the withdrawal of blood from the inflamed part is beneficial, it would be still more advantageous to cut off the arterial supply to the inflamed structures by means of a ligature, and at all events this plan is highly conservative, as no blood is withdrawn from the patient. Mr. Maunder then compares the results likely to ensue when an inflammation in or about the knee-joint, for instance, is treated on ordinary principles or by ligature of the femoral artery; and although there is great danger in either case, yet he inclines to give his opinion in favour of the treatment by ligature. He then adverts to a case treated on this suggestion by Mr. Little, the patient being a man aged thirty-three, who had sustained a lacerated wound above the patella opening the knee-joint. The results of the proceeding were very satisfactory, and, indeed, the application of the ligature was attended with immediate relief of the symptoms. But the question also arises whether the use of the tourniquet would not be attended with as much success as the ligature of the artery in such cases as are now alluded to; and in fact Mr. Jackson, of Sheffield, has treated successfully a punctured wound of the knee-joint by compression of the femoral artery with a tourniquet. Mr. Maunder therefore compares the results of ligature and of compression by the tourniquet; and while he admits the dangers attendant on the use of the ligature, he thinks that they are probably exaggerated, the

experience of surgeons being chiefly derived from cases of aneurism thus treated. In these last-named cases the arterial system is known to be diseased, while in traumatic inflammation the arteries are in all probability healthy. Still, there are advantages in favour of the tourniquet, such as its great simplicity and freedom from direct danger, while, on the other hand, its employment involves the expenditure of valuable time, during which the disease may be making rapid and fatal progress.

On Abscess of the Prostate; treatment by Puncture per Rectum. By C. F. MAUNDER.—The subjective and objective symptoms of abscess of the prostate having been first described by Mr. Maunder, he then discusses the question of treatment. Sometimes the abscess breaks into the rectum or the urethra or the bladder, but rarely through the perinæum. But before this spontaneous rupture of the abscess takes place, the patient suffers very severely both locally and constitutionally, and the timely artificial opening of the abscess does much better in cutting short the sufferings and in expediting the recovery. Of the three modes of opening the prostatic abscess, namely, through the perinæum, through the rectum, or by forcible catheterism, Mr. Maunder prefers the second, and he describes the particulars of this operation, and also details three cases in which it was successfully performed. The instrument to be used is a *bistouri caché* for opening the abscess, and when the opening is made, a pair of dressing forceps should be introduced into the abscess, when on separating the handles the blades will open, the wound will be enlarged, and the matter will flow.

On Human Milk. By C. MEYMOTT TIDY, M.B.—This paper contains the results of a number of analyses of the chemical composition of human milk immediately after delivery, and also from the seventh to the twelfth day after delivery; together with other tables giving the specific gravity of human milk, the analysis of goat's milk, &c. Mr. Tidy mentions some curious facts, proving that milk is secreted in the human breast, not only during pregnancy and after delivery, but even in the virgin, and in certain cases by the male. The secretion of milk in the male is said by Mr. Tidy to be much more common among the blacks and the inhabitants of tropical regions than in our own country.

Hoarseness and Loss of Voice in relation to Nervo-Muscular Affections of the Larynx. By MORELL MACKENZIE, M.D.

Lond.—In the present paper Dr. Mackenzie treats of the morbid affections of the larynx which are dependent upon derangements of the nervous system, and which, though hitherto difficult to distinguish during life, are now in some measure capable of being recognised by means of the laryngoscope, the vocal cords being seen to act irregularly in many such cases, while in others the muscles on one side or the other are visibly wasted. The nervous affections of the larynx are divided by Dr. Mackenzie into diseases of the motor system and diseases of the sensory system, the latter being, however, much fewer in number than the former. The diseases of the motor system are again subdivided by him into (1) paralysis of the vocal cords, and (2) spasm of the vocal cords. The paralytic cases are divisible into various groups, according to the muscles or the groups of muscles affected.

These divisions and subdivisions are described at considerable length and with great minuteness by Dr. Mackenzie, and illustrated woodcuts are occasionally given to exhibit the appearances presented by the vocal cords in some of these affections. It would be impossible to follow Dr. Mackenzie through the details of his paper without transcribing a large part of the voluminous descriptions and diagnostic signs in which it abounds, and in the present abstract it is only possible to advert to some of the most striking points to which he draws attention. Many of the cases described being what are called nervous or hysterical will yield to appropriate constitutional treatment, but Dr. Mackenzie attaches great importance in many nervo-muscular affections of the larynx to the use of electricity, applied by means of an apparatus devised by himself, and figured in the plates accompanying the paper. By means of this apparatus one pole of the battery is introduced within the glottis, and the other is applied externally, and the current is thus made to pass through the larynx. Dr. Mackenzie states that out of more than 200 cases which he has treated in this way, he has met with only four in which he has been unsuccessful. In certain cases, however, Dr. Mackenzie applies the current in a somewhat modified manner, the extremity of one pole being introduced into the larynx, and the other into the hyoïd fossa, so that the current passes right through the adductor of the vocal cord, to which it is applied.

In two engravings Dr. Mackenzie represents respectively a case of cancer of the thyroïd gland, and one of aneurysm of the arch of the aorta, in both of which there was paralysis of the abductor of the left vocal cord, and both of course, terminated fatally. Among the spasmodic affections of the vocal apparatus, Dr. Mackenzie describes the affection known as laryn-

gysmus stridulus, which he considers a disease of adult as well as of very early years, although there is considerable difference in the symptoms in these two cases.

Hints as to the Study of Skin Diseases. Being Abstracts from Lectures.—By JONATHAN HUTCHINSON. The object of these "hints" is to simplify the study of skin diseases by laying down general rules as to their pathology, and reducing the number of the names by which skin diseases are designated. Nearly all skin diseases, Mr. Hutchinson argues, are inflammations of the skin, either acute or chronic, and their modifications are produced by various circumstances connected with their causes, the part of the skin attacked, and the personal condition of the patient. He recommends the student to observe the different forms which these inflammations assume, as papules, vesicles, pustules, scaly crusts, pus crusts, rashes, erythema—congestion, tubercles, bullæ, vesications, &c. In treating of the simplification of the nomenclature, Mr. Hutchinson proposes to abolish the distinction between lepra and psoriasis, since the two are only variations of the same disease, while pityriasis is distinguished from psoriasis, inasmuch as the former is caused merely by exfoliation of epidermic cells. Strophulus, again, should be expunged, since it has no separate existence, but is a mere form of lichen, and the distinction between lupus "exedens" and "non-exedens" is of no value, as the difference depends only upon the nature of the part attacked. With a view, also, to facilitate the labours of the student, Mr. Hutchinson proposes to divide skin diseases into those which are common and those which are rare, although, of course, such a division is quite unscientific; and he advises the beginner to make himself acquainted first with the types of the common diseases.

A Lecture on the Treatment of Skin Diseases, being an attempt to take a Coup-d'œil of Cutaneous Pathology and Therapeutics. By JONATHAN HUTCHINSON.—In order to determine upon the best methods of treatment in skin diseases, it is necessary to divide the pathology of these affections into different sections. Thus one group of skin phenomena are due to the action of specific animal poisons on the blood, as scarlatina, smallpox, &c.; but active interference in such cases is generally contra-indicated, as they run their course in spite of treatment or without it. Another class of skin diseases belongs to the syphilitic division, and in such cases mercury is the proper remedy, or at any rate, if it is not the remedy, as Mr.

Hutchinson remarks, we do not possess one, and we must leave syphilitic maladies, like the exanthems, to disappear spontaneously. Another group which resembles the exanthems includes erythema and herpes, but is not amenable to special treatment; and a fourth group, of which urticaria is the type, is dependent on the introduction of known poisons, either as drugs or as articles of food, into the blood. A fifth group is called by Mr. Hutchinson the relapsing constitutional group, and comprises the different kinds of psoriasis, which are cured by arsenic, but are liable to relapse. The last group comprises the skin diseases which are due to the presence of animal or vegetable parasites, pus contagion, or even of lime, sugar, flour, soda, &c. After combating the idea that skin diseases are produced by dirt, debility, or poor living, and proving that the better and more careful classes of society are as subject to these complaints as the poor and the ill-fed, Mr. Hutchinson points out that the cure is not to be found merely in the adoption of hygienic measures, but in the application of medicines. Thus sulphur destroys the itch-insect, mercury destroys the vitality of pus or exudation cells, and the same mineral cures secondary syphilis; the iodides cure tertiary syphilis; arsenic is a remedy for psoriasis and pemphigus, &c. In reference to the use of the last-named drug in medicinal doses, Mr. Hutchinson states that the almost universal testimony of the patients who have taken it is to the effect that it not only cures the disease, but improves, instead of injuring the general health.

Two Lectures Introductory to the Use of the Ophthalmoscope. By JONATHAN HUTCHINSON.—These lectures describe the optic principles on which the use of the ophthalmoscope is founded, the construction of the instrument itself, the mode of using it, the physiological or pathological conditions which it reveals, and the mistakes to be guarded against by the inexperienced observer.

A Statistical Report of the Deaths occurring during the Year 1866 *among Mr. Hutchinson's Patients.* Compiled by Mr. HUTCHINSON and Mr. WAREN TAY.—It appears from this report that during the year 1866, 1142 patients were under Mr. Hutchinson's care, of whom 78 died. No special causes of hospital mortality prevailed during the year; there was very little erysipelas or pyæmia; no case of tetanus, except two admitted into the hospital as such; and there were but few deaths after operations.

Case of Fracture of the Odontoid Process, with Peculiar Symptoms. Notes of the case by Robert Debenham, Esq., with description of the specimens, &c., by JONATHAN HUTCHINSON.—In this case it appears that in consequence of a sudden jerk while the patient was wheeling a loaded barrow, a fracture and dislocation of the odontoïd process occurred; but the man lived two years after the accident, the real nature of which could be ascertained only after death, when the affected parts were examined. Mr. Hutchinson thinks it probable that the fracture occurred first without much displacement, and that the dislocation was afterwards gradually brought about with increasing compression of the cord. The symptoms did not arise until three weeks after the accident, and they subsequently passed off sufficiently to allow the man to walk about. Eventually, however, decided symptoms of paralysis supervened, attended with exhaustion and extreme emaciation under which he sank.

Miscellaneous Notes of Cases, &c. illustrating Diagnosis or Treatment. By JONATHAN HUTCHINSON.—As the title implies, these notes are of a wholly miscellaneous character, and they consist of hints upon treatment, or upon diagnosis, or some peculiar features of individual cases, or on the merits of some drug or instrument. This paper is illustrated by an engraving, apparently from a photograph, of a case of keloïd on the scar of a scald, and by a woodcut representing a case of leucoderma, observed in Portugal, where the disease, it appears, is very common.

Operative and Clinical Surgery. By C. F. MAUNDER.—This paper consists also of a series of cases of a miscellaneous character. The first is a case of colotomy, the patient being affected with cancer of the rectum, but whose life was prolonged for more than sixteen days by the operation. In seven cases of strangulated hernia an operation was performed, with the result of five recoveries and two deaths. In most cases Mr. Maunder operates without opening the sac, but he specifies the exceptional conditions under which he is obliged to do so. Four excisions of joints were performed, two of the cases being fatal from pyæmia, and two successful. Three cases of stone in the bladder were submitted to lithotomy, two being successful, and one fatal. Ligature of the brachial artery was performed in one case for hæmorrhage after amputation of the thumb, but the patient died four days after the operation. Two cases of fracture of the skull were treated successfully.

Crimean Reminiscences. By C. F. Maunder.—These reminiscences comprise the history of two cases treated in the Crimea in the year 1855. One case was a compound fracture of the skull, which terminated favorably, so far as the wound was concerned, but in a week the patient became imbecile; the other case was one of shell-wound of the knee-joint treated by amputation, followed by secondary hæmorrhage, and terminating fatally.

Miscellaneous Cases and Remarks. By John Couper, F.R.C.S.—The cases are three in number, the first being one in which a bullet was extracted from the sacrum; the second was one of congenital deformity of the pinna of the external ear, relieved by an auto-plastic operation; and the third was one of congenital tail-like appendage on an infant's back.

On Cases of Cleft Palate. By J. W. Little.—Mr. Little records two cases in which an operation was performed for this deformity, and in each a fissure involving part of the hard and the entire soft palate, was closed by one operation. This proceeding has been recommended by Langenbeck and Esmarch, and is now generally adopted in consequence of its success in the hands of those surgeons.

Description of the Trunk of a Man affected with Lateral and Posterior Spinal Curvature. By Mr. Little.—The subject of this case was a man, æt. 60, who was run over, and brought to the hospital in a comatose condition, in which he died. He was very much emaciated, and weighed only seventy-four pounds after death. A particular description is given of the measurements of the spine and other bony structures, which were very much deformed, and an illustrative plate is given of the appearances.

Case of Colotomy in Cancer of the Rectum. By Robert B, Carter, F.R.C.S.—The patient in this case was a man, æt. 34, who had suffered for more than two years from disease of the rectum. The operation was performed on the 6th of November, 1866, and he was so much relieved that he lived until the 11th of March, 1867, when he died from exhaustion. It is mentioned that the patient had been in the habit of taking a teaspoonful of powdered charcoal three times a day, under non-medical advice, for four months before the operation, but this circumstance turned out to be a great source of comfort to the patient and those about him, for the charcoal destroyed the

odour of the contents of the bowel, and there was no fœtor when the colon was opened. The operation was rendered painless by the use of the ether-spray, which accomplished all the objects that were expected from it.

Some remarks on Tricuspid Regurgitation and Mitral Pre-systolic Bruits, with Case. By Henry G. Sutton, M.B.—The murmurs which form the subject of this paper are considered by Dr. Sutton to be far more common than is generally believed; both are not infrequently met with, and in the case of the pre-systolic murmur, he believes it to be one which is very commonly presented to the physician's notice. The tricuspid regurgitant murmur is usually heard with the greatest intensity over the ensiform cartilage, but sometimes it is heard loudest a little to the left of the sternum; it is distinguished from the mitral murmur by not being heard at the angle of the left scapula. Dr. Sutton describes some cases illustrating the existence of a tricuspid regurgitant murmur, both from his own practice and from that of others, and in the post-mortem examinations it was found that the right ventricle was much dilated and hypertrophied, but there was no special disease of the tricuspid valve. There was also in many of the cases chronic disease of the lungs, and in two there was contraction of the mitral orifice. Dr. Sutton considers that the regurgitation through the tricuspid valves was brought about by the great distension of the right ventricle, which was so dilated that the valves could not close the orifice, and this condition was produced by the pulmonary or mitral disease alluded to, or, in one case, by chronic emphysema. In reference to the pre-systolic bruit, Dr. Sutton, after alluding to papers already written on the subject, relates a case which came under his own notice, in which this bruit existed, and in which the post-mortem examination showed a contracted mitral orifice, with induration of its walls. He has met with twelve cases of pre-systolic bruit during the last two years, and he agrees with Dr. Gairdner that it is the simplest of all murmurs to define.

Cases of Interest occurring in Victor Ward. Reported by Mr. F. M. Mackenzie, *late Resident Accoucheur.*—These cases are four in number, the first being one of retroversion of the gravid uterus at three months and a half, followed by abortion; the second, retroversion of the gravid uterus at three months, followed by recovery and delivery at the full time; the third, a case of hysterotomy, the operation being performed for the cure of irregular and scanty menstruation, but terminating in death;

the fourth, one of imperforate hymen with retained menses, treated by puncture, but ending in death from peritonitis.

Malignant Growth of Peculiar Structure from the Bones of the Skull of a Child. Case under the care of Mr. CURLING. *Communicated by* Mr. F. M. MACKENZIE.—The subject of the case was a boy, æt. 3 years, who presented a dusky-looking tumour, the size of an adult fist, on the forehead. He died in an epileptiform fit, and on examining the head after death it was found that the growth was of a semi-lunar shape, crossed from before backwards by vertical plates of thin bone, between which was a quantity of soft, brain-like, and very vascular substance. Appended to this paper is a note respecting a similar specimen in one of the Dublin museums, by Mr. Hutchinson, who considers that in both cases the new growth takes place between the bone and the investing membrane, either the periosteum or dura mater, as the case may be.

Cases of Disease of the Nervous System. By J. HUGHLINGS JACKSON, M.D.—This long and elaborate paper contains the reports of thirty cases of disease of the brain, which have been drawn up to illustrate various obscure points in physiology and pathology, and will be referred to hereafter by Dr. Hughlings Jackson in subsequent contributions to the Reports of the London Hospital. In their present state, therefore, the cases have only an individual and separate interest, but are remarkable for the care and fidelity with which they are recorded. Many of them are instances apparently of syphilitic disease secondarily affecting the brain, and causing neuralgia, palsy, loss of speech, and other disorders of the nervous system; many are cases of cerebral hæmorrhage, softening, and embolism, in all of which the symptoms displayed during life are minutely related, wherever it is possible to do so, and the appearances after death carefully noted; and there are also some cases where the cerebral disease appears to have been caused by external injury, or to have been propagated from the external to the internal structures. Dr. Hughlings Jackson has employed the ophthalmoscope very largely in the diagnosis of these cerebral affections, sometimes with satisfactory results, but sometimes without acquiring any definite information by means of the instrument. The relationship, also, between the cerebral disease and the power of speech is carefully noted; and although we cannot find, from the record of the cases, that any definite relationship is established between the position of the cerebral lesion and the defects of language observed during life, yet the

cases are all interesting, and may probably serve as the bases of valuable conclusions at some future time.

Notes from a Clinical Lecture on a Case of Irreducible Retroversion of the Gravid Uterus—Paracentesis Uteri—Recovery. By Dr. Head.—The subject of this case was a woman, æt. 19, who was in the sixth month of pregnancy, and who had sustained a blow in the left lumbar region about six weeks before she applied for assistance at the hospital. It appeared that she had experienced great difficulty in passing her water, and suffered extreme pain; but no attempt was made to draw off the urine, although she was taken into a workhouse. When she arrived at the hospital there was a large ovoid tumour above the pelvis, looking like a distended bladder; the perinæum was also very much distended, and so was the anal orifice. An attempt was made to pass a catheter, although without effect; but the urine was made to pass by pressing forcibly with the finger at the apex of the vagina. An attempt to rectify the position of the uterus was also unsuccessful. Under these circumstances, and after consultation, Mr. Maunder passed a trocar into the uterus through the anus, and a large quantity of liquor amnii came away. Immediately afterwards a large loose motion was passed, and the next day the fœtus and placenta were expelled; and although the symptoms for some time were very alarming, the patient eventually recovered completely. Dr. Head, in his remarks on the case, strongly recommends that in every case of retroversion of the gravid uterus the contents of the bladder should be evacuated. The puncture of the uterus for the discharge of the liquor amnii was an operation first proposed by Dr. William Hunter, in the circumstances of Dr. Head's case, and the operation was justified by the results.

On Neurosis from Moral Shock. By Dr. de Berdt Hovell.—The object of this paper appears to be to show that many ailments popularly considered fanciful are really due to some derangements of the nervous system, which, although not exhibiting any objective signs, are productive of great suffering to the patient; and the author argues, moreover, that many instances of what is called irritability of temper are due to internal mental causes, which ought to be the objects of sympathy rather than of reproach. Dr. Hovell also thinks that, although the female sex is supposed to be more liable than the male to nervous or so-called hysterical disorders, yet that all are equally liable to the maladies which are comprised under that category.

Can an Inguino-Scrotal Hernia be reduced en Masse? By

John Couper, F.R.C.S.—To the question here proposed an affirmative answer was generally given a few years since; but it is now ascertained that in many cases where a reduction *en masse* was supposed to have occurred, the hernia really passed into a sac situated in the parietes of the abdomen, while the internal strangulation still persisted. Mr. Couper relates a case in which a man who had long suffered from hernia, and wore a truss, reduced the rupture, but nevertheless still suffered from strangulation of the intestine. Mr. Couper performed an operation having for its object to divide the stricture; but, in the first instance, he opened only the intra-parietal sac, and, consequently, did not divide the stricture; but he subsequently discovered that the intra-parietal sac was shut off from the cavity of the abdomen, and, having at last divided the stricture, the strangulation was relieved. The man, however, died twenty-four hours after the second operation; and no post-mortem examination was allowed. The intra-parietal sac, in such cases, appears to be formed in the substance of the abdominal muscles.

Calculus Extracted through a Vesico-Vaginal Fistula, and subsequent Closure of the Fistula by Operation. By John Couper.—The subject of this case was a woman 51 years of age, and she suffered from three maladies, namely, prolapse of the uterus, a vesical fistula, and a very large stone in the bladder. The calculus had remained for several years in the bladder, although it might have been supposed that it would have escaped through the fistulous opening, if not by the natural passages. The stone weighed nearly 700 grains, and was removed by Mr. Couper without much difficulty. After its extraction the operation was performed for the cure of the fistula; and although this proceeding was not attended with success in the first instance, a second operation was more favorable, and the patient recovered, although still suffering from the prolapse, for which however it was considered inexpedient to perform any operation.

On the Management of the Tube when Tracheotomy is followed by great Swelling of the Neck, with a simple device for introducing it readily. By John Couper.—The plan consists in drawing through the tube a thin flexible rod of gutta percha, of such length that about an inch and a half of it projects at each end. One end is made to taper suddenly to the fineness of a probe, and this thin end is introduced into the wound. Its extremity can be easily guided by the eye into the trachea, and when there the tube can be introduced also. As soon as this latter object is attained, the plug is withdrawn.

Cases of Cholera successfully treated by Saline Injection into the Veins, and Autopsies of Cases unsuccessfully treated. By L. S. LITTLE, F.R.C.S. This paper is a continuation of one already published on the same subject in a former volume of the Reports. In two cases recovery took place under most unfavorable circumstances, one patient being a pregnant woman, and in her case the symptoms were complicated with pyæmia and the occurrence of premature labour. Even in the fatal cases the post-mortem examinations showed that the saline injection caused the patients to pass into reaction and restored the circulation, the lungs being found not collapsed, both sides of the heart containing blood, and bile being present in the upper part of the intestines.

A Report on the Morbid Anatomy of Cholera, as observed at the London Hospital during the Epidemic of 1866. By HENRY G. SUTTON, M.B. Abstract records of fifty post-mortem examinations of cholera are given in this report. The paper is a long and very able one, the appearance of the different organs and structures being carefully recorded, but it is incapable of condensation.

Description of a Whalebone Fillet for facilitating Lingering Labour. By ROBERT DEBENHAM. This simple instrument is proposed by Mr. Debenham as a substitute for the forceps in some cases of lingering labour. It consists of two long loops of whalebone interlaced, the free ends terminating in handles similar to forceps, but shorter, a peg being attached to lock them when required. It has the advantage of leaving no marks on the child, and, according to Mr. Debenham's description, it is easily applied.

This volume of reports concludes with the statistics of the major operations performed in the London Hospital during the year 1866, compiled by Mr. Maunder.

REVIEW III.

"*Résumé de l'Histoire de la Médecine durant le XV^e^ et le XVI^e^.*" Par M. DAREMBERG. (Leçon d'ouverture au Cour, sur l'Histoire des Sciences Medicales au Collége de Frances 13 Dec., 1867.

M. DAREMBERG lectures at the *Collége de France* on the History of Medicine; and this opening lecture of the fourth year of his

course gives a rapid survey of the ground over which he had gone in the preceding year. Going on in chronological order he had then reached the fifteenth and sixteenth centuries. The lecture, therefore, is a general retrospect of the state of medical knowledge and practice in the period of transition from the middle ages to modern times; and it serves also to connect that transition, with its strongly marked contrasts and its curious mixtures of reaction and promise, with the succeeding period of real progress, which has, as its characteristic sign and trophy, Harvey's discovery of the circulation of the blood (1628). The end of the middle ages left medicine in the hands of the Arabian writers. They had displaced the Salernitans, the Latins, the Greeks, who were known mainly by the Arab translations. "Galien travesti et Aristote défiguré se partagent le monde." M. Daremberg gives curious details about the medical books and libraries just before 1500. Among the known printed books anterior to that date, as many as 800 are medical works; of these the vast majority are works of the Arabians and their followers.

"La composition d'une bibliothèque médicale au 15e siècle est donc fort simple, si l'on ne tient compte que des livres imprimés: les Grecs n'y figurent guère pour mémoire; les Latins n'y sont représentés que par Celse; les Arabes et leurs commentateurs, imitateurs ou disciples serviles, y abondent; les Salernitains n'y sont admis que pour les ouvrages de recettes.—Il est vrai que dans les deux premiers tiers du 15e siècle il n'y avait que des manuscrits, et qu'au troisième tiers, c'est-à-dire aux débuts de l'imprimerie, les manuscrits étaient mêlés aux imprimés. Mais nous pouvons affirmer, après avoir examiné et décrit avec soin les manuscrits médicaux latins du 15e siècle conservés dans les principales bibliothèques de l'Europe, que la proportion entre les imprimés et les manuscrits reste sensiblement la même. Ce sont, en général, les ouvrages ou les auteurs qui ont été le plus souvent imprimés avant l'an 1500 qui étaient aussi le plus copiés de l'an 1400 vers l'an 1470; ce sont ceux-là encore qu'on a continué à multiplier en manuscrits même après que des exemplaires imprimés étaient entrés dans la circulation. Les manuscrits français du 15e siècle que j'ai vus à Paris, dans diverses bibliothèques des départements, Angleterre, à Rome, à Venise, à Turin, en Allemagne, contiennent des traductions de médecins salernitains, de chirurgiens italiens, d'ouvrages sur l'hygiène tirés des Arabes, des Herbiers, des recettes, et de mauvaise vers.

"S'il est curieux de pénétrer dans la bibliothèque d'un médecin du 15e siècle pour voir ce qui s'y trouve, il n'est pas moins instructif de constater les lacunes qu'on y remarque au premier coup d'œil. Parmi les Grecs, notre confrère ne connaît ni Arétée, ni Aétius, ni même le *Traité des médicaments* de Nicolaus Myrepsus, ni Soranus, ni Oribase, ni Paul d'Egine qu'on avait cependant plusieuurs fois traduit dans la première période du moyen âge; sans les *Gloses*

de Jacques des Parts, il allait oublier Alexandre de Tralles. Il ignore complétement les productions de la médecine néo-latine; on ne les copie plus, on ne les imprime pas davantage. Gariopontus, si célèbre autrefois, ne revoit le jour que dans les premières années du siècle érudit par excellence, je veux dire du 16e siècle. Les vieux Salernitains restent complétement dans l'ombre; toutefois, le moine Constantin n'a pas succombé sous sa réputation d'insigne plagiaire; on continue à le copier, en attendant qu'on l'imprime."

The era of the revival of letters brought a change. It turned men's thoughts from the Arabian authorities to the elder Greeks. Everything went back to the classical models, and medicine among the rest. An attempt had been made before by what was called the "conciliating" school of Peter d'Abano, to show that the truth was divided between the Arabians and Greeks; but now Rhazes and Avicenna fell into the background before the rising influence of the great names of Hippocrates and Galen. But, as M. Daremberg points out very distinctly, this was much more a literary than a scientific revolution. It was because Hippocrates and Galen wrote in a classical language that they became the great authorities, rather than because there was any real and intelligent sympathy with Galen's systematic directions, or the conscientious observation of facts in Hippocrates. The training and habits of thought of previous centuries were not to be changed at once by a change of books and authorities. M. Daremberg, in a striking passage, points out what vast indirect and surrounding preparations had to be made, what remote yet indispensable changes in the arrangement of the ground had to be accomplished, what plausible guesses or suppositions had to be finally tested and put an end to, before the field was clear, or men's minds were ready, for the working of those trains of observation and reasoning which led to the great discoveries of which Harvey's is the type.

"Le 15e siècle est donc le dernier de ces *siècles conservateurs* dont la réunion forme, depuis le 5e, notre septième grande période. Durant ces longs jours à demi éteints, le fond de la médecine n'a pas changé; à peine s'est-il enrichi de quelques acquisitions, où le hasard avait souvent plus de part que l'esprit d'invention. Les vieilles doctrines du dogmatisme sont exploitées comme une monopole, d'abord par les compilateurs ou encyclopédistes grecs, ensuite par les écoles néo-latines, puis par les Salernitains, enfin par les Arabes. Hors de cette Église point de salut; personne même n'avait la pensée d'en sortir ni de faire schisme. L'autocratie se transmettait fidèlement de main en main, sans secousse et sans révolution. Il faut même remarquer que la médecine restait encore dans la pénombre du moyen âge, quand déjà, depuis quelque temps, les lettres et les arts avaient pris leur essor. Pour l'émancipation des lettres et des arts, le génie, l'inspiration et un milieu propice suffisent; mais, pour une science il faut que des découvertes lentement préparées, ou plutôt

échelonnées régulièrement dans la suite des temps, expériences concordantes et appuyées par des découvertes analogues dans les sciences parallèles, viennent aboutir à une de ces transformations radicales à laquelle ne pourrait jamais arriver l'esprit le plus puissant abandonné à ses propres ressources.

"Lorsqu'on s'est efforcé, pendant près de vingt siècles, de démontrer que le cœur n'est pas fait pour la circulation, que le poumon est chargé de refraîchir le cœur; que l'estomac est fabriqué pour *triturer* ou pour *cuire* les aliments; que les nerfs sont, en grande partie, créés pour *tendre* aussi bien que pour *sentir;* que les artères doivent recevoir un peu de sang mêlé de beaucoup d'air, et les veines contenir beaucoup de sang plastique et un peu d'air, que la rate fournit l'atrabile; que le chyle se perfectionne dans le foie, que ce viscère est l'origine des veines; que le fœtus est le produit de deux semences; qu'il y a dans l'utérus des loges spéciales pour les mâles et pour les femelles; que les affections de la poitrine, du ventre, même de la hanche, viennant des catarrhes qui descendent de la tête; quand on a disputé pendant presque autant de siècles sur le lieu d'élection de la saignée, sur la spécificité de l'action des purgatifs eu égard aux diverses humeurs, combien ne faut-il pas d'expériences d'abord, de raisonnements ensuite, puis de luttes terribles, pour terrasser de si grosses et de si nombreuses erreurs, pour 'changer tout cela,' comme disait Molière; mot profond à force d'être comique: il n'est pas plus malaisé, en effet, de mettre le cœur à droite et le foie à gauche, qu'il n'a été difficile de faire accepter la circulation et bien d'autres vérités. Mais la circulation elle-même, découverte depuis longtemps préparée, et qui, à son tour, prépare toutes les autres, n'est que du 17e siècle. Il ne suffisait pas, pour arriver à cette découverte, d'un milieu favorable à l'observation de la nature, à la méthode expérimentale, à la critique scientifique, il fallait aussi que l'anatomiste eût de longue main aménagé les lieux et disposé toutes choses pour que la fonction pût s'accomplir aisément; il y avait des ouvertures imaginaires à fermer, des routes à rectifier, des voies nouvelles à tracer, des origines à changer; il fallait chasser l'air des artères, établir nettement les anastomoses des deux espèces de vaisseaux dans l'intimité des tissus, et cloisonner les grosses veines de distance en distance, afin que le sang, marchant en avant, ne pût pas revenir en arrière. Voilà comment se produisent les découvertes fécondes; voilà les lois du développement des sciences, et les vrais principes de la philosophie de leur histoire.

"Puisqu'une seule découverte exige tant et de telles conditions préparatoires, on ne s'étonnera plus que le simple abandon des Arabes pour revenir aux Grecs n'ait pas servi bien efficacement les intérêts réels de la médecine et ne l'ait pas transformée; d'ailleurs, quitter les Arabes pour les Grecs, c'était quitter des erreurs enveloppées de tout l'obscur verbiage de l'Orient pour revenir aux mêmes erreurs revêtues par les Grecs d'une forme plus brillante et plus simple. La renaissance de la médecine n'a donc pu concorder exactement avec la renaissance des lettres. Le 15e siècle n'est lui-même qu'une suite de préparations à cette mémorable renaissance; c'est déjà pour ce

siècle un grand honneur d'avoir trouvé quelques-uns des instruments et posé quelques-uns des principes qui devaient concourir plus efficacement à cette pleine restauration."

The sixteenth century brought in one of the first conditions of real improvement; it began seriously, and with its eyes open, to attempt the systematic study of anatomy. It attempted to describe what were the actual discoverable facts of the human organisation. But even this was but a condition, a necessary condition, yet very far indeed from being the only one of the great steps in physiological science which were to come in their due time.

"J'ai souvent répété devant vous, Messieurs, et j'ai prouvé, je pense, à l'aide de nombreux exemples, que l'anatomie n'était point capable à elle seule, par sa propre vertu, par la seule évidence des faits observés et par une pure déduction, de créer ou de réformer la physiologie, qu'au contraire, en mille circonstances, pour Hippocrate, pour Galien, pour les Arabes, pour les anatomistes du moyen âge ou de la renaissance, la physiologie avait accommodé l'anatomie à ses caprices et fantaisies, lui faisant dire, pour le besoin de sa cause, tout autre chose que ce qu'elle voyait et touchait. Mais, à côté de cette proposition, désormais incontestable, il y en a une autre parallèle, non contraire et non moins assurée, c'est que la physiologie ne peut pas faire de progrès sérieux sans le secours de l'anatomie; encore faut-il, pour qu'elle profite de l'anatomie, et pour qu'elle puisse à son tour en agrandir le domaine, que la physiologie sacrifie les hypothèses aux expériences. En d'autres termes, il faut que la physiologie cherche de son côté par l'*expérimentation*, en même temps que l'anatomie cherche par l'*observation*, pour que ces deux sciences puissent se rencontrer et se prêter de mutuelles lumières. L'explication historique de la longue stérilité de l'anatomie, c'est que le gros de la physiologie s'est constitué à une époque fort reculée, non-seulement sans le concours des expériences, mais en dehors de toute notion positive sur la structure de la machine humaine; l'*idée* a a précédé le *fait;* et ce qui n'est pas moins fâcheux, la théorie des causes finales est venue subordonner impérieusement le fait à l'idée; ou, ce qui revient au même, contraindre une anatomie incomplète à s'adapter à une physiologie imaginaire, dans le but de justifier la nature '*qui ne fait rien en vain.*' Il n'y a pas de meilleure et plus certaine condamnation de cette théorie à laquelle on appliquerait volontiers le mot à la fois spirituel et profond de Claude Perrault: 'La grande louange que cent aveugles pourroient donner à une beauté ne serait pas aussi avantageuse que la plus médiocre d'un seul homme qui auroit de bons yeux.'

"Tout cela nous fait comprendre comment, dans la marche logique des événements médicaux, au sortir de la période de conservation, le 16e siécle a été le grand siècle de l'anatomie descriptive;—comment le 17e est devenu le grand siècle de l'anatomie de texture et de la physiologie expérimentale;—comment enfin, au 18e, la médecine (théorie et pratique) a pu, en s'appuyant sur ses deux soutiens

naturels l'anatomie et la physiologie, auxquelles la chimie prêtait déjà une nouvelle force, se réformer elle-même par l'observation clinique.

"J'ai donc eu raison d'avancer que le 15e siècle a été *actif*, puisque les médecins ont beaucoup lu et beaucoup écrit;—qu'il a été *stérile*, puisqu'il n'a presque rien produit pour luimême, et que son plus grande mérite est d'être le père du 16e siècle."

M. Daremberg characterises with great precision and discrimination the leading features of the work done in the first century of the great revival—the sixteenth century. It was a very energetic, hopeful, aggressive age—an age which thought much, and dreamed still more, of great conquest; but was an age still of childhood, of boyhood rather, wild, enthusiastic, daring, but with a great deal of waste of time and labour and power.

"La première moitié du 16e siècle est un drame en trois actes ou trois tableaux. Dans le premier, on voit un grand nombre de médecins, entraînés par le mouvement qui emporte toutes les intelligences, se jeter dans l'érudition nouvelle, prendre violemment parti contre les Arabes en faveur des Grecs, c'est-à-dire secouer le pouvoir du jour pour se courber sous celui de la veille.—Dans le second acte apparaît une minorité turbulente qui ne respecte pas plus les Grecs que les Arabes: j'appellerais volontiers le chef de cette fraction le Luther de la médecine, si Paracelse eût réussi à autre chose qu'à augmenter les ruines et s'il avait fondé un établissement durable. Le règne de Paracelse est court; ses partisans n'ont pas grande renommée ni grande action; quelques-uns, montrant plus d'habileté que de ferveur, tâchent de concilier les opinions du maître avec celles de Galien, comme Pierre d'Abano voulait, à la fin du 13e siècle et au commencement du 14e mettre d'accord Galien et les Arabes: des deux côtés l'entreprise eut le même résultat. Finalement, et par une suite de transformations, Paracelse conduit à van Helmont, et celui-ci mène à Sylvius de le Boe!

L'esprit novateur, cet esprit actif, ingénieux, passionné, mais non pas révolutionnaire, ne pouvant se contenter ni de la coalition qu'il venait de former avec les Grecs contre les Arabes, ni du radicalisme aussi vain que compromettant de Paracelse, et ne trouvant non plus chez les Grecs aucun système nouveau, aucune théorie qui déjà n'eût été mise en circulation par les Arabes, semble abandonner un moment le terrain de la pathologie générale pour s'affermir sur celui de la pathologie spéciale; il rassemble des faits, ébauche des descriptions, modifie en quelques points le cadre nosologique, et en même temps il se livre avec autant de succès que d'ardeur aux recherches anatomiques, qui commencent à saper par la base l'omnipotence des Grecs aussi bien que celle des Arabes. Tel est le troisième acte ou le dénoûment du 16e siècle. Au 16e, l'anatomie descriptive est le *grand œuvre* des intelligences d'élite, comme l'alchimie est le *grand œuvre* des esprits aventureux.

"La lutte, très-vive au 16e siècle entre les Grecs et les Arabes, est

loin de se terminer avec ce siècle; elle se prolonge durant une grande partie du 17e, malgré l'enfantement d'une multitude de systèmes qui ne sont pas plus d'Avicenne que de Galien, et malgré les conquêtes de plus en plus nombreuses de l'expérience sur la tradition. Chaque effort des arabistes (car ils trouvent encore des auditeurs au pied des chaires publiques) est une occasion de triomphe pour les Grecs. Les Arabes sont définitivement vaincus; les Grecs règnent à peu près sans partage dès les premières années du 18e siècle; toutefois, phénomène bien remarquable, quoiqu'il se produise si tardivement, les Grecs ne sont plus acceptés, parce qu'ils enseignent les bonnes pratiques de la médecine, et non parce qu'ils en représentent les bonnes théories.

"Médecin hippocratique est devenu synonyme de médecin observateur. Il a fallu quatorze cents ans pour consommer en principe la ruine du système de Galien; il a fallu presque deux siècles encore pour tirer les dernières et décisives conséquences de cette bataille à jamais mémorable livrée et gagnée par Harvey en 1628. L'Angleterre avait porté le grand coup; le reste de l'Europe complète et achève la réforme en des sens différents par Sydenham, Morgagni, Haller, Barthez, de Haen, Stoll, Bichat, Broussais et Laënnec."

The medical literature of the sixteenth century is of course abundant. M. Daremberg is not easily frightened by books, but even he looks with something like despair at the array, as dreary as it is vast, of volumes which enshrine the labours and still more the mistakes of this unwearied and prolific age.

"Si la littérature du 15e siècle est abondante et déjà compliquée, à plus forte raison celle du 16e peut être caractérisée par ces deux mots: *multitude* et *diversité*. Des éditions ou traductions de presque tous les auteurs grecs et de quelques Arabes; des commentaires qui embrassent une grande partie des œuvres d'Hippocrate et de Galien; d'amples ouvrages originaux, des écrits polémiques, de nombreuses et importantes monographies; les langues modernes qui commencent à se substituer au latin; des branches nouvelles greffées au tronc principal par les développements qu'ont pris l'anatomie, la chirurgie d'armée, l'histoire naturelle, la critique des textes et l'étude des épidémies;—tout, en un mot, se réunit, au 16e siècle, pour embarrasser et retarder la marche de l'historien, sans ajouter toujours un bien vif attrait à sa tâche, puisqu'il faut se résigner, après déjà quinze siècles de patience, à dévorer des in folio et des in-quarto tout remplis des vaines théories du passé, d'assertions fausses, de faits mal établis. On serait tenté de se laisser aller au découragement, peut-être à un vrai désespoir, si l'on n'entrevoyait quelques rayons de lumière à travers ces nuages épais, si l'anatomie et la chirurgie ne rachetaient pas la médecine et si l'on oubliait qu'il faut passer par toutes ces étapes de l'erreur pour arriver à la possession de la vérité."

He then classifies the works of this great host of medical authors:

"Nous avons partagé les écrivains du 16e siècle en cinq groupes,

sans compter les *naturalistes*, qui, loin de rendre d'éminents services à la médecine, surchargent la matière médicale et compliquent la thérapeutique: 1° Les *réformateurs par l'érudition* ou *humanistes*. En prenant parti pour les Grecs contre les Arabes, ils se mettent à la tête d'une renaissance littéraire, mais non pas scientifique. Cette phalange compte de grands noms: Leonicenus, Duret, Gonthier d'Andernach, Houiller, Linacre, Gorrée, Fuchs, Cornarius, Mercuriali, Champier, Montanus, Valesius, et d'autres qu'il serait trop long d'énumérer. Mais quelles discussions stériles! le fond manque à peu près complétement, puisque en l'absence d'une expérience personnelle indépendante, il n'y a pas moyen de contrôler les dires et les observations des Grecs ou des Arabes; de plus, on discute sur des textes où la critique n'a fait aucun triage ni fourni aucun terrain solide par la confrontation des manuscrits.—2° Les *réformateurs par l'anatomie*. Ceux-là sont les vrais; ou les nomme Massa, Benivenius, Benedictus, Estienne, Vésale, Fallope, Eustachi, Ingrassias, Varole, Fabrice d'Acquapendente. La renommée qui s'attachait à de tels noms, surtout à celui de Vésale, ne les a pas mis à l'abri des calomnies ridicules et des violentes attaques de l'école réactionnaire de Paris.—3° Les *réformateurs par la physiologie*. Servet, Columbus, Cæsalpin, voient bien que les choses ne se passent pas comme le disent les anciens pour le mouvement du sang, mais ils ne savent pas encore comment elles se passent; ce ne sont que des précurseurs qui n'ont pas conscience de leur œuvre, ni de l'avenir.—4° Les *réformateurs par l'introduction des théories chimiques, ou plutôt alchimiques, dans la médecine*. Paracelse et ses adeptes. Le moment de la chimie n'était pas venu; elle ne pouvait rien sans la circulation.—5° Les *cliniciens*, qui donnent la main aux anatomistes et qui essayent de rentrer dans les voies de l'observation telle qu'elle est enseignée par les meilleurs écrits de la collection hippocratique; mais la prolixité fatigante de Galien a plus d'imitateurs que l'élégante sobriété d'Hippocrate, et souvent il faut lire des volumes entiers pour y trouver un fait bien vu et bien rendu. Sans doute les *Consilia* du 15e siècle ne sont pas moins diffus, cependant ils offrent parfois plus d'intérêt que bien des recueils d'observations du 16e, car ils nous fournissent une foule de détails sur les mœurs, les pratiques et la littérature médicales, qui font trop souvent défaut dans ceux du 16e."

The geographical distribution of these writers is observable. In the fifteenth century Italy had almost the monopoly of medical study, with the French Montpellier a long way behind; "besides Italy and France, nothing or next to nothing." In the sixteenth Italy is still in the front for anatomy, with Vesalius and Fallopian, one its pupil, the other its son. France, on the other hand, is the country of reaction, "thwarting and denying all innovation, and resolutely sacrificing nature to Galen." Holland and Spain begin to take a serious part. Germany makes an effort, and its representative is Paracelsus. "Les Italiens n'ont pas plus accepté la réforme de

Paracelse que celle de Luther. On dirait presque une affaire de tempérament." England had as yet nothing to show; as usual, with no European reputation, and looked down upon in the centres of continental learning, the islanders were doing things in their own way. "L'Angleterre," says M. Daremberg, "se réserve et se recueille; elle va enfanter Harvey." France, on the other hand, was taking the lead even of Italy, in surgery. Italy had no name like that of Paré.

M. Daremberg then contrasts the two centuries, which he has passed in review in his course.

"L'œuvre du 15e siècle peut être comparée à l'œuvre de Galien: le 15e siècle rassemble, conserve, cimente les connaissances acquises par tous les siècles antérieurs, de même que Galien avait écrit la *somme* de la médecine grecque depuis Hippocrate; au contraire, l'œuvre du 16e siècle consiste précisément à commencer le siége de toutes les fortifications élevées par le 15e. Si ces fortifications, en apparance fortement cimentées, ont retardé la marche de la médecine, elles l'ont du moins protégée contre des attaques parfois intempestives, contre un élan mal calculé et du reste encore mal servi par les circonstances.

"Quelque important que soit le rôle du 16e siècle, surtout quand on considère qu'il nous apporte la première Déclaration des droits de la science, l'étude de ce siècle est néanmoins, j'ose le dire, aurisque de provoquer une exclamation de surprise, moins attrayante que celle du 15e.—L'historie générale du 16e siècle se réduit à trois points: les humanistes qui discutent sur les textes,—les anatomistes qui scrutent la nature,—Paracelse qui rêve en plein midi et délire en pleine santé.—Si je n'y voyais la marque certaine de l'émancipation de l'esprit humain et la préparation à la critique des textes, je ne prendrais aucun plaisir aux injures que les humanistes se jettent à la face; leurs attaques souvent mal dirigées, contre les Arabes, ou leurs admirations mal justifiées pour les Grecs, m'instruisent moins que les *Consilia*, même que les *Commentaires* si prolixes du 15e siècle. Le galimatias de Paracelse ne pouvait pas nous récréer; il n'y avait pas non plus grand profit à tirer des disputes sur la valeur comparative des médicaments galéniques et des médicaments chimiques. Du moins, sans compter l'immense, le véritable intérêt qu'offre l'anatomie à cette époque, nous avons trouvé quelque délassement et quelque solide instruction dans l'esprit et la verve de Joubert, le bon latin de Fernel, les précieuses observations de Septalius, de Mercatus et d'autres; dans les belles descriptions de Baillou; dans le suprême bon sens de notre Ambroise Paré, de ce chirurgien à la fois hardi et prudent qui invente et perfectionne; enfin dans le développement de cette admirable proposition avancée, deux siècles trop tôt, par Crato de Kraftheim 'qu'on ne peut pas comprendre Hippocrate si l'on n'est pas clinicien.'"

These fifteenth century *consilia* have probably found in him their

solitary student of later days. He has read them for their abundant historical information, on medical customs and ideas, and on the statistics of disease in the middle ages. He gives a number of curious samples of the interesting facts which his patient reading has given him. His first-hand studies have also shown him what such studies are apt to show in all departments of literature, the astonishing oversight and carelessness of those who get up some bit of learning for the occasion, as the lawyer does his case, without undertaking the toil, or believing in the value of reading a thing in its completeness. "Le grand secret," he observes, in reference to one of his instances of careless citation, "le grand secret pour écrire l'histoire, en sûreté de conscience, et avec une pleine connaissance du sujet, c'est de lire, de lire beaucoup, de se rappeler et de *comparer.*" The remark is true of all studies which involve the use of books. He further observes, that any one studying the history of medicine in the middle ages, must not only read and re-read, but know by heart two authors in particular—Galen and Avicenna. And he proceeds to exemplify his views in some singular blunders about very plain passages. "Lire et rapprocher les textes, c'est pour l'historien ce que sont pour le savant les expériences répétées, vérifiées, comparées.

His line of lectures has led him to a careful investigation of the great plagues and pestilences of the middle ages, including the sweating sickness. His researches have also confirmed his view that the proofs of the existence of syphilis go much further back than 1493, or the discovery of America, and are to be found in the thirteenth century. He is inclined to modify the current estimate of the achievements of Vesalius, especially in comparison with his successor Fallopius. "Fallope avait du génie, Vésale n'avait que du savoir." He concludes his survey with a glance at what is to follow in the seventeenth century, a century which had the glory of Harvey's discovery, and also the greater shame of long denying and ridiculing it; and with a protest against attributing too much influence to general philosophical speculations, like those of Bacon and Descartes, on the progress of medical knowledge.

"Le 17e siècle retentit du grand nom de Harvey. La découverte de la circulation du sang occupe, agite, passionne tous les esprits; elle se complète et se confirme par la découverte de l'appareil chylifère, des vaisseaux lymphatiques, et par les recherches sur le système glandulaire. Tandis que l'anatomie prolonge de plus en plus les voies déjà si largement ouvertes par le 16e siècle, et que même elle s'essaye avec succès au maniement du microscope et aux injections les plus délicates, la pathologie, ou lutte avec une désolante énergie contre les conquêtes modernes de la physiologie, ou cherche ses inspirations dans la méthode *à priori:* tout l'esprit caustique de Gui Patin ne suffit pas à nous dédommager de toutes ses invectives

contre les *circulateurs*, ni toute l'érudition de Riolan ne saurait compenser tout son pédantisme routinier. Si nous n'avions pas les pages immortelles de Sydenham, 'l'Hippocrate anglais' (quelle gloire pour une nation d'avoir produit en un même siècle Sydenham et Harvey!) et quelques précieux recueils d'*observations* ou de *consultations*, quelques bonnes descriptions de maladies épidémiques, l'histoire médicale du 17e se trouverait partagée entre une réaction idiote (particulièrement en France) et des théories plus ou moins hardies et ingénieuses, mais toutes vaines, parce qu'elles sont exclusives et sans fondements scientifiques: entre les théories de Van Helmont, l'héritier de Paracelse sous bénefice d'inventaire, et celles de Sylvius, disciple réservé de Van Helmont, et celles de Borelli, nées sous la domination des sciences mathématiques et physiques, ou celles enfin de Glisson, le vrai précurseur de Haller. L'iatrochimie de Sylvius, l'iatromécanique de Borelli, avec l'irritabilité de Glisson, représentent les deux systèmes qui se sont tour à tour disputé la pathologie générale, l'humorisme et le solidisme, mais fort incomplétement transformés par une science nouvelle, la chimie qui se dégage peu à peu de l'alchimie, et par une science renouvelée, la physiologie.—La chirurgie vit des souvenirs du 17e siècle, et attend J.-L. Petit et Lapeyronie!—Le 17e siècle, période de transition, n'a plus, pour la médecine, la pleine possession du passé comme le 16e, et n'a pas encore le juste sentiment de l'avenir; c'est un vaisseau désemparé qui chasse sur ses ancres, et dont l'équipage consulte inutilement la boussole, tandis qu'il est en proie à fureur des vents.

"On a beaucoup exagéré l'influence que les systèmes philosophiques ont exercée au 17e siècle sur la marche et les destinées de la médecine; nous examinerons ce point avec tout le soin qu'il comporte; mais je puis dire par avance que les grandes théories médicales sont, pour ainsi parler, autochthones; elles sortent des entrailles mêmes de la médecine, je veux dire de la physiologie bonne ou mauvaise; le peu que la philosophie a donné à la médecine a été, en général, un assez pauvre cadeau.—Quand la médecine s'est reformée, elle l'a fait en vertu de deux forces indépendantes de tel ou tel système de philosophie, du sensualisme comme du spiritualisme ou du septicisme, même du rationalisme. L'une de ces forces est le développement naturel de la science, qui, dès la fin du 15e siècle, passe des principes de l'autorité aux principes de l'observation;—l'autre est l'influence générale du milieu que n'ont créé ni Bacon ni Descartes, mais qu'ils ont subi avec toute la génération du 17e siècle, seulement avec plus de génie que le gros des écrivains et des savants. C'est moins par la puissance des méthodes de démonstration que par celle des méthodes de découverte, que la médecine commence à sortir, dès la première moitié du 16e siècle, de ses vieilles et profondes ornières.

"Enfin, Messieurs, pour terminer cette leçon, ou, si vous voulez, ce plaidoyer en faveur des doctrines historiques que je tiens pour vraies, je n'ajouterai plus qu'un mot: l'*Exercitatio anatomica de motu cordis et sanguinis in animalibus*, 'le plus brillant triomphe de la physiologie expérimentale,' pour me servir d'une heureuse expression de M. Haeser, a paru en 1628, à Francfort; mais déjà, n'oubliez pas

ce fait capital, depuis douze ans Harvey avait démontré la circulation, soit dans ses leçons sur l'anatomie, soit devant les membres du Collége de médecine de Londres. C'est en 1605, il est vrai, que parut la première édition en Anglais du *De augmentis scientiarum* de Bacon; toutefois, vous reconnaîtrez que ce premier essai, si vous prenez la peine de le parcourir, ne pouvait avoir aucune influence décisive sur la direction des recherches de Harvey, qui, du reste, déclare hautement *ne devoir rien aux philosophes.* Quant à l'immortel *Discours sur la méthode,* il n'a paru qu'en 1637. Donc, ce ne sont ni Bacon ni Descartes, les deux plus grands philosophes du 17e siècle, qui ont fait Harvey le plus grand novateur de ce même siècle, tandis que c'est très-certainement Harvey, disciple d'un anatomiste distingué, Fabrice d'Acquapendente, qui a préparé la reconstitution définitive de la médecine par la physiologie."

Review IV.

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Universal Annals of Medicine. Formerly compiled by Doctors Hannibal Omodei and Charles Ampelio Calderini, and continued by Dr. Romolus Griffini. Published every month at Milan, in the Cristoforis Gallery.

Having in a previous article described generally the chief medical institutions and most frequented mineral springs of Italy, based upon the writings of native and other authors, as likewise derived from personal observations made during our recent tour in that peninsula, we propose, in subsequent remarks, giving an outline of the various climates which have attained the highest repute as winter residences for invalids, who may propose migrating thither from the more northern regions of Europe.

Throughout many ages the effects of climate, whether sanative or otherwise, have always occupied public attention, particularly of medical practitioners. Among the several countries which have frequently attracted special notice, or engaged the pens of professional writers, Italy seems generally to occupy the first place in their estimation. Of late, however, other districts, as reputed health restorers, have come into competition with localities which, at one time, were deemed superior to any then known; while recent and more accurate observations likewise

prove that particular climates, at one time held in high repute, do not deserve the encomiums sometimes too hastily lavished on their sanative influence.

Considering it may be perhaps useful, if some of the most reputed places in Italy, to which invalids frequently resort, were here brought under review, we therefore propose making some general remarks respecting several, based both on late personal observation, as also derived from the experience of eminent authorities, who have examined and discussed such questions.

Commencing with Northern Italy, Nice comes first under observation, being naturally Italian—Nizza its real name,—although at present politically under French domination. The situation of Nice certainly will please the eyes of strangers, and all enthusiastic admirers of picturesque scenery. Nevertheless, as a beneficial residence for invalids it has been often lauded absurdly, and without sufficient foundation for any exaggerated encomiums. However, some writers are more just in their remarks, as, for instance, Il Signor Roulandi, who says, "the winds at Nice are very variable, both in temperature and direction, even during the same day, when the climate changes from hot to cold, and *vice versâ*, which alternation proves injurious." Colonel Sykes likewise observes in reference to Nice that, when visitors go out to promenade, they would do wisely always to carry a great coat and umbrella, in order to be prepared for every contingency, whether it be cold winds, rain, or sunshine; and to use either one or both if necessary. Doubtless, during fine weather and a clear sky, without changeable winds prevailing, the town may seem an agreeable residence; but for invalids, especially if labouring under pulmonary affections, Nice has been much over-praised. During dry weather, and when much wind blows everywhere, dust becomes very prevalent, which must prove injurious; and as that feature especially characterises the "Prommenade des Anglais," where idle crowds usually congregate, as also on the new quays and Piazza, it is, therefore, more objectionable for pulmonary invalids. During all seasons, but particularly when sunshine prevails, there being great want of shade, Nicean visitors hence feel much inconvenience. No doubt this consequence may be partially remedied by the umbrella or parasol almost every person usually carries while out of doors; nevertheless the above circumstance, conjoined with dirty thoroughfares and variable winds, truly constitute very serious drawbacks to parties residing in this Italo-Gallic town, whether they are residents in search of health, or simply for amusement.

Moreover, one of the greatest objections characterising the Nicean climate is the remarkable variation of temperature often

occurring betwixt day and night time, and also experienced on exposure to sunshine, or standing in the shade. This may seem very unimportant to healthy visitors when subjected to any of the contingencies just named; but for invalids suffering from pectoral affections, or endowed with weak physical constitutions, very different results may follow; and however much persons so situated may admire the adjacent scenery, or enjoy looking at the gay crowd usually encountered when fashionables assemble, the consequences thereby produced may sometimes prove most prejudicial. Should invalids, however, select Nice as their winter residence, instead of living in the town itself, they ought rather to reside in its immediate environs near adjacent heights, and so obtain shelter against northerly winds, or select some shady valley open to the south, where the atmosphere remains often calm and temperate, whereas elsewhere it is cold or agitated.

No doubt Nice constitutes an agreeable winter residence for healthy, idle people in search of enjoyments among a society deemed fashionable, and where aristocratic scions from various countries may not only be met, but occasionally sovereigns and royal personages. The hotel accommodation is large; there are numerous private residences and lodgings where single persons or families may be accommodated, while the ordinary necessaries of life or luxuries can be always obtained, although of late years prices have much augmented.

Admitting the fact that Nice affords various advantages essential for the comforts and enjoyments of healthy visitors, there yet exists one very seriously objectionable custom which deserves reprobation, viz. the filthy mode followed by Nicean washerwomen when plying their vocation, and noticed during our recent visit. Instead of using clean water to wash body linens, bed appendages, ladies' dresses, or other vestments, these articles were then being washed, *not cleaned*, in pools of stagnant water and contents of town sewers which were collected in the Paglione river's bed by the entrance into the sea being expressly blocked, to prevent the running off and wasting of any water it might derive, either from such sources or from rain. Hundreds of females were so employed in numerous places; and at one stinking puddle thirty-five women appeared busy in preparing their customers' habiliments for future wear or personal decoration. A more disgusting proceeding we have never before seen, or heard of. People often talk loudly in England against unsanitary practices, but anything like the above is, with us, utterly unknown.

The "Riviera Liguriana," where it extends from Nice to Genoa, has lately attained considerable reputation as a winter

retreat for health-seeking invalids, the towns of "Mentone" and "San Remo" being the most frequented. The magnificent Cornice road leads through both these places; but as a railway will soon be in operation, although many of the splendid land and sea views, now much admired, will be then almost lost to travellers, access to these and other sites in this picturesque district must become greatly facilitated.

Mentone in some respects is preferable to Nice, especially in reference to its being less subjected to varying winds, and not exposed to similar sudden or great changes of temperature. This arises chiefly from being protected against cold Alpine blasts by a lower mountain range, betwixt the town and upper but often snowy regions. Still, the air is often dry and free from fogs or clouds, while the town's southern aspect renders the sea breezes and sunshine more effective in moderating aerial variations. Nevertheless, Mentone being situated in a confined locality, having little level ground for promenading or enjoying moderate out-door bodily exercise, and most byways being rather steep, with the narrow main street also exhibiting few pleasant attractions, these features tend to deteriorate this place as an ordinary visitor's abode in public estimation.

"San Remo" somewhat resembles Mentone in physical features and as regards climate. The town is environed by gardens—some very pretty—fine adjacent dwellings—often palace-looking—numerous palmtrees, with orange and olive groves, and hence becomes more attractive as a residence. Indeed, the palmtrees are so abundant in this district that, the vicinity enjoys the privilege of supplying Rome with palms to decorate its churches during the holy week in Easter, and for various religious ceremonies, which at that period are customary. But an important contingency unfavorably characterising the Ligurian coast of Italy must be added, viz., the liability to vicissitudes of temperature, often rapid and extensive, while the cold north wind, or "Tramontana," frequently alternates with the warm and humid south-east.

The remaining locality in northern Italy, to which attention may be directed, is Venice, especially since it has been recommended by some recent authorities as well adapted for invalids. The climate of this singularly constructed city exhibits an equability, and often a mildness of character sometime unobserved in more southern provinces, and therefore frequently recommended as being advantageous for patients labouring under pectoral disease. It is also held as beneficial in scrofula and paralytic complaints. Besides, individuals who have lymphatic constitutions, or suffer from neuralgic pains, likewise experience relief while residing in this ancient provincial me-

tropolis. Further, the Venetian climate frequently appears to exert beneficial effects on the nervous system, at the same time the tranquillity everywhere prevalent also tends to alleviate that class of affections.

The absence of dust, and freedom from various causes of physical excitement common in populous towns must not be here overlooked. No vehicles, nor horses, and very rarely dogs or any other animals are met with in the squares or alleys—for of streets there are few—to disturb wayfarers in Venetian promenades. Owing to the absence of these and other influences the climate of Venice is considered decidedly sedative. Indeed, this quality seems to have been known to ancient writers, for Strabo states that Roman gladiators frequented this district of Italy, in order to reduce their plethoric condition, and thereby render them better able to undertake subsequent combats in arenas. Persons of sanguineous temperaments will sometimes derive benefit by a residence in this locality. Inflammatory tendencies seem likewise to diminish; while hæmoptysis is further reported as being thereby alleviated. Chronic bronchitis, catarrhal affections, and nervous asthma may also be mentioned as maladies, in which the mild and tranquil atmosphere of Venice produces alleviation.

Nevertheless, this city cannot be deemed a healthy or pleasant residence for any lengthened sojourn, speaking generally. The monotony prevalent throughout, excepting in its pedestrian movements and hearse-looking gondolas, when silently gliding along the canals, after the first impressions of novelty have passed, must strike every observer, and to some seem lugubrious. Unless in the "Piazza San Marco" and "Lido," it is difficult to breathe freely, or enjoy exhilarating bodily exercise, especially as the public garden lies at some distance, and consequently is but little frequented. The houses occupied by visitors being usually in confined alleys, and often near or over stinking, stagnant canals, whose emanations prove neither beneficial to physical health nor agreeable to the senses, likewise constitute great objections.

Again, should invalids pass much of their time in visiting ill-ventilated Venetian churches their health will certainly not be thereby improved; nor will gondola-sailing along narrow, offensively odoriferous, and sombre canals, produce desirable consequences, but rather the contrary. Finally, the damp, thick fogs which often prevail in the Lagune, and also heavy rains, nothwithstanding clear sunshine is not unfrequent, detract considerably from any sanative influence which Venice may be, in some cases, justly deemed to produce on the health of pulmonary affected invalids. Judging impartially, notwithstanding

the encomiums which several poetically-disposed authors have expressed in its favour, the "Queen City of the Adriatic" cannot be compared with some places in France or Italy as a residence for those affected with pulmonary or bronchial maladies.

Central Italy next comes under review, and the places to which attention may be usefully directed in reference to their sanative influence on invalid residents comprise Pisa, Siena, and Florence; the first named of which having been often much lauded by medical writers therefore well merits attention. Pisa has long enjoyed high reputation as a residence for consumptive patients; nay, even greater perhaps than any other locality in Italy. The most marked feature in the climate of Pisa is its great humidity, and this character appears so well founded that it is called by Dante "maladetta Pisa ognora piove." Besides being unusually moist its temperature is generally mild; while violent winds are here less prevalent, than in several places already specified as favorite resorts for invalids. Being situated on a plain, and its principal street, "Lungo Arno," having the form of a crescent, stretching along the river, with a southern exposure, this feature contributes materially to keep the temperature of that locality, where invalids principally reside, higher than it would be otherwise. Further, the town is surrounded by high walls, and as the Appenine mountains are about eight miles distant, extending from the south-east to the north-west, they constitute an excellent continuous barrier against winds, if blowing from northerly or easterly quarters.

The weather generally prevailing at Pisa being humid, and having also a warm temperature, even during winter months, its effect on the vital frame is depressing, while it also often induces great lassitude. Such being the characteristic action of Pisan atmosphere, it consequently exerts considerable influence in diminishing physical excitability, and in allaying the patient's nervous irritation. During the early stages of pulmonary affections, especially if exhibiting an inflammatory diathesis, residence in this Tuscan town will frequently prove beneficial. Against irritating dry coughs, bronchial attacks affecting persons of sanguine or nervous temperaments, and in asthma, where the system shows any tendency to inflammation, good effects will likewise frequently ensue. On the other hand, for patients who have debilitated frames, or lymphatic habits, the Pisan air often becomes decidedly detrimental. Again, patients in the last stages of consumption, whose digestion is weak, or, if they expectorate copiously, and have night perspirations, can anticipate no good results; nay, even injurious consequences may arise from their protracted residence.

For consumptive persons, in whom hæmoptysis forms a characteristic feature, the Pisan air is also objectionable, as likewise for those having melancholic temperaments. The debilitating and depressing action caused by the atmosphere of this Tuscan city, and especially upon subjects suffering from melancholia and physical exhaustion, becomes then very manifest; and such conditions instead of being alleviated are often aggravated. Certainly the quietude of Pisa, where patients are not likely to pass much time in sight-seeing—there being few places of attraction, and these lying at short distances—must conduce to render this city preferable to most of the localities already named, as a winter residence for patients labouring under pectoral maladies, and consequently the favorable opinion it has long enjoyed in public or professional estimation becomes justified.

Florence, although justly admired in respect of the beautiful position it occupies, the many most valuable works of art there collected, and its high historical fame, does not deserve the great reputation which at one time it had acquired in public opinion, as a health-restoring residence for invalids. Lying in a valley, on the banks of a muddy and often damp fog-emitting river, with hilly environs, from whence biting blasts of wind frequently rush down on the streets below, Florence is far otherwise than salubrious. Great cold in winter, extreme heat in summer, the frequency of northerly winds, if then followed by rapid and violent changes in opposite directions act injuriously even on healthy frames, but much more so on people suffering especially from pectoral disease. Violent atmospheric changes, which are here common, further augment the baneful effects experienced. Besides, snow on the adjacent hills is not uncommon during winter months, even while a warm sun is shining overhead.

According to several competent authorities, the winter temperature of Florence ranges much below that noticed in towns on the sea-coast, while during summer the heat is greater than at Pisa or Rome, so that the extremes between winter and summer are much more marked, if compared with various towns in other districts of central Italy. Besides an additional objectionable feature in the Florentine climate should be mentioned, viz., the great difference which is frequently noticed betwixt the highest heat about midday, contrasted with the lowest temperature during night-time. Moreover, at sunset or soon afterwards, the thermometer falls considerably, and as a damp vapour often then emanates from the sewer-polluted Arno water, it hence becomes dangerous to frequent the Cascine promenade after sunset, but particularly to rest any long time on the seats of this humid locality. Such proceedings are deemed

so important that, at Florence, the remark is commonly made by cynics, were it not for these evening assemblages, Florentine doctors might be much less employed, since inflammation of the respiratory organs or fever would not prevail to the same extent as heretofore among the inhabitants.

According to the experience of medical practitioners, the Florence climate proves inimical to patients suffering from pulmonary disease of an inflammatory diathesis. Irritating coughs and bronchial affections likewise become frequently aggravated by a winter residence in this city, however physically attractive it may seem. Nevertheless, in reference to paralytic affections, considerable benefit will be sometimes obtained by a sojourn at Florence, while nervous maladies accompanied by physical debility likewise derive improvement; and further, melancholia may be classed among the complaints thereby relieved. Still most health-seekers, especially if phthisical, would do well to avoid the often changeable atmosphere of damp yet flowery Florence, however frequently it has been lauded by native poets, flattering historians, or enthusiastic foreign travellers. As a salutary retreat for pilgrims wandering thither from other countries, for the restoration of perilled health, particularly by pectoral maladies, they will sometimes find the results anticipated prove fallacious.

Although Siena enjoyed considerable reputation some years ago, as a good residence for invalids, particularly during summer months, it has of late rather fallen off in public estimation. Unquestionably, in winter this historically celebrated Tuscan city is not well adapted for persons liable to, or suffering from, pulmonary disease; but at other times it will prove beneficial, especially to those who are labouring under nervous affections, or whose physical frame has become debilitated through previous exhausting maladies; and further to sufferers from indigestion, or those having scrofulous constitutions. Being situated on elevated ground, having beautiful, yet varied, prospects around, besides fine gardens, shady adjacent avenues, and enjoying a clear, bracing atmosphere, these attractive features constitute both pleasant and important physical advantages. Although during a short period in winter the thermometer may fall under the freezing point, and snow occasionally then prevails, but usually for only a few days; still its annual average temperature ranges so uniform throughout the year, that those great heats experienced elsewhere in Italy during summer months, become here much moderated; while the air is frequently calm and less subjected to tempestuous disturbances, more commonly observed in southern climates.

The city having been constructed on several elevations of moderate height, which thereby afford great facilities, especially

when rain prevails, for carrying away all refuse from houses and streets, forms no inconsiderable advantage towards maintaining its salubrity. A public promenade on one of the ramparts close to the chief street, where varied views of well-cultivated hills and valleys, affording interesting landscapes, can be obtained while breathing an invigorating breeze, should likewise be mentioned as constituting a great boon to visitors in search of health. Compared with the "Cascine," at Florence, or the celebrated "Chaïja Gardens," of Naples, the locality where Siennese people congregate for air and exercise is greatly preferable, although more limited in extent, to either of the above much-praised places as regards salubrity.

The only public promenade superior to that at Siena, belonging to cities where invalids most frequently reside, is the Pincian Hill in Rome; but in this case objections arise, owing to difficulty of access. Besides, the adjacent country prospects are finer around Siena than at Rome, and over its marshy campagna.

Having a university, picture galleries, museums, various works of art, a magnificent cathedral, and other objects of attraction to occupy or amuse visitors, whether invalid or healthy, Siena will always prove, an interesting residence to foreigners. But one important feature must not be forgotten, namely, the pure Italian which all ranks speak, not only as regards accent or idiom, but especially as regards its correct pronunciation. Here the Florentine guttural sound is rarely heard, while the words employed, even by persons of the lowest rank, are often original and strictly classic, as also devoid of patois. In fact, the language of Siena, and of Pistoia, not far distant, constitutes the model dialect of the entire Peninsula. Consequently this feature, although bearing no reference to health, nor in any way beneficial to invalids; nevertheless, to foreigners or those having young relatives desirous of speaking Italian correctly, forms no trifling recommendation. Whereas, the provincial unintelligible jargon frequently spoken at Venice or Naples becomes most annoying, if not offensive.

Residence at Siena during cold winter months, although it cannot be recommended for pulmonaires, will not prove to some other classes of disease, already mentioned, more inimical, if even so much, as at several places previously named. Nay more, throughout hot seasons this Tuscan city will in many respects be found preferable. Besides the affections enumerated as likely to obtain benefit by resorting to this district of Tuscany, parties whose constitutions have become debilitated by mental labour, business cares, confinement in unhealthy urban habitations, or who have fallen victims to

irregular habits of life and dissipation, may confidently resort to the Siennese climate with the hope of experiencing improvement. In our own individual opinion, derived from personal observation, while Pisa constitutes an excellent retreat, during winter months, for pulmonary invalids, Siena is, during hot seasons, much preferable for every class of residents.

Before taking leave of a city which Italian historians occasionally call "Nóbile Siena," it seems instructive to add that, although cholera has often devastated many towns in Italy which are recommended as good residences for invalids, still no visitation of that malady has ever prevailed in Siena or adjacent district. Moreover, epidemic diseases of any severe type here rarely occur, especially typhus or malarious fevers; and that "dictum" we can state on local medical authority. In short, this ancient city constitutes one of the most salubrious localities throughout the Italian peninsula.

Rome, the Eternal City, has long been celebrated as a desirable Sanatorium for invalids, but this is hardly warranted by experience and impartial observation. The climate is deemed mild and sedative, although often relaxing; while, notwithstanding the clear atmosphere frequently prevalent during day time, there are still damp fogs which often obscure the sky, particularly at night or during early mornings, and then prove anything but salubrious. The enthusiasm of visitors, which Roman antiquities, monuments, and history usually create in their imaginations, tends greatly to throw a fictitious halo of interest around everything in Rome, and hence may make them even sometimes mentally blind to causes rendering the climate insalubrious for ordinary residents, if not still more injurious to invalids, who virtually come here in search of health. Judging from some personal observation, and further guided in opinion by the experience of competent authorities well entitled to speak decisively, much popular exaggeration prevails respecting the advantages likely to be obtained by sufferers from pulmonary affections, through a winter's residence in the Papal metropolis.

Before, however, discussing at more length the general character of the Roman atmosphere, the influential causes most affecting public health, and other matters bearing on such inquiry, some notice regarding the situation and physical features of Rome will be both interesting and instructive. The site occupied by the modern city is the ancient "Campus Martius," and forms a low lying plain, having the Tiber on its western confines. Here, at least, lies the chief portion of the modern metropolis, where the great bulk of its population now reside; while the best society, foreigners and invalid visitors, generally take up their quarters in the palaces, hotels,

or lodging houses which chiefly occupy this precinct. Being low, and in many parts on a level with or even lower than the adjacent river, it has hence been often inundated in ancient as well as modern times. From this cause the ground is rendered damp, and not so salubrious as in some of more elevated situations, which, however, are but thinly inhabited, and often comprise only gardens or vineyards, with scarcely any habitations beyond a few convents, villas, or the hovels of market labourers. Many streets in Rome are narrow and dirty, while the houses, rising often to great heights, are often imperfect as to ventilation. From these causes alone Rome cannot be deemed a healthy residence, even during seasons considered freest from local injurious influences. But when malarious emanations begin to prevail, accompanied by great heat in the daytime, with cold or damp weather at night, Rome really becomes pestiferous.

The prevailing winds having to blow over adjacent marshy districts surrounding the city walls before arriving, hence become deteriorated. But however inimical to health these may thereby prove, none are so disagreeable or unwholesome as the horrid "Sirocco," alike inducing physical suffering, as also frequently causing depressing mental anguish. The customary winds are variable, both as regards direction, as also, but especially, in reference to their dryness or humidity, the the latter quality being oftener observed than the former. This peculiarity can be easily explained by the neighbouring Pontine marshes, the adjacent river, its frequent overflowings into narrow crowded streets, and further, the naturally moist condition of the soil whereon the modern city has been constructed. Although the most common wind is the northwest, northern blasts are not uncommon. Frequently during winter or spring, the latter prevail, and generally come on suddenly, with sometimes such rapid transitions, and so intensely cold, that between even neighbouring streets there will be noticed a difference of even twenty degrees Fahrenheit in their respective temperatures.

Besides the variability of winds at Rome, both as regards their direction and temperature, the great difference noticed in the latter feature during day- and night-time becomes often most remarkable. In support of that opinion, we would quote a conversation held recently with "Il Signor Scarpellini," attached to the "Campidoglio" Observatory, who then stated that the Roman climate is very variable, even in one day, as regards winds, moisture, fogs and temperature. There often prevails a damp mist at night over the whole city. The thermometer frequently varies thirty degrees Fahrenheit during the month, in

winter, and even as much in summer, while a diurnal variation of twenty to twenty-five degrees is not uncommon in twenty-four hours consecutively, and often when having a clear sky during afternoon or in the evening, but followed by thick fogs at night. Further, it appears by published tables, that in June, 1858, the variation ranged at forty-two degrees Fahrenheit, and in November thirty-six degrees. Again, during the 15th and 16th August, 1861, the thermometer rose to 102 degrees; while on the 8th of January, 1862, it fell to twenty-two, or ten degrees below freezing. According to these authentic facts, the climate of Rome seems much more variable than that of London, although there the same degrees of cold do not prevail during winter as in England. But further, in the latter country, equally hot summers are never experienced, and the diurnal variation of temperature ranges much under that of Rome, a circumstance which, as every one knows, always exercises a powerful deleterious influence on public health. Therefore, the greater the changes in that respect between day and night-time, the worse will be the effects thereby produced on the human frame.

Many erroneous notions are entertained by persons, who have never visited Rome, regarding its climate proving salutary to invalids. Such views are frequently mistakes, and not borne out by experience. The thermometer may not fall so low at Rome as in northern England, but its temperature is much more changeable, while the winds are felt most bitterly. Besides which, as many narrow Roman streets greatly prevent sunshine from entering, and so counteracting the effects of cold blasts or rain, the bad consequences thereby produced are augmented. Moreover, the domestic arrangements of ordinary houses in Rome being generally very defective, the extreme annoyances just described cannot be so easily remedied as in dwellings having coal fires, carpeted rooms, and other household comforts much appreciated in England, but almost unknown throughout Italy, however essential not only to invalids during cold winter weather, but likewise to every inhabitant accustomed to such desirable appliances.

As scarcely any old house in Rome has a fire-place, and few even stoves, the only mode by which warmth can be produced during cold weather is the burning of charcoal in metal pans on the floors of rooms, or in a small earthenware vessel carried about by hand. But these modes are often insufficient, very inconvenient, and further, may prove most noxious to health, if not dangerous. Undoubtedly, bodily heat might be maintained by using more clothing. However, such additions are not always comfortable, and if even efficient, the confined atmo-

sphere, contaminated by the vapour of burning charcoal, with closed doors and windows to prevent any heat from escaping, still prove insalubrious to residents of apartments so constituted, and in which there is always bad ventilation. These objectionable features in domestic arrangements are not peculiar to Rome, being common throughout southern Italy; added to its changeable climate, they render any sanative influence even more problematical. To continental foreigners such matters may seem often unimportant, yet to natives of Great Britain they will be invariably esteemed as necessary for health and comfort.

Reasoning from these characteristics, the climate of Rome can rarely prove beneficial to patients labouring under pectoral maladies, even during winter months, when it is usually deemed salutary. In summer or autumn the Roman district is invariably considered so unhealthy, for residents as likewise strangers, that many of the former leave for elevated and more salubrious localities, while prudent strangers avoid this city as they would a pestilence. Of course such sensible conduct is not always followed; and at Rome it is a common observation that, during the malarious season, few animals are then seen in its streets, excepting mad dogs and Englishmen. The remark may not seem complimentary, still it indicates the popular opinion entertained by Romans respecting the character of their own climate at such seasons.

Speaking of the injurious effects of malaria during hot weather, it is important to mention that, after any lengthened prevalence of a dry atmosphere, having an elevated temperature, should slight showers then fall, intermittent fever will assuredly very soon supervene. During night-time, malaria acts much more powerfully than in daylight or sunshine. Therefore, exposure at night to malaria becomes often most dangerous, especially should the person so exposed fall asleep. Consequently, none ought to have the windows of their sleeping apartment open after sunset, or re-open them early in the morning. Indeed, the deleterious effect of Tiber malarious emanations during an unhealthy season is so marked, that rooms in houses lying towards the river, whose windows are on that side, then become more insalubrious than if abutting in another direction, and to sleep in a room so situated is always more prejudicial than in others having a different aspect. This peculiarity being well known, should never be overlooked during hot weather by Roman visitors.

Native Romans, especially the female sex, seem generally endued with much nervous sensibility, and hence liable to suffer from neuroses. Sanguineous congestions are likewise frequently met with among the inhabitants. Regarding this peculiar sen-

sitiveness of Romans, it may be stated in illustration, that they have generally great dislike to odours and perfumes. Otto of roses, lavender water, and such-like smells, are far from being favorites, while musk has been known to cause convulsions in a strong Roman female. An anecdote is related, on medical authority of a gentleman, highly perfumed, having entered the salon in which several Roman patrician ladies were assembled, when the odoriferous atmosphere which his presence produced was so powerful, that speedily every lady quitted the apartment, and he was left alone to meditate upon what might have been the cause of such precipitous departures. Again, a much scented physician was not permitted to revisit a lady patient whom he was called to attend, entirely because she could not endure the perfumes, to her most offensive, wherewith his apparel was embued. These instances are not exaggerations, but facts related by a Roman physician to illustrate the peculiar sensitiveness of his compatriots. Nay more, it may be said, even strangers, after a long residence in Rome, sometimes acquire similar sensitive idiosyncrasies.

Notwithstanding the unfavorable opinion expressed in former paragraphs respecting the climate of Rome as not being always beneficial to persons labouring under nervous maladies, chronic rheumatism, apoplexy, paralytic affections, hæmorrhagic seizures, and those liable to inflammatory attacks of the respiratory organs, or others who have previously been victims of intermittent fever; still a residence there will prove salutary to invalids suffering from bronchial complaints of an irritating character, attended by frequent cough and difficult expectoration. In the early stages of phthisis, patients from more northern climates will likewise often find a sojourn in Rome conduce to amelioration during winter months, that season being usually calmer and more congenial than the spring, excepting when the Tramontana, or north wind, blows over the Campagna.

Under such latter contingency, the effect produced will be otherwise than beneficial, unless the person remains at home, and so avoids exposure to the dry, keen, and exciting wind just named, which much resembles the cold "mistral" often felt in southern France, the nature of which fully justifies the popular saying, "Le mistral, et la fleuve Durance, sont les fléaux de la Provence." However, should pulmonary afflicted invalids of the above description select Rome as their winter residence, streets running east and west are greatly preferable to those lying in a contrary direction, while rooms having a southern exposure—whereby sunshine is longer attainable—will be found far more pleasant and salutary, than apartments having windows in an opposite direction.

The remaining Italian climate to which attention will be directed is that of Naples, long celebrated, even by ancient imperial Romans, as the choice retreat of invalids, eminent men, and worn-out voluptuaries.

Not only the city of Naples but its vicinity have been frequently praised by authors as an enchanting and salubrious residence for invalids. Moreover, many Roman celebrities spoke of delightful "Baiæ" as a place where they might restore shattered health, or live in a region asserted by poets to be almost an elysium. But these flights of imagination, however supported by the physical beauties of nature and landscape around, were exaggerations, even then as now, in so far as its climate is concerned, or in reference to the salutary effects thereby produced. How far such expectations are well founded, or may eventually become realised by invalids coming from northern regions, will appear in subsequent observations.

From its position on the bay opening out to the sea, and not sufficiently protected against winds blowing from different quarters, Naples is subjected to great vicissitudes of temperature. The south-west wind, more especially, is very prevalent, while the north proves often boisterous and cold. Besides which, the east and different other winds are not uncommon. As these also become sometimes antagonistic, great atmospheric disturbance then ensues, while rain or severe tempestuous weather follows. In fact, sudden and variable alternations are the characteristic features of the Neapolitan climate, which often changes between morning and night from cutting dry cold to moist warm breezes, or *vice versâ*.

Although the temperature of winter months at Naples may not fall so low as in more northerly Italian towns, the spring is frequently cold from prevalent irritating winds, which act still more injuriously upon invalids, should the sky be also clear overhead, with powerful sunshine. Southerly winds are also of frequent occurrence during the spring and summer months, when, from having previously traversed a watery course over the sea, they then occasion considerable humidity in the atmosphere. Torrents of rain further prevail in Naples, especially towards the new year and in spring, the driest season being summer. The daily range of temperature also varies to a greater extent in this district than at Rome, and also proves much more changeable, while the sirocco wind—that pest of southern Italy—is felt most severely throughout every Neapolitan province.

Among the maladies most common at Naples catarrhal complaints, rheumatic attacks, nervous diseases, and those affecting the uterine system may be enumerated. Hence, the climate of this part of Italy is not adapted for invalids labouring under

the above complaints. Moreover, one of the most prominent features of Neapolitan weather being its stimulating influence frequently exerted upon the nervous system, persons of excitable temperaments will find a residence in Naples less beneficial or pleasant, than their excited anticipations led them to expect, when seeking to realise the *deliciæ* of this over-praised region.

The situation upon which this populous city has been built chiefly comprises a limited space, or slopes, lying betwixt the adjoining bay and rather elevated ground adjacent. The streets are usually narrow, or often only lanes, and very dirty. The houses have many stories, sometimes eight or ten, which are generally badly ventilated; the water supply is scanty, while other necessaries essential in dwellings are wanting or defective. Into many densly populated streets sunshine rarely enters, unless during a short period; few possess footpaths; besides which, police regulations regarding the removal of filth are exceedingly neglected.

Although the Chiaja, where the chief hotels, most fashionable residences, and many palaces are situated, cannot be included in the above category, nor even several localities in this district, nevertheless, the situation being low, very near, and almost on a level with, the sea, it becomes, on that account, damp, and in certain seasons unhealthy. But further, as many sewers, bringing their noxious contents from higher localities, discharge into the adjoining almost tideless bay, the effluvia so occasioned are often most offensive and really insalubrious. Indeed, throughout this neighbourhood, as also in the "Villa Reale"—the fashionable promenade of Neapolitans—when a sea breeze blows landward, the stink produced is almost unbearable. Owing to the above cause, besides the ordinary effects of climate and season, this aristocratic district of Naples cannot be deemed more healthy than various others, although its inhabitants enjoy many appliances favorable to bodily health which do not exist, or become attainable in poorer, much dirtier, and badly ventilated localities.

Reasoning from the data now detailed respecting the changeable climate of Naples, and considering also various material causes of its insalubrity, which, however, might be much modified by proper regulations, any sojourn in this part of Italy cannot be recommended indiscriminately to invalids for re-establishing health, particularly in those affected with consumption or other pulmonary maladies.

Persons who have suffered from intermittent fever, and are hence liable to relapses, ought not to pitch their tent in Naples, more especially in its east or southerly districts, where ague is often prevalent, during those seasons when that disease usually attacks

residents. Individuals endued with excitable nervous temperaments, or who have shown unusual signs of mental exaltation, should also avoid the famed capital of "Terra Felice." Valetudinarians of delicate constitutions, and those liable to chest complaints, disorders of the nervous system, or organs of assimilation, ought also to eschew this treacherous climate during winter months, but particularly those unhealthy quarters designated by an eminent French physician some time resident in this metropolis, "The Siberia of Naples."

Having expressed opinions unfavorable to the climate of Naples, but based upon the experience and investigations of competent authorities, it must nevertheless in fairness be added, that the Neapolitan climate frequently becomes well suited to invalids suffering from general debility, deranged bodily health through previous diseases, and also nervous dyspepsia. In most forms of melancholy, abdominal pains, and also intermittent neuralgia, this climate will benefit invalids so constituted, while persons of inert impassable constitutions, who require some excitement to rouse their sluggish natures, will likewise find it salutary; and further, a sojourn at Naples is reported to have proved useful in the early stages of that most formidable malady designated "Paralysis of the Insane." But in all such cases, care must be invariably taken lest cerebral congestions supervene.

Before drawing to a close the present sketch of Italian climates, considered in their prophylactic application, it will not seem irrelevent or wholly out of place here to state that, for persons enjoying good health, who have strong constitutions, and those also likely to derive benefit by change of scene, a residence in Naples during spring or autumn may be recommended, as likewise for those requiring mental amusement or recreation, to restore their weakened frames, exhausted by harrassing business cares or professional avocations.

Again, indolent people of the "Poco curante" class may select this noisy stirring city of southern Italy, as their residence during the proper season; since here they may agreeably spend unemployed time, in admiring the beauty of its situation the brilliant sky often prevalent, and the magnificent yet varying surrounding scenery.

Having thus endeavoured to bring before readers a few characteristic features of the chief Italian medical schools, brief notices of different mineral waters most frequented, and, lastly, remarks on various localities celebrated among northern foreigners, as salutary winter residences for invalids, we would conclude the present article by generally directing attention to the climates of several places in southern England, as also in the west and south districts of Ireland, which might be

selected as retreats for patients of the same class, heretofore frequently expatriated elsewhere, but who should rather, we think, have remained at home, or chosen as a winter abode some situation in the districts above specified, if deemed advisable for their particular malady. The long journey necessarily undertaken by invalids visiting Italy in search of health, although less objectionable in these railway times than formerly, still constitutes a great drawback, and often proves injurious; but even when that difficulty may have been safely overcome, the inconveniences which must be frequently endured, from the want of fire-places to warm the apartments occupied, and from many other domestic discomforts, but then irremediable, become of no small importance, especially to English patients.

The frequently varying temperature between day and night-time also proves a serious objection to many sites in Italy, usually called "Sanatoria." The reputed healthy climate of particular localities, the apparently fine weather and splendid sunshine, often tempt invalids to do what they would carefully avoid in their native land. Thus, visiting cold churches, wandering over old ruins, searching out antiquities, sauntering through picture galleries, and spending much time in close ill-ventilated museums, frequently act injuriously upon their shattered frames, as already stated when alluding to the imprudence of evening promenades on the Cascine of Florence.

In temperate climates like the United Kingdom, similar proceedings would seldom entail analogous bad consequences; indeed, cool evening promenades, and fine weather about sunset, so far from being inimical to physical health, will there act otherwise, besides being agreeable. Whereas, in most Italian localities, where invalids usually congregate, such like wanderings often prove treacherous, and therefore should be carefully avoided by health-seeking pilgrims, as also by all prudent travellers.

To indicate specific places in southern England, or those on the south and west coasts of Ireland, at which invalids, especially labouring under pectoral maladies, may reasonably expect to derive benefit by a winter residence, seems on the present occasion somewhat superfluous. Nevertheless, although various English places now frequented by consumptive, bronchial, and other patients having shattered constitutions, are so well known to most medical practitioners, as not to need specification; still, those offering analogous virtues in Ireland are less appreciated at present than they deserve. Among these may be specially mentioned Queenstown, in the county of Cork, that port being remarkable for its equal temperature observed betwixt day and night time. For the above reason and on other accounts,

Queenstown, the old Cove of Cork, has long acquired considerable repute as a beneficial retreat for pectorally suffering invalids.

Roscarbery, also, on the south coast, which has beautiful environs, and Kinsale, from its salubrious atmosphere, besides other localities in the same marine district of Ireland, are likewise eligible residences in cases of analogous maladies. Further, the western Irish coast extending from Cape Clear to Galway (Valencia, besides Glenbegh on Dingle Bay, may be specially mentioned), offers a good climate in cases of consumption. Indeed, this feature is shown unmistakeably by the generally mild weather there prevalent throughout most winters; the average temperature being invariably higher in the above-named districts of Ireland, if compared with the sea-coast stations in the east and north-eastern counties. But one peculiarity seems even more significant, namely, the smaller variations usually noticed between day and night temperature; the daily range being on the south-western coast 10·3 Fahr.; whereas it is usually 13·1 in north-eastern situations, particularly at inland stations. The greater prevalence of west and southerly winds, which are also often moist, from blowing over the Atlantic, further contribute towards maintaining a higher atmospheric temperature over the western, than the eastern coasts of Ireland or of England. To prove the superior suitableness of the south and south-west Irish coast for consumptively disposed individuals, this important fact may be brought forward, viz. that among 1000 deaths by all causes registered in the coast-line districts of Ireland, which extend from Bantry Bay to Galway, only seventy-six were from consumption; whereas, on the north-east coast, lying between Dublin and Glenarm, the total deaths by that malady were 172 per 1000, or more than double the former proportion.

Guided by these statements, and likewise reasoning upon the various data contained in previous paragraphs, the following deduction appears both fair and decisive, namely, that instead of wandering to foreign climates, whether in southern Europe, Egypt, or northern Africa, and thereby to restore their impaired health, or ward off threatened pectoral complaints, many Britons so situated would act more prudently in spending the cold winter months, either in places known for their mild climates on the south coast of England, if not at southern and western districts of Ireland above indicated; provided they could procure adequate comfortable accommodation, which always constitutes an important consideration under such circumstances. These essentials may perhaps not be now so easily obtainable in some parts of Ireland just mentioned, as they would doubtless become, were

the tide of emigration to augment thitherwards. But regarding the propriety of making such movements we would say finally, that invalids suffering especially from chest maladies may confidently expect to realise as much, if not sometimes even greater benefits, while residing at one of the localities indicated in a previous paragraph, than by hibernating in some objectionable foreign town, however much it is enthusiastically lauded, either by interested local authorities, or admirers of the really attractive physical beauties which characterise the particular spots recommended.

Review V.

Researches on the intimate Structure of the Brain. Second Series. By J. Lockhart Clarke, F.R.S., &c. 'Philosophical Transactions,' Part I, 1868.

We have before us the latest contribution to anatomical science, of Dr. John Lockhart Clarke. A *work*, in the largest sense of the word, full of original observations, and moreover a portion only of an amount of labour that rarely falls to the lot of one man to accomplish, within so short a period as ten years. The date of its predecessor, the author's first paper on the anatomy of the medulla oblongata, was 1858. Within the same period Dr. Clarke has contributed three important papers to the 'Philosophical Transactions,' viz.: 1. "Further researches on the Grey substance of the Spinal Cord," with seven quarto plates. 2. "On the development of the Spinal Cord," with four quarto plates. 3. "On the Brain and Optic Lobes of the Cuttle-fish," with one quarto plate. Besides these, the author has also written numerous papers on pathology of the nervous centres, viz.: on Muscular Atrophy, on Tetanus, on Locomotor Ataxy, and on different forms of paralysis. These papers have added value to the pages of this and several other medical journals. The amount of intense mental application besides manual labour in anatomical and microscopical examinations, demanded for the execution of these tasks can only be appreciated, and that but faintly, by those who have made the attempt to follow the author's demonstrations. For ourselves we honestly avow, that although we have spared no pains in the effort so to do, we feel that we are far from having completely mastered so abstruse a paper: so far, however, as we have succeeded, we shall endeavour to give our readers a brief, and we trust a tolerably intelligible abstract thereof.

In previous numbers of this Journal, Clarke's earlier researches into the minute anatomy of the spinal cord have been noticed. We take up the subject again at the point at which it was then left, and proceed to show the morphological changes by which the nuclei of the medulla oblongata are developed out of the elements of the medulla spinalis.

At the highest point of the spinal cord, *i. e.*, at the level of the first cervical nerves shows increase in extent of both white and grey substances—the cervix cornu stretching outwards and backwards, becomes gradually thinner, while the caput cornu is thrown further outward, and is transformed into the grey tubercle of Rolando. Between the anterior and posterior horns there is seen a beautiful network of vessels, fibres, and cells. From the bottom of the anterior fissure the fibres begin to pass that afterwards constitute the decussation of anterior pyramids. As the caput cornu posterioris is more entirely detached, fibres and vessels mingled with cells extend from the cervix backward, to form the post pyramidal and rectiform ganglion. The grey nucleus of the rectiform body is seen at the extremity of what was the cervix cornu. The nucleus of the upper roots of the spinal accessory now appears in the posterior portion of the enlarged central grey matter, while the nucleus of the hypoglossal represents the anterior cornu, the remains of which is traversed by the nerve roots. Still higher up these nuclei are seen to have enlarged, and nerve roots are observed entering them. Decussating fibres pass round in front of hypoglossal nucleus to form commissural bands of the olivary bodies. In the expanded extremity of the posterior horn is the principal nucleus of the sensitive division of the trigeminus. The fourth ventricle is formed by the opening out of the posterior median fissure. The nuclei of posterior pyramid and rectiform body coalesce. When the spinal accessory nerve ceases, the nucleus of that nerve becomes the vagal nucleus. The nucleus of the motor root of the fifth appears on each side of the central grey matter. Ascending still higher as the posterior structures are thrown outward and assume a lateral position, the vagal and hypoglossal nuclei come to the surface of the fourth ventricle. The grey substance of the posterior pyramid and rectiform body, together with the remains of the vagal nucleus, go to form the double nucleus of the auditory nerve.

Before proceeding to the full exposition, the author puts on record some new and important facts recently ascertained by him with reference to the composition of the anterior pyramids and their decussations.

Clarke observes that subsequent observations, while they

have confirmed the truth of previous statements, have enabled him to make some important additions.

"I had already shown that the decussating fibres from the posterior grey substance proceed out of the post pyarmidal nucleus, the rectiform nucleus, and the posterior horn, near its extremity. I have since ascertained, by means of longitudinal sections made at appropriate angles, that some of the decussating fibres of the anterior pyramids, which appear only to cross the antero-lateral *grey* substance, in their course from the opposite lateral column, do actually arise out of that substance. I have further ascertained that the decussating fibres from both the posterior and anterior grey substances *ascend toward the brain* after they have joined the pyramids. There is another exceedingly interesting structure, which, although it does not share in the formation of the anterior pyramid I shall mention here, because it is mixed up with the decussating fibres of those bodies in the lateral column. Several curved bundles of fibres may be seen proceeding transversely outward to the lateral column, and crossing the fibres of that column which run to the opposite pyramid. These fibres take no share in the formation of the pyramids; and after running outward for a short distance, they turn round and descend the cord obliquely across the longitudinal fibres of the lateral column. At the point where these two sets of fibres bend round (where the former or transverse set descend, and the lateral or longitudinal set become transverse as they cross to the opposite side) there is a very complicated and curved interlacement of bundles. Now, the physiological importance of the former set is evident when we consider that the part of the posterior grey substance from which they arise is precisely that which forms the lower portion of the spinal accessory and vagal nuclei, and with which the lower roots of the spinal accessory are connected. It is, moreover, interesting to observe that in ascending the medulla oblongata above the decussation of the pyramids, a similar system of nerves was found to proceed from the same respiratory centre, and to run down the lateral columns."—P. 272.

The particular parts with which the decussating fibres of the anterior pyramids are shown by Clarke to be associated, are—

"(1), The antero-lateral grey substance; (2), the interior border of the caput cornu, or expanded extremity of the posterior horn; (3), the base of the cervix cornu on each side of the central canal; (4), the continuation of this part of the cervix cornu in the posterior column forming its grey nucleus, and subsequently contributing to form a large portion of the outer nucleus of the auditory nerve; and (5), the side of the spinal-accessory and hypoglossal nuclei."—P. 310.

From some of these facts, adds Clarke:

"M. Vulpian thinks it not improbable that the anterior pyramids

are to a certain degree sensitive and excito-motory. . . . . Their connection, however, with the sensory portions of the medulla oblongata and cord, do not afford sufficient ground for the conclusion that they are sensitive; although it is probable that, by virtue of their connexions, they are excito-motor, probably through the grey substance within the pyramids themselves, the pons Varolii, or both."

By a series of most careful and elaborate descriptions, Clarke shows the connection between the origin of the roots of the spinal accessory nerve and those of the higher spinal nerves—a connection exceedingly interesting in reference to the influence of the will on the respiratory movements. This connection is established through a slender longitudinal column of fibres descending in a plane external to that of the spinal accessory nucleus.

"This slender longitudinal column has the same kind of important connections with the vagal and glosso-pharyngeal nuclei, as those which it has been shown to form with the spinal accessory; but it has, moreover, a direct and especial connection with the glosso-pharyngeal *nerve*. While the spinal-accessory and vagus nerves enter their nuclei on the *inner side* of the slender column, although they are connected with it, many of the fibres of the glosso-pharyngeal nerve pass directly into it."—P. 277.

Clarke having shown the several origins of the spinal accessory nerve, viz. the *upper* roots from the special nucleus behind the canal, and the *lower* roots in the lateral grey substance and anterior cornu of the spinal cord, observes, "It is an interesting fact that the hypoglossal nerve has a similar kind of double origin." Clarke gives representations of the *upper* roots of the hypoglossal a little below the level of the calamus scriptorius, and of its *lower* roots from the upper remains of the anterior cornu. Nerve fibres are shown to pass between the hypoglossal and spinal accessory nuclei. A little higher up, communications are observed to take place between these roots and a group of small cells which begins to appear at this level, and which constitute the lowel end of the column of cells and fibres constituting the fasciculus teres, and part of the nucleus of the facial nerve, and "constituting a most interesting communication between the facial nerve and even the *lower* roots of the hypoglossal." An equally important connection has been discovered by Clarke still higher up. Besides this important connexion, adds Clarke,

"Between the two nuclei—the hypoglossal and the spinal accessory—through the medium of their *cells* the spinal accessory

nerve has also a separate origin from the hypoglossal nucleus. Both the vagal and glosso-pharyngeal nerves have each a separate origin from the same source."

These interesting facts, Dr. Clarke further observes, have been fully confirmed by Dr. John Dean, of Boston, U.S. Clarke furthermore illustrates his observations from comparative anatomy.

"In birds, this separate origin of the vagus nerve from the hypoglossal nucleus is so striking, that in well made preparationss it may be seen almost at a glance. In fishes, I have recently discovered a beautiful and peculiarly interesting illustration of the same anatomical fact. In these animals there is no *separate* hypoglossal nerve, but the tongue is supplied by a branch of the vagus. Now I was very desirous of knowing what was the nature of the vagal nucleus in these animals, and of ascertaining whether it was a double or compound nucleus, consisting of the vagal and hypoglossal nuclei joined together. On examination, I found that the lower division of the vagus nerve, after proceeding transversely through the lateral part of the medulla, bifurcates into two distinct roots of considerable size; and that while one of these curves backwards to spread into the grey substance behind the canal, the other bends forward into a round or oval nucleus, which in regard both to the character of its cells and its position in front and at the sides of the canal, corresponds exactly to the hypoglossal nucleus in the higher vertebrata."—P. 280.

If space permitted we would have laid before our readers the author's account of the structure of the olivary bodies, but we must content ourselves with the inferences drawn by him as to their uses. They had formerly been regarded as having control over speech, expression, and deglutition. Upon anatomical and pathological grounds he regards them not only as centres through which the different movements are co-ordinated for expressing passions and emotions, but considers that they are the motor centres through which different movements are effected by sudden, violent, or peculiar impressions on the special senses; for they are intimately connected with all the sensory ganglia of the medulla, and have been traced by the author nearly to the perforated space.

In his second chapter the author proceeds to describe the parts found on the floor of the fourth ventricle, with their connections internally, as seen by transverse and longitudinal sections in different planes. The fasciculus teres is seen enlarging as the hypoglossal decreases in size, and finally disappears at the same time that the auditory nucleus enlarges. On a level with the roots of the glosso-pharyngeal nerve, in the central part of each lateral half of the medulla, near the inner

side of the grey tubercle, is a group of multipolar cells, constituting the nucleus of the lesser root of the fifth nerve. Clarke has shown that the descending portion of the larger division of the fifth does not traverse the rectiform body as has been believed, but the grey tubercle of Rolando. Moreover, "that both the vagus and glosso-pharyngeal nerve, on the way to their nuclei, traverse the grey tubercle, and pass through this portion of the fifth nerve," some of the roots terminating in the grey tubercle as one of their centres of origin.

"This intimate connection of the *sensory* division of the fifth nerve with the vagus and glosso-pharyngeal nerves in the grey tubercle, as well as the connection of its *motor* nucleus with the glosso-pharyngeal nucleus, with the returning fibres of the glosso-pharyngeal nerve, and with the fasciculus teres, are facts of uncommon interest."

The author gives a full account of the formation of the fasciculus teres, a longitudinal tract of cells which begins at the lower end of the olivary body, and lies on the inner side of the hypoglossal nucleus, increasing as it ascends, and ultimately constituting the chief portion of the nucleus from which the facial nerve takes its origin.

Of the *striæ medullares*, he states that he has always found them present in a greater or less degree. Sometimes they rise out of the *fasciculus teres;* sometimes out of the posterior nucleus of the auditory nerve, on the floor of the ventricle; but more frequently they sprang from the median sulcus, and from the *fasciculus teres* along its edge. After describing the relations of these adjoining structures the author observes—

"There can be no doubt that many of the striæ medullares connect both the porteo mollis and the auditory nucleus with other parts of the medulla oblongata and brain." (P. 288.)

The *facial nucleus* occupies the greater portion of the convex longitudinal column, which runs along the surface of the fourth ventricle, and which is known to anatomists as the "*fasciculus teres.*" Like the rest of the ventricle it is covered with columnar epithelium. Beneath this it consists superficially of nuclei and fibres of connective tissue, and more deeply it is composed of a large and mostly cylindrical column of nerve-cells, constituting its principal portion. These cells are large and multipolar, and resemble those of the hypoglossal nucleus. The connecting fibres of the facial nucleus are so numerous, and their arrangement is so extremely complex, that even if we had space to follow the author's description it could not possibly be understood without the elaborate drawings by which it is accompanied.

The author's account of the origin and course of the roots of the facial nerve differ considerably from that of previous anatomists, in consequence of the different and more varied plan of investigation which he has adopted. By a peculiar method of dissection described by the author, he found that the facial nerve, on reaching its nucleus, bends longitudinally down the medulla oblongata, along the fasciculus teres, and after a very short course, again bends transversely forwards and outwards to form a loop along the side of the median furrow of the ventricle. A *transverse* section of the medulla carried through the summit of this loop will of course present the cut end of a longitudinal column of fibres, which was mistaken by Stilling for what he supposed to be, and called, "the constant root of the trigeminus;" and by Schroeder van der Kolk for the cut end of one of the *striæ medullares*. The lower end of the loop in its course forward and outward, was found by Dr. Clarke to divide like a brush into separate fibres, which plunge into the motor nucleus of the motor root of the trigeminus, and into the superior olivary body. When we consider the physiological relations of the facial and trigeminal nerves, presiding over the movements of the muscles of the face and jaws in the acts of mastication and articulation, the anatomical connections of these two nerves above described must be considered of the highest interest. But we have given only an outline, and a very imperfect one, of the course and connections of these structures; for to enter into the elaborate details as described by the author would be impossible, and even any attempt to render them intelligible would fail without the drawings by which they are illustrated.

Clarke has some pertinent observations on the importance of combining together anatomy, experiment, and pathology, in physiological investigations. Neither of these alone, he remarks, is sufficient for the purposes of the physiologist.

"In attempting to determine the function of a particular part, pathology must be employed with great caution, when other parts of the same complex organ are at the same time affected by disease. The many contradictory results obtained by different experimentalists on the same subject are so frequent, that this method of investigation cannot be trusted alone. But experiment will be more accurate and precise, just in proportion to the accuracy of our knowledge with regard to the structure and relations of the parts on which the experiments are made."

Clarke points out some blunders that have been made from want of this combination of means of research. In illustration of the principles thus propounded, and also that we may show the practical value of Clarke's labours, we would draw

the attention of our readers to his remarks upon a form of paralysis hitherto obscure in its nature, but now seen more clearly by the light of the exact anatomy of the several nuclei, for which we are indebted to the author.

"There is a form of disease which was first distinguished from ordinary facial paralysis, by Duchenne (de Boulogne), and which has been called by Trousseau 'Paralysie glosso-labio-pharyngée.' It consists of paralysis of the orbicular muscle of the lips, of the tongue, of the velum palati, and of some of the muscles of the larynx. The patient *gradually* loses all power of articulation; he is unable to protrude the tongue; deglutition becomes difficult; the velum palati is insensible to the influence of different kinds of stimulants; the posterior nares can no longer be closed by the velum and muscles of the posterior palatine arch, so that the voice becomes nasal; the mucous membrane of the larynx frequently becomes insensible to irritation, and fits of suffocation ensue. It is evident, therefore, that in this curious disease, the hypoglossal, the spinal-accessory, part of the vagus, and part of the facial, are together more or less injured. The disease is not common, and little is known of its morbid anatomy. In one case only, Trousseau examined with the greatest care, the brain, the cord, and roots of the nerves, but found nothing unusual; nevertheless, something certainly was to be found, and lesions sufficient to produce the symptoms, might very easily exist in the nuclei at the floor of the fourth ventricle without detection, or in the roots of the nerves arising from them. It is probable, however, that in none of these cases the lesion is limited to the medulla. There is sometimes weakness of one side of the body or of one arm; and sometimes, towards the end, the limbs become flaccid on each other and the patient is drawn up in a heap."—P. 318.

In a foot note the author adds,

"Since the above was written, I have read Trousseau's account of the post-mortem examination of a case in which the roots of the vagus were atrophied; the roots of the right hypoglossal were also atrophied to mere filaments; the roots of the spinal-accessory were on both sides small and of a greyish colour. In the neurilemma there was a fatty granular substance. The anterior spinal roots were atrophied especially near the roots of the spinal accessory. Many other anterior spinal roots were diminished in size. The grey substance of the cord was of deeper colour and harder than natural."

Clarke adds a few remarks upon paralysis of the facial and abducens nerves:

"Where paralysis of the facial nerve depends on cerebral lesion, it is frequently associated with paralysis of the abducens. Sometimes both nerves are paralysed on one side, and one of them on the other;

and sometimes, but more rarely, both nerves are paralysed on each side. I have seen two cases of this kind: one of them was in the practice of Dr. Hughlings Jackson. Now, when we consider that both the facial and the abducens nerves are connected with the same nucleus on the floor of the fourth ventricle, it is evident that a tumour pressing on this part, or any morbid process that injured it, would paralyse at the same time both the facial and abducens nerves; and if the lesion or foreign body extended across the ventricle to the other side a bilateral paralysis to a greater or less extent, would be the result. Dr. Wilks had under his care a little girl four years old, with paralysis of the right facial nerve and of both sixth nerves. The child's arms and legs did not appear to be much affected, but the left arm and leg were a little weaker than the right. On post-mortem examination by Dr. Wilks, a tumour about the size of a large walnut was found to occupy the pons Varolii, and more on the right side than on the left. On opening the fourth ventricle, the tumour was seen to project into its cavity, and thus all natural appearances of this part was gone." P. 320.

The seven plates which accompany this essay, include sixty-five illustrative drawings of the various dissections that are described in the text. So distinctly are these drawn, that if they stood alone the morphological changes undergone by the medulla oblongata might almost be traced through them. The descriptions of these, constituting the body of the work, present a notable example of precision in choice of words whereby the intricate relations of most complex structures are put before us with a degree of clearness that is marvellous. In fact, the essays of Dr. Clarke in the 'Philosophical Transactions' may stand as models of style in the exposition of anatomical details.

In an appendix, Clarke enters very fully into a description of his *modus operandi* in rendering transparent sections of brain and cord. Without being thus prepared it is hopeless to get at their true structure. We would advise those of our readers who may desire to see these things for themselves, to consult the directions given by the author. They will find after a little practice, and a good many failures, that they are seeing through their difficulties. We have ourselves not omitted also to practice several other plans that have been put forth for the purpose of rendering these sections transparent, but we have not succeeded with them at all so satisfactorily as with Clarke's method. Possibly, we owe this to that kindly disposition which the author has ever manifested in his readiness to impart to others the details of his process, even to the bestowal of his already over-taxed time, in personally directing their manipulation. The fact that the time given to these profound scientific investigations, and to these genial attentions to his

professional brethren, has to be taken from the calls and cares of the practice of medicine, will we feel sure greatly enhance our readers' estimate of the qualities of the author's mind.[1]

Review VI.

1. *A Treatise on Syphilis; Historical and Practical.* By Dr. E. Lancereaux, Head of the Clinical Department of the Faculty of Medicine in Paris, &c. In two volumes. Vol. I. Translated by G. Whitley, M.D. The New Sydenham Society. London, 1868. Pp. 405.
2. *Syphilis and Local Contagious Disorders.* By Berkeley Hill, M.B., F.R.C.S., Assistant-Surgeon to University College Hospital, and Surgeon to out-patients at the Lock Hospital. London. 1868. Pp. 505.
3. *The Pathology and Treatment of Syphilis, Chancroid Ulcers, and their complications.* By John K. Barton, M.D., F.R.C.S.I., Surgeon to the Adelaide Hospital, &c. Dublin. 1868. Pp. 316.
4. *Atlas of Venereal Diseases.* By M. A. Cullerier, Surgeon to the Hôpital du Midi, &c. Translated from the French, with notes and additions. By Freeman J. Bumstead, M.D., Professor of Venereal Diseases in the College of Physicians and Surgeons, New York, &c. Philadelphia. 1868. Pp. 328.

There is perhaps no subject within the range of medical and surgical practice which has made more satisfactory progress during the last half century than that of the venereal diseases. It forms one of the points in our science to which we turn with satisfaction when all seems to be in confusion and uncertainty. Here at any rate we are making substantial progress. Here the tangled web of one class of diseases, and that a very large and important class, seems to be yielding to the patient efforts of a long succession of labourers, and is at length in the fair way to be disentangled and spread out before us as a simple and intelligible line of causes and effects. And it is worth while to notice that our increased knowledge of this subject does not arise from the progress which has been made in any of the subsidiary sciences or in mechanical contrivances. It does not depend upon the advancement of chemistry, or upon the perfection of the microscope. It is true that minute investigation has done much to trace out the visceral lesions which arise

[1] We must not forget to state that the Dublin College of Physicians have conferred upon the author the honour of enrolling his name among those of their members.

from syphilis, and the ophthalmoscope has done something to reveal its manifestations within the eye. Thus far we have been indebted to instrumental help. But on the whole the evidence which has been derived from these sources has only served to confirm what was tolerably well made out before. The main facts of the venereal diseases have been as patent for hundreds of years as they are at this day, and the progress which our knowledge of them has made is due solely to close observation and careful classification. Where our forefathers saw only one disease, which presented various manifestations, we now recognise three diseases, each of which runs a tolerably definite course. Armed with this information, we are able to say, with an approach to accuracy, what will be the history of any given case, and to apply the appropriate remedy. But before the different affections which form the venereal group were thus distinguished, there is too much reason to fear that no small injury was done by the injudicious interference of the surgeon, and that many cases would have done much better if they had been left to themselves than they did under an indiscriminate treatment. Now, however, thanks to an improved pathology, we may hope that, if we are not always able to cure our cases, we may at any rate do them no harm. We know so well the natural history of the diseases, that we can estimate what will be their effect if left to themselves, and we are so familiar with the injury which may arise from a misuse of the so-called specific remedies, that we are on our guard, and never give them except with good reason, and under proper precautions. These are some of the practical advantages that have arisen from a closer study of the subject, but these are not the only ones. If modern pathology has shown how harmful was the indiscriminate and excessive use of mercury in former times, it has also shown how much may be done by well-directed treatment, what an effectual check may be put upon the ravages of the venereal diseases; and hence, after much discussion, it has been determined to try and limit their evils in some of our garrison towns by the "Contagious Diseases Act." As far as it has yet been tried, this act seems to have worked well, and we may hope to derive from it not merely a present benefit by arresting the spread of disease, but more than this—if soldiers on the one part and prostitutes on the other, are under medical supervision, we may expect that accurate and systematic observation, extending over a number of years, will do much to increase our knowledge. It is by no means improbable that the information we have hitherto acquired by painful and laborious efforts will now be rapidly increased, and that theories, which are still open to a question, will receive additional con-

firmation, and that conjectures, which are now timidly whispered, will be brought to the test of experience. Thus we may hope that when the foundation has once been laid—when we have once attained a sound pathology—when we have once discriminated with accuracy the different diseases which form the venereal group, we may hope that our knowledge of them will go on increasing at a much more rapid rate.

Of the books which are named at the head of this article, M. Lancereaux's is perhaps the only one which can be said to add anything to the stock of our knowledge. It is an admirable and original treatise upon syphilis, and the profession in this country is under no small obligations to the New Sydenham Society for having furnished it with such an excellent translation. It deals with the whole subject of syphilis in a way which is at once comprehensive and terse. The author gives copious references to the bibliography of the subject, and then he relates only the conclusions at which the writers have arrived. Thus the history of long years of investigation is given in a few sentences, and those who desire to go more fully into the questions at issue, are furnished with a guide to the literature of the subject. But, strange to say, there is neither a table of contents nor an index, so that it is no easy matter to lay one's hand upon the section which relates to any particular question. This is a serious omission, and one which we hope will be remedied in the next edition. The work is divided into six parts, historical notice, nosography, semeiology, ætiology, treatment, and legal medicine. Under the first head M. Lancereaux gives a very interesting account of everything that can be found in ancient authors, bearing, or which is supposed to bear, upon the origin, progress, and distribution of venereal disease. But after the most careful investigation, it does not seem possible to say much more than this—that syphilis has existed from a very early period, that it has sometimes been endemic, sometimes epidemic, and that its severity varies in different countries and climates. After a chapter on the history of the disease, our author goes on to speak of its nature and varieties. In common with most modern syphilographers, M. Lancereaux adopts the theory of a duality of poisons, and then he proceeds to speak of true syphilis in detail. The questions at issue between the unicists and the dualists he states briefly, pointing out wherein he considers the arguments of the unicists are inconclusive. Into this question we cannot here enter; we shall have something to say about it presently; but we may observe in passing, that the French surgeons have had great opportunities of tracing the connection between the infecting and the infected person in consequence of the police

regulations which have long existed among them, and accordingly many of the most able exponents of the doctrine of duality have been Frenchmen. Hitherto we have hardly had the same facilities in this country, although some of our surgeons—Mr. Henry Lee in particular—have made an excellent use of the opportunities that were afforded them, and have thrown no inconsiderable light upon the subject. But now that some of our garrison towns have been put under the operation of the "Contagious Diseases Act," we may hope that the systematic inspection which takes place will enable surgeons to clear up some of the difficulties which still surround this intricate subject.

M. Lancereaux goes regularly through the several stages of the disease—its primary lesions, its secondary and tertiary symptoms—and in each division of the subject he gives a clear account of its course, supported by well chosen and typical cases. Under his guidance, we trace the syphilitic exanthem, first as it becomes inoculated and locally developed, then as it determines to the skin and mucous membranes, striving, as it were, to discharge itself on the external and internal surfaces of the body, and, finally, we see it becoming once more localised and settling down into the deeper tissues and into the viscera.

If we want a proof of the value of M. Lancereaux's work and the influence which it is likely to exert, we have only to look at the two books which stand next upon our list. To a great extent they both follow the same plan as his, and are largely dependent upon his researches. Each gives an excellent account of the present state of our knowledge of the subjects of which they treat, and either of them may be used as a book of study or reference with advantage. They travel over pretty nearly the same ground in the same order; but Mr. Berkeley Hill enters more fully into the subject than Mr. Barton. The latter seems to have written chiefly for students, while the former has produced a work which is suitable for students and practitioners alike. It is, in fact, the most complete and systematic monograph upon the venereal diseases which exists at present in our language; for it is not confined to syphilis but includes the contagious ulcers and gonorrhœa, and gives a full account of each. The way in which Mr. Berkeley Hill has entered into the minutiæ of treatment, is likely to make his labours particularly useful. It is too much the custom to take it for granted that details of treatment are generally understood, whereas such is far from being the case, and yet the comfort of the patient often depends upon them to so large an extent that it is well worth while to enter into them. And this Mr. Berkeley Hill has done. The directions which he gives for the manage-

ment of some of the lesser evils attending the venereal diseases, evils which are sometimes thought too slight to deserve a notice, are excellent and likely to form a useful guide for practitioners. If the main result of the case is not affected by such accidental complications, still the comfort of the patient is largely dependent upon their relief. A fissure of the prepuce may give much more pain than half a dozen soft sores, and a ragged tooth irritating a syphilitic tongue may cause much more discomfort than an indurated chancre.

Here is a case which is worth quoting, because it shows how rapidly the syphilitic virus is absorbed, and how little chance we have of doing good by early cauterization.

"In July, 1858, a gentleman applied to me with the following story:—That morning, about 4 o'clock, during violent intercourse, he had felt a sudden snap. On awaking, a few hours after, he found the bed and his clothes much stained with blood, so that he must have bled freely. He discovered the frenum torn across; this made him anxious to know if there were any means to insure him against the chance of syphilis. At 3.30 p.m. of the same day, I examined the part, and found that the frenum was torn down, the wound slightly swollen, but otherwise quiet enough. Ricord's views were then in vogue, that destruction of the sore within five days of its existence would prevent syphilis, and I assured him that cauterization would remove all danger of the disease. To make sure, I destroyed a considerable layer of tissue with fuming nitric acid. In due time the eschar I made separated. The surface healed very quickly, and my patient's satisfaction was extreme. This was the end of July. In the latter part of August he called again, and showed me the cicatrix, which he said that morning he noticed to have altered. It was clearly indurated. Presently the glands in the groin enlarged, and general syphilis followed, which lasted a couple of years. The induration increased in the cicatrix, but it never ulcerated again."—P. 56.

Mr. Berkeley Hill's work is clearly and well written, and we are carried pleasantly through a subject which is not in itself the most agreeable in surgery. But we hardly see why he should have thought it necessary to append a summary to the end of each chapter. The form in which the book is cast does not require it, and it only serves to make a volume which is large enough at any rate somewhat larger. In one instance we have noticed that a chapter which only occupies twenty-six pages, has a summary six pages in length added to it. What need is there to draw out the subject in this way? The work is furnished with an ample table of contents as well as a full index, and there is no occasion for summaries of this kind. In this respect, the author would have done well to have imitated Mr. Barton, who appears to have studied brevity, and who in

little more than half the space has given a good practical account of all that is known on the subject of syphilis. He has brought forward a number of illustrative cases, and some of them are very striking. Here is one which shows some of the most distressing results of syphilis, and what a power we can exercise over them by well directed treatment.

"A. B—, the younger son of a gentleman of property, contracted syphilis twelve years before, and was treated by the late Sir P. Crampton in this city. Meeting with adverse circumstances, the young man went to Australia, where he served in the police and was consequently exposed to much hardship. He now, for the first time, had an epileptic fit of, however, a very slight and passing kind; two years elapsed before he had a second, much more severe; a third, soon afterwards, was succeeded by insensibility, which lasted three weeks. He returned home, and had several severe epileptic fits during the voyage. He presented a miserable appearance upon his arrival: he was pale, emaciated, and greatly depressed, with necrosis of the olecranon of one elbow, and nodes upon the cranium. During the following months epileptic fits occurred frequently; and upon one occasion, when coming from Liverpool, an epileptic seizure was followed by violent mania during which he had to be forcibly restrained from injuring himself and others. Up to this he had showed no mental derangement beyond profound depression and weakness of purpose. He was now conveyed to an asylum, where he was admitted in a state of profound insensibility. Consciousness slowly returned, but the next night he had another attack, which threatened to be immediately fatal; he recovered from this, however, and during the succeeding six weeks the attacks of acute mania returned at short intervals, with varying intensity, each attack being succeeded not only by lassitude and exhaustion, but by more or less marked delirium. In the intervals between the fits he was rational, but desponding; his system being apparently worn out by disease and fatigue. There was unmistakable evidence of periosteal inflammation on both sides of the head. Led by these signs to believe that the mania had a syphilitic origin, Dr. Duncan, in consultation with the late Mr. Smyly, placed this patient upon a cautious use of mercurials, which had the happy effect of so far restoring the functions of the brain that the attacks of mania entirely ceased, and the patient left the asylum, and became engaged in active employment."—P. 162.

But in this, and still more in other cases related in this volume, we regret that an ophthalmoscopic examination was not made. At p. 159 a case is reported at length in which the eye symptoms were very severe, and yet the ophthalmoscope does not seem to have been used as an aid to diagnosis. This is a great defect in the report of such a case. At the present day no case of syphilis in which the sight is at all impaired can be con-

sidered complete without an ophthalmoscopic examination. The different diseases of the interior of the eye which are due to syphilis are numerous, and it is of the utmost importance to recognise them at an early stage. With this object it is a good plan to subject all syphilitic patients who present any eye symptoms to an ophthalmoscopic examination, and indeed without such an examination the true nature of the case may pass undetected, and the time may be lost when treatment might be used with the best chance of success.

The fourth book upon our list differs in some notable respects from the other three, though in many points it entirely agrees with them. The three books that we have already spoken of have no illustrations whatsoever, but the fourth is an atlas of venereal diseases with a commentary appended. The plates are the chief thing; the letter-press is subsidiary. Other writers besides M. Cullerier have given us a good account of the diseases of which he treats, but no one has furnished us with such a complete series of illustrations of the venereal diseases. There is, however, an additional interest and value possessed by the volume before us; for it is an American reprint and translation of M. Cullerier's work, with incidental remarks by one of the most eminent American syphilographers, Mr. Bumstead. The illustrations have been reproduced with as much fidelity as chromolithography will permit; and though they are perhaps hardly equal to the originals, which were steel engravings coloured by hand, yet they are sufficiently good for all practical purposes, and will serve to make the subject more intelligible, so far at least as illustrations can accomplish this end. The letter-press is chiefly M. Cullerier's, but every here and there a few lines or sentences are introduced by Mr. Bumstead; and, as M. Cullerier is a unicist, while Mr. Bumstead is a dualist, this method of treating the subject adds very much to its interest. By this means a liveliness is imparted to the volume which many other treatises sorely lack. It is like reading the report of a conversation or debate; for Mr. Bumstead often finds occasion to question M. Cullerier's statements or inferences, and this he does in a short and forcible way which helps to keep up the attention, and to make the book a very readable one.

If now we compare these four books, we shall be able to ascertain what is the view of at least one school of syphilographers upon some of the vexed questions connected with the subject.

And first with regard to the dualist theory, upon which these writers—with the exception of M. Cullerier—all take their stand, what are we to understand by it, and how far is it likely

to meet general acceptance? Mr. Berkeley Hill seems to use the term *unicist* to describe those who hold that *all* the venereal diseases—gonorrhœa and syphilis alike—have a common origin. But surely if the word was ever used in this sense it has long since lost it. Hardly any one at the present day supposes that all these three diseases are due to one and the same poison. The distinction between gonorrhœa and syphilis was long ago demonstrated, so that it seems an anachronism to use the term in this sense. In modern phraseology the words *unicist* and *dualist* refer to the views which are held respecting the venereal sores and ulcerations. Do they all spring from one and the same virus, or are there two specific poisons, each of which produces its own peculiar lesion and train of symptoms? Using the terms in this sense it seems probable that the dualist theory is gaining ground, and that in some form it will be ultimately adopted. Most observers are tolerably well agreed that there are two distinct kinds of sores, but it may probably be a matter of dispute for some time what are the essential and typical characteristics of each. Hitherto induration of the base of the sore has been held to be the distinguishing mark between the infecting and the non-infecting sore. But there is good reason to think that infecting sores are not always indurated; and, if this should be proved to be the case, we must find some other characteristic which shall be taken as typical—we must find some other mark which shall serve to show whether the primary disease will or will not be followed by secondary symptoms. At present we have no such diagnostic sign. Though we recognise two distinct kinds of sores, each of which is, as a rule, followed by its own peculiar train of symptoms, it is not always possible to say at the outset of a case with which of the two kinds we are dealing. Doubts such as these have made surgeons hesitate to affirm that there are two distinct poisons, and some eminent authorities consider that sores which are not followed by secondary symptoms are only "abortive inoculations." These surgeons hold that there is only one syphilitic poison—that when it is successfully inoculated it produces secondary symptoms, but when no such symptoms follow, the inoculation must be considered to have been "abortive." This theory has been ably supported, and there is much to recommend it. But, if we may judge by the tenor of the volumes before us, and by the influence which they are likely to exert, we cannot doubt that the dualist theory will ultimately be accepted by the profession; but there is still much to be done before the two varieties of venereal sores will be as sharply distinguished from one another as they now are from gonorrhœa. And this leads on to another subject. Can we say with cer-

tainty that this or that sore will not be followed by secondary symptoms, and can we ever pronounce a patient free from the danger of a relapse? With regard to the first question, it seems hardly possible to say with confidence whether any given sore, when it is seen in its earliest stage, will or will not be followed by secondary symptoms; most surgeons have so often found themselves mistaken upon this point, that they hesitate to promise their patients an immunity from constitutional infection even in the case of the softest and most harmless-looking sores. And with regard to the second point, it seems impossible to say when a person who has once suffered from constitutional syphilis may be said to be free from the taint. Although the disease may appear to be cured, it is not eradicated; and if the patient should fall into ill health from any other cause, the syphilis is only too likely to show itself. It is therefore impossible for us to say that a patient is ever entirely free from the danger of a relapse, although we may often say that practically the disease has worn itself out, and that there is nothing to fear so long as the patient maintains his general health and strength.

Another question which is often asked is this. Is it possible by caustics, or other means, to destroy an infecting sore so as to secure the patient against the occurrence of secondary symptoms? To this we reply, first, that in many cases it is impossible to say at the outset whether a sore is of an infecting kind or not; and, secondly, we would point to the case which we have already quoted from Mr. Berkeley Hill's work to show that the earliest and freest application of strong nitric acid does not prevent the occurrence of secondaries. And, indeed, if we are to hold with some authors that the sore which is submitted to our inspection is not the first step in the disease, but rather the first outcoming of a virus which has already infected the blood, and which has perhaps effected an entrance by "physiological absorption," without any abrasion at all, then it is too late to hope to save the patient from constitutional symptoms.

Lastly, we may ask, Is there any rule to guide us in the treatment of syphilis by specifics or otherwise? In any given case can we say with certainty whether mercury should be used or iodide of potassium, or whether the case will do equally well without either of these remedies? To this we must answer, There is no absolute rule of this kind. There are, indeed, certain cases in which most surgeons prescribe mercury, and there are certain other cases in which most surgeons prescribe iodide of potassium; but, on the other hand, there are not wanting practitioners of experience and repute who tell us that all the forms of syphilis and its sequelæ will get perfectly well without any specific treatment at all. If there are any cases in

which it is generally held that mercury is necessary, they are iritis and infantile syphilis, and yet we are now told that these cases do just as well without the specific as with it; while iodide of potassium, which has always been used for the less acute symptoms, is now thrown into the shade by fresh air and sea bathing! How far these views can be sustained, it must be left to experience to decide, but at present it appears to us highly unwise to lay aside altogether the use of mercury. In cases of syphilitic retinitis we have the clearest proof of its value, and we should be hardly justified in withholding it in a case of this kind. And, if the specific treatment produces such marked and beneficial results where we have the opportunity of observing its effect closely, may we not conclude that its influence is similar in other cases where we are unable to watch the affected part with equal accuracy? Experience may indeed show that mercury is not necessary even in iritis and retinitis, but at present a surgeon would seem to be almost as much bound to give it in these cases as a physician would be to give quinine in an attack of ague. The organ which is affected is one of great delicacy, and of the utmost importance to the patient: mercury is nearer a specific remedy than any other we possess; and it cannot be said that any serious evils are likely to follow its careful and moderate use. Thus, though we may say that there is no absolute rule to guide us in the administration of specifics, yet there are various cases in which it would seem that the surgeon is hardly justified in withholding mercury, and there are others in which pretty nearly the same thing may be said of iodide of potassium. In this opinion we are confirmed by observing the authors, whose works we have been noticing, all agree in recommending the cautious and temperate use of specific remedies.

Review VII.

Contributions à la Chirurgie. Par M. le Docteur Ch. Sédillot, &c. &c. Paris, 1866. Tomes i et ii. Pp. 1387.
Contributions to Surgery. By Dr. Ch. Sédillot.

This work is unquestionably a very valuable contribution both to surgical literature and to practical surgery, but its value is not equal in these two respects. In a practical point of view, perhaps, three fourths of the matter might have been omitted, some of it having become antiquated, some, on the contrary, having passed from the region of discussion into universal

acceptance, and neither presenting any feature of novelty. The papers, too, in which both these classes of matters are embodied, are the original occasional papers, presented to surgical societies or contributed to journals, many of them more than thirty years ago, in all their necessary amplification, and with all their cases set out in full detail, difficult enough to get through in these crowded and busy times. No doubt, however, M. Sédillot's intention in reproducing these papers has been to substantiate his claim to certain improvements in our theory and practice, and to enable his scholars and friends to trace the history of his surgical career. It would be too delicate a question for us to discuss whether M. Sédillot's position in the profession furnishes sufficient motive for such a literary monument. No one doubts that he is, at any rate, an eminent practical surgeon; and though we have spoken of this work as being in great part of merely historic interest, there are portions of it which are of a more practical nature. We speak especially of the descriptive or anatomical parts of the disquisition on dislocations, of the chapter on amputation, that on gastrotomy (or gastrostomy, as our author prefers to call it), and several of the smaller papers, amongst which we would particularise "A Few Remarks on the Uses of the Actual Cautery" as most suggestive and interesting (vol. i, p. 636).

To give the reader a regular analysis of a work so miscellaneous and so unequal as the present would be perfectly idle. We shall merely lay before him a few specimens of our author's subjects, premising that, though the present is not a systematic treatise, yet there are but few topics in the whole range of surgery which will not be found illustrated more or less completely in it. The most striking exceptions are venereal affections and diseases of the bones and joints; the latter being omitted here possibly because they come more within the sphere of the author's work on the 'Evidement des Os.'

M. Sédillot's first chapter "On Symptoms due to Infection," raised our curiosity the most, and we are obliged to say disappointed it the most cruelly. Nothing more meager and worthless was ever put forward by a surgeon of reputation; and as M. Sédillot, by quoting (rather contrary to his wont) the name of Billroth, proves that he is not unacquainted with the really philosophical and suggestive writings on this subject by that great pathologist, it is surprising that he should have thought his own feeble efforts in the same matter worthy of publication. Our author's language would lead to the conclusion that he sees no essential difference between hectic fever and pyæmia; that he believes in the infection of the blood by the passage of pus through the lungs; that the clotting of the

blood in the veins or capillaries, and its decomposition there, are facts of no account in his theory of systemic infection; and, finally, that, with the exception of Billroth and Herrgott (and these he only names), he has never read an author on the subject of pyæmia and surgical fever.

But if we think M. Sédillot's pathology defective, we cannot but allow that his practical remarks on the subject of fresh air, drainage, and cleanliness of wounds, and such matters, are replete with good sense. They would not be thought original in this country, but we believe that if generally acted on in France they would effect a great diminution in the death rate of operations there.

On the subject of anæsthetics, also, we think M. Sédillot's chapter of little practical value, although more than one hundred pages are devoted to it. Much of the matter being written more than twenty years ago has, however, a certain historic interest. The most valuable part of this chapter is the section which shows how easily persons can be narcotised by chloroform suddenly placed on the mouth, as in the case of a girl (related in vol. i, p. 115) who was excessively timid and would not consent to operation, and in whose case anæsthesia was produced by clapping a handkerchief charged with chloroform on her face, with such rapidity and success that she never knew that any operation had been performed; or the case of the chloroformist (p. 118) who narcotised himself by placing the handkerchief to his nostrils without having had any idea that he had fallen insensible three times during the operation, the latter having been finished without him. Such cases as these have a considerable value and authority in a medico-legal point of view. Persons are often charged with committing robbery or other crimes upon persons suddenly reduced to insensibility by means of chloroform; and there is much difference of opinion among medical men as to the possibility of narcotising a person without his knowledge or consent. In this point of view M. Sédillot's first case is very valuable.

M. Sédillot is so vehement a partisan of chloroform as to believe that, if pure and carefully given, it will never kill, an opinion which we should be only too happy if we could share.

One of the longest chapters in M. Sédillot's book is on dislocations. Much of it is of merely historic interest, for example, the many pages which are expended in proving the superiority of the pulleys as an instrument for reduction to the force of assistants. If the change in professional opinion in France on this subject is due to M. Sédillot's writings, it is much to his credit; but in this country the sound and reasonable views which our author enforces have been entertained ever since Sir

Astley Cooper's day. In fact, it is hardly conceivable how any one can prefer the jerking, uncertain, sometimes over-violent, sometimes totally ineffective pull of a number of (possibly ill-instructed) assistants to the gradual and manageable action of the pulleys, except for special cases.

M. Sédillot relates a very interesting case of a dislocation of the humerus on to the dorsum scapulæ, which had been overlooked, and which he reduced one year and fifteen days after the accident in the year 1832; and, therefore, without even the aid of chloroform (vol. i, p. 132). On the subject of dislocations of the shoulders, we have an interesting paper published in 1835, and which though it can hardly be accepted as a satisfactory classification now, is yet ingenious and suggestive. M. Sédillot believes that the dislocation upwards is impossible even with fracture of the coracoïd process; but though no preparation existed to prove the contrary in 1835, he ought, in re-editing this paper in 1868, to have been aware that the injury has been dissected and described.[1] He also denies the possibility of dislocation occurring primarily downwards, for reasons which seem to us highly unsatisfactory; and having thus reduced all dislocations of the shoulder into those which occur in front and those which occur behind, he proceeds to describe no less than seven varieties of the former, while of the latter (which can only occur into the sub-spinous fossa) he contrives to make two sub species. The whole classification is too evidently theoretical and too complicated to become classical; besides, the paper seems to have been written before the pathology of cases of supposed partial dislocation had been traced to rheumatic arthritis.

To this is added a dissertation by M. Maréchal de Calvi upon M. Sédillot's method of reduction by pulleys, the only feature of which that is not familiar in England is the application of the dynamometer, a contrivance to which no value is attached in this country.

Then follow numerous papers on special dislocations; for instance, one to prove the possibility of dislocation of the ulna alone, which at that time (1857) had not apparently been recognised in France; an instance of the reduction of the dislocation of the elbow by means of pulleys on the 114th day; and several dissertations on dislocation of the clavicle. In this portion of the work is also a long dissertation on dislocations of the femur—traumatic, congenital, and pathological. M. Sédillot sustains the opinion that dislocation is always so far reducible that the passage formed by the head of the bone remains open to the articular cavity—that is to say, that the

[1] 'Med.-Chir. Trans.,' vol. xli, p. 447.

opinion of those who have supposed that the remains of the articular capsule or other tissues sometimes interpose between the bones and prevent reduction, is unfounded—and therefore dislocations of any length of date are (so far) reducible. We have little doubt that M. Sédillot is, in the main, right, and that such an obstacle to reduction is very rare; but unless the ocular testimony of surgeons of the greatest eminence, who have dissected such cases, is to be rejected, we can hardly say that it never occurs. The cases of congenital dislocation given here are of considerable interest; but in utterly denying that this deformity ever depends on original deficiency of the bony parts, M. Sédillot again confounds the distinction between what is rare and what is impossible.

On the subject of fracture of the neck of the femur, M. Sédillot lays down broadly (vol. i, p. 396) that the diagnostic signs between intra- and extra-capsular fractures of the cervix femoris are arbitrary and uncertain; that bony union is possible in all such fractures, and often occurs when it is least expected; that the head of the bone is rarely or never absolutely severed from the trochanter; that old persons bear confinement to bed and dorsal decubitus better than is often said; and that, therefore, the abstinence from all attempts to procure union recommended by Astley Cooper is wrong. In compound fractures and dislocations of the ankle M. Sédillot is a partisan of primary resection, of which operation he gives two successful cases; otherwise we have not noticed anything particularly worthy of note in the chapter on fractures.

On the ligature of arteries M. Sédillot warmly recommends and defends at considerable length the plan of denuding the artery to be tied for about an inch, placing two ligatures upon it, and dividing it in the interval between them. This is the most ancient of all plans for securing vessels, being most distinctly described by Hippocrates. It is also recommended by Celsus, and is accordingly spoken of by M. Sédillot as "the method of Celsus." Many modern surgeons besides M. Sédillot believe in its superiority in given circumstances. The advantages which the author claims for it are—1. That it secures the operator from all risk of tying anything except the artery. 2. That it exposes the patient to less risk of secondary hæmorrhage; and 3. That such hæmorrhage when it does occur is more easily controlled. The first advantage will not, perhaps, be regarded as of any great importance, for though no doubt nerves or portions of muscles, or other structures, have in some cases been tied, in mistake for an artery, such cases are too exceptional to form the foundation of a plan of treatment. The reasons which he gives for a less per-centage of secondary

hæmorrhages when the artery is thus divided, are in brief that the artery will retract and be better supported by the surrounding tissues, which will become consolidated with it and strengthen it at the point of division, and that the surgeon by exposing a considerable part of the vessel, can better avoid large collateral branches. Why the bleeding, if it does occur, should be more easy to treat, is hardly explained as far as we see. Twenty-one cases from the practice of other surgeons as well as his own illustrate this subject.

In the chapter on amputation (vol. ii, p. 176), we would specially call attention to a very plausible and ingenious modification of Chopart's operation. Here, again, as everywhere, M. Sédillot lays stress upon the importance of providing free exit for the discharges, as the essential point in ensuring recovery after amputation.

On the subject of resection, M. Sédillot does not contribute anything which can be regarded as valuable in this country, where our experience of such operations is so much more extensive than it is in France. He expresses himself as favorable to the excision of the hip, and relates a successful case of that operation. In regard to excision of the knee, all that he has to communicate is a case in which it was contemplated, but amputation was preferred. On the excision of the elbow, he relates one successful case, and says he has often practised the operation, and can "remember nothing but success." The following observation is an amusing instance of the 'tant pis pour les faits': "The pretended regeneration of the extremities of the bones, when excised with preservation to a greater or less extent of periosteal flaps, has fallen into too complete and too merited discredit to render it necessary for me to speak of it again, after the details given on this head in my treatise 'de l'Evidement des os.'" Just at the same time that this over-confident assertion was made, Dr. Doutrelepont published in Langenbeck's 'Archives' the dissection of a case in which this regeneration is proved beyond the possibility of denial.

The only other chapter in M. Sédillot's work which we can notice here is that on 'Gastrostomy,' by which our author means the formation of an artificial mouth in the walls of the stomach, in cases where the œsophagus is obliterated. A most interesting and important collection of cases of accidental wounds of the stomach, and of surgical operations for the extraction of foreign bodies, and of spontaneous gastric fistula from injury or disease, is prefixed to the account of M. Sédillot's own cases, and fully proves the theoretical possibility of recovery after this operation. Both of M. Sédillot's own cases, however, have proved fatal; and if we do not mistake, the same may be said

of the numerous operations performed by other surgeons, a fact which shows the great difficulty of establishing the diagnosis, determining on the propriety of operating, and obtaining the patient's consent, before the period when he has become too much exhausted to bear the operation. It is, however, very probable that with more extended experience these difficulties may be so far overcome that the operation may become the means of preserving life in some few instances of traumatic stricture of the œsophagus from swallowing caustic fluids, and possibly (though we fear not very probably) of sometimes prolonging life in stricture from disease.

We must now leave this work to our readers. We have not noticed the very interesting papers on hernia, on empyema, on tracheotomy, on plastic operations (including fissured palate), on the suture of tendons as a means of restoring motion, and many others. The work is, in fact, a mine of valuable matter; but it is to be regretted that M. Sédillot did not either by judicious condensation with his own hand, or by availing himself of the assistance of some of his numerous pupils, spare us the great labour which is now necessary to dig in it.

Review VIII.

1. *Researches on the Nature and Treatment of Diabetes.*—By F. W. Pavy, M.D., F.R.S. London, 1869. Second Edition. Pp. 297.
2. *Observations on the Functions of the Liver.* By R. M'Donnell, M.D. Dublin, 1865. Pp. 39.
3. *Nouvelles Recherches sur La Glycogénie Animale.* Par M. le Prof. M. Schiff.

New Researches on the Formation of Animal Glycogen. By Prof. M. Schiff. 'Journal de l'Anatomie et de la Physiologie.' 1866. P. 354.

4. *A Hypothesis as to the Ultimate Destination of Glycogen.* By William Ogle, M.D. 'St. George's Hospital Reports,' vol. iii, p. 149.
5. *Des Causes de la Glycosurie.* Par M. le Docteur Bouchardat.

The Causes of Glycosuria. By Doctor Bouchardat. 'Revue des Cours Scientifiques, December, 1869.

6. *On Disease of the Brain as a result of Diabetes Mellitus.* By John W. Ogle, M.D. 'St. George's Hospital Reports.' vol. i, p. 157.
7. *Beobachtungen über Diabetes Mellitus.* Von Dr. Seegen.

Observations on Diabetes Mellitus. By Dr. Seegen. Virch. 'Archiv,' vol. xxxvi, p. 227.

8. *Ueber Kreatinin und Harnsäure Ausscheidung in einem fieberhaft und tödtlich endenden Falle von Diabetes Mellitus.* Von Dr. Carl Gaehtgens.
On the Excretion of Creatinine and Uric Acid in a Case of Diabetes Mellitus, which ended fatally with Fever. By Dr. Charles Gaehtgens. 'Med. Chem. Untersuchungen.' Part 3. Berlin, 1868.

It is now nearly seven years ago that a very complete and lucid account of the whole subject of sugar, in its physiological and pathological relations to the body, was published in this Review. Briefly to recapitulate, and considering the great question under the three leading heads of physiology, pathology, and therapeutics, the following were the most important of the doctrines there enunciated and the opinions expressed; Dr. Pavy being referred to as the first authority on the subject, and Griesinger following in his train.

Considered *physiologically*, and starting from the point at which sugar is absorbed from the digestive tract, it was shown that the liver converts the sugar which enters it into that lowly diffusible substance called by Bernard "glycogen," by Pavy "amyloïd substance." The further destination of this substance in the economy could not be positively stated. It was clearly proved that it was not glycogen, that is, that it did not again become sugar; but it was only suggested that its probable use would be found in the production of fat and the formation of bile. Weighty evidence was then brought forward to show that, although in the blood and urine of health an infinitesimal trace of sugar can be detected by delicate tests, yet no more than this trace is normally present; that any increase of sugar in the blood beyond this trace is a consequence either of a post-mortem or a pathological change; and that, from the high diffusibility of sugar as contrasted with the amyloïd substance, the kidneys at once filter off from the blood any excess of sugar; the word excess being supposed to designate an amount exceeding 1-200th per cent. We were further told that not only from the carbo-hydrates—the starchy and saccharine principles of food—was the amyloïd manufactured; but that it could be formed, and that in very considerable quantity, out of nitrogenized principles alone, as evidenced by its abundant presence in the livers of carnivora fed on exclusively flesh diet. The artificial production of an excess of sugar in the blood, and, consequently, in the urine, by experiments, such as the operations of Bernard and Schiff on the medulla oblongata and spinalis, and the introduction of needles into the liver by Schiff, was fully discussed.

Passing on to the *pathology* of sugar, in other words, to diabetes, the influence of intra-cranial lesion and of mental shock in the occasional production of this morbid condition was alluded to; but for the large majority of cases, in which no such cause can be traced, the reviewer was inclined rather to endorse Griesinger's confirmation of Prout's views as to the near relationship of dyspepsia and diabetes. It was pointed out that morbid anatomy is silent and gives us no clue as to the real nature of the complaint; all that it does for us is to indicate by certain secondary lesions that the blood is in a state quite unfitted for nutrition. The low form of inflammatory changes met with in the lungs, with the tendency to rapid death of the inflamed tissues; the frequency of carbuncle; the occasional complication of gangrene; and, lastly, the diabetic cataract, were all cited in evidence of impaired nutrition.

The *therapeutics* of diabetes, as more especially insisted on in the article in question, may be comprised in three words: diet, fat, alkalies; the order in which the words are placed corresponding to the importance attached to each.

It remains now to gather together in as concise a form as possible the fragments of knowledge that have been contributed from various sources during the past seven years to aid us in our comprehension of this great subject. Such a review is especially necessary at the present time, when a second edition of Pavy's work, "revised and enlarged," has just appeared. The matter of this edition has been generally re-arranged, but the real additions to the volume are of no very great importance; for recent observations at home and abroad have only confirmed the philosophical conclusions which the first edition made known to all. It is, indeed, doubtful whether any real step forwards in the interpretation of this difficult question has been made, and whether the reader of the second edition will learn any great new fact concerning the pathology of diabetes.

In connection with the *physiology* of sugar—following the order already adopted — the names of M'Donnell, Schiff, Meissner, and Jäger, stand pre-eminent among contributors. All of these observers confirm Pavy's discovery that the natural destiny of the amyloïd substance is not to be transformed into sugar. M'Donnell has repeated Pavy's experiments of boiling or freezing the liver at the moment of death without obtaining evidence of sugar; but, still further, he has slowly frozen a hedgehog into a solid mass, and has then found no trace of sugar in the urine. Meissner and Jäger have added, perhaps, the most important testimony of all; for they have cut portions of liver out of living animals, and demonstrated the absence of sugar at the moment of removal from the body. If, then, the

amyloïd substance is not to become sugar, what is its use, and for what purpose in the economy is it manufactured by the liver? Towards the elucidation of this difficulty Pavy has made no advance beyond the hypothesis formerly broached—that the amyloïd is probably concerned in the production of fat. M'Donnell's pamphlet is mainly devoted to this particular point of inquiry, and leads us in an entirely new line of thought. He points to the presence of amyloïd substance in the placenta and amnion of various animals, to the abundant impregnation of the fœtal tissues with the same substance; and to its gradual disappearance in these tissues as the organ approaches maturity. He likewise affirms that the blood of the portal vein is rich, of the hepatic very poor, in fibrine and albumen, and that the amount of nitrogen in the bile will not nearly account for the loss of the nitrogen of the fibrine and albumen, which in some way disappear in the liver. He believes that this missing nitrogen is really united with the amyloïd substance, and in this way leaves the liver "as a newly-formed proteic compound." He asks:—

"May it not be that the liver does for the adult what divers tissues do during the development of the fœtus? May not this great organ form, with the help of the amyloïd substance secreted in its cells, a nitrogenous compound, just as the muscles of the fœtus convert the amyloïd substance contained in them into the highly nitrogenous materials of muscular tissue?"

Dr. W. Ogle has accepted and still further developed the above theory. He pursues this hypothetical nitrogenous compound into the general circulation, where he believes it to be first assimilated by the red blood-corpuscles, next yielded up by them to the muscles, and then again split up in the muscles into myosin and a non-nitrogenous substance—either lactic acid itself or some substance easily convertible into lactic acid. The lactic acid undergoes oxidation, and is probably, in part at any rate, converted into carbonic acid. The myosin, so closely akin to fibrine, he believes to be carried back again in the shape of fibrine to the liver. Thus, to use his own words, "the fibrine serves the office of a carrier of non-nitrogenous fuel from the liver to the muscles," returning from the muscles to the liver in the form of fibrine, ready to renew indefinitely its important work.

It seems probable, then, that the amyloïd may be destined for even higher purposes in the economy than has hitherto been supposed, and may minister to the nutrition of the highest instead of the lowest of the tissues, directly feeding the muscles, and thus furnishing them with their contractile force.

Turning, now, to the consideration of *diabetes*, the centre towards which all that has preceded points, it may be well, *in limine*, to pass in review the causes, both remote and exciting, which may produce the disease. Foremost among these, from its special interest, stands nerve-lesion. It was fully shown in the former notice, that by certain operations on the spinal cord (Schiff), as well as by puncture of a spot in the medulla oblongata (Bernard), glycosuria could be artificially induced. Both Schiff and Pavy have continued this line of inquiry. The former produces the same results by a vertical section of the thalamus opticus and cerebral peduncles, and by a lesion of the pons or the peduncles of the cerebellum. The latter has still further worked out the effect of injuries to the cervical sympathetic in the causation of glycosuria. So much for the facts adduced. But what is the *rationale* of the process by which, after such injuries, sugar is formed? The evidence that we possess as yet towards solving this difficulty is, unfortunately, purely negative. Bernard had already shown that it is not possible for any influence to be transmitted to the liver from the irritated medulla through the pneumogastric or splanchnic nerves, inasmuch as glycosuria follows the diabetic puncture just as readily when these nerves are divided as when they are entire. Pavy has, on the other hand, proved by recent experiments that it cannot be by an interruption of nervous communication between the medulla oblongata and the liver that glycosuria is caused; for he has carefully isolated by dissection the hepatic artery, portal vein, and hepatic duct, and then dividing all the remaining structures in the lesser omentum, has thus completely severed all connection between the medulla and the liver, without causing any appearance of sugar in the urine. He further set himself to work out how far a lesion of the cervical sympathetic might react through the vaso-motor branches on the arteries of the liver, and by causing a hyperæmia of the organ—analogous to that seen in the ear and face after the same operation—account for the formation of sugar in the blood and urine. He found, however, that this idea could not be entertained; for sugar appeared in the urine even after he had ligatured both the hepatic artery and cæliac axis. He is finally driven to the hypothesis that the several injuries to the nervous system which are followed by glycosuria lead to an alteration in the *quality* of the blood which goes to the liver and thus produce their effect. Schiff expresses himself as highly dissatisfied with this "hypothèse vitalistique," and brings forward a *deus ex machinâ* in the shape of a *ferment*, to which it may be well now briefly to draw attention. This clever physiologist, after enumerating a series of experiments

by which he has satisfied himself that the healthy blood contains no ferment capable of transforming the amyloïd substance into glycose, but that such a ferment is formed in the blood immediately after death, proceeds with another series to explain how this ferment may be artificially produced, and, finally, applies his knowledge thus gained to the interpretation of diabetes in its different modes of onset. He maintains, first, that a complete local stagnation of the blood will at once determine the formation of the ferment. In support of this he has brought on glycosuria by tying the aorta and vena cava below the origin of the renal arteries; by compressing the aorta with the hand through the abdominal parietes; and by tightly binding the arm of a healthy man till the arm was paralysed. Secondly, that a mere retardation of the blood-current in any part of the body will have the same effect; as may be shown by tying the principal veins of one extremity, and allowing a collateral circulation gradually to carry back the retarded blood, when sugar shortly appears in excess in the liver and the urine. Thirdly, that a simple localised hyperæmia, consequent on the dilatation of the small blood-vessels of a part, will be followed by the same ferment and consequent glycosuria. In proof of this, he points to the lesions of the sympathetic, which, in opposition to Pavy, he regards as acting on the liver through the local hyperæmia they cause. Again, he divides the posterior columns of the cord in cats, and the sciatic nerve alone in rabbits, and in both cases sees sugar appear in the blood and urine. Further, he recalls a discovery made by him many years ago, that certain lesions of the nervous system are followed by a dilatation of the small blood-vessels—a "hyperémie paralytique"—of the intestines and liver, and maintains that he has now satisfied himself by observation that all the lesions of the central nervous system which are followed by artificial glycosuria give rise to this peculiar abdominal hyperæmia. It is not, therefore, necessary that his ferment should be formed in the liver itself. It is enough if, either by stasis, or by temporary arrest of the blood-current, or by a hyperæmia in some part of the body, the ferment originate somewhere in the blood. Wherever formed, it will find its way on to the liver, and there, meeting with the amyloïd substance, will at once determine the formation of sugar.

Now before we can accept this doctrine of Schiff's, however probable it may at first sight appear, it will be necessary to surmount one or two great obstacles that lie in its way. It seems difficult not to believe Pavy's assertion that the blood is under all circumstances ferment enough of itself during life to convert into sugar any amyloïd substance which may escape

into it. The reason why we are not all of us in a constant state of diabetes is that the amyloïd substance stored up in our livers is very lowly diffusible and does not pass as such into the blood. Pavy has repeatedly injected amyloïd into the blood of animals, and has always found sugar appear in the urine. But, further than this, a repetition by him of Schiff's experiments of digital compression of the aorta, and of tying the aorta and vena cava, has not been followed by the same results in his as in Schiff's hands. Again, Pavy withdrew from the veins of a dog ten ounces of blood, defibrinated it, and then injected it again into the veins without procuring a trace of sugar in the urine.

The exact *rationale* of the production of sugar in the blood, and secondarily in the urine, in sufficient quantity to constitute diabetes, must, therefore, in a large number of cases, still remain unexplained. A few cases there are, it is true, in which diabetes, mild in its form and occurring for the most part in the latter half of life, is met with merely as a consequence of a faulty power of assimilation. There is an incapacity to act on and carry through their proper changes the saccharine elements of food. It is sufficient here to withdraw in part or entirely these elements from the diet, in order to ensure either a complete cure or a permanent arrest of all bad symptoms; but in the majority of instances, and those of necessity the most dangerous, there is something more than mere faulty digestion or assimilation, and the treatment of the disease is not so simple an affair. Where there is a manifest nerve-lesion present to account for the diabetes, we do not know how it acts; and where there is no such apparent cause, although there is every reason to believe that the liver is concerned, we know not how it is concerned. No structural change has as yet been detected in the liver of diabetes which can furnish any reading for the riddle like Bright's kidney in albuminuria.

Bouchardat, who looks at diabetes somewhat too exclusively from the clinician's point of view, is bold enough to state that the obscurity cast by authors over the etiology of diabetes is unfounded, depending on "insufficiency of observation and study." He is very satisfied about the influence of dyspepsia, such as is brought on by insufficient exercise and over-eating. Of all men "notaries" are most often the prey to these evil habits and their terrible consequences; so that no sooner does he see a staid figure of fifty—in proper broadcloth, with a white cravat—walk into his consulting room and complain of excessive thirst and too frequent micturition, than he shows his professional acumen and astonishes his client by the exclamation: "Monsieur, vous êtes notaire." He is inclined to Schiff's view of a ferment acting on the amyloïd, but he looks to the pancreas rather than to the blood itself for the production of this ferment.

Among the more remote causes hereditary tendency is decidedly marked.

Among the *symptoms* of diabetes, attention has recently been drawn to lesions of the nervous system as a consequence of the diabetic state. Marchal de Calvi ('L'Union Médicale,' Oct. 20th, 1863) has quoted cases in support of this; and more lately Dr. John Ogle has brought forward, as we think, convincing evidence, in a case recorded in great detail, to show that extensive white softening of the brain may supervene as a complication in an advanced stage of diabetes. Seegen, whose position as Badearzt at Carlsbad, enables him to speak authoritatively on the matter, comments on the frequent occurrence of nervous symptoms in diabetes. An attack of hemiplegia, or of paralysis of some nerve, or of neuralgia in some form, is not an uncommon phenomenon in diabetes; while the great nervous prostration and early occurring impotence in this disease are notorious. It seems quite reasonable to class this degeneration of the nervous system with those other degenerations already alluded to, such as gangrene, boils, phthisis, cataract, &c., and to consider it as additional evidence of the degraded state of the nutrition in advanced diabetes. With regard to affections of the eye, Pavy quotes Bader in support of the statement that there is a paresis or paralysis of the ciliary muscle, as evidenced by a want of proper accommodation of the eye, which is to be regarded as a direct consequence of the diabetic state.

It is now settled by the best observers that there is an increased excretion of urea in the urine of diabetics; but less attention has been paid to the excretion of creatinine and uric acid in the same disease. Gaehtgens made a very minute daily analysis of the urine in a fatal case of diabetes, where, for the last eight days of life, fever (*i. e.*, a rapid rise in the temperature of the body as indicated by the thermometer) was present. He concludes that the daily excretion of both the creatinine and uric acid is below the healthy average. His analyses derive an additional value indirectly from the fact that they show how fever is attended with a marked rise in the amount of nitrogenous products excreted. No sooner did the temperature begin to rise than both the creatinine and uric acid rose simultaneously, so that the former nearly reached, the latter even surpassed, the normal average: but in genuine, uncomplicated diabetes, both these products are excreted in diminished quantity.

The enforcement of a strict diet is of the first and most absolute importance in the *treatment* of diabetes. In connection with the best substitutes for bread, some remarks by Dr. Hassall ('Lancet,' 1866, p. 640) will, from their practical value, well bear repetition. He draws attention to the high percentage of

starch in the ordinary bran biscuits of commerce, as anyone may satisfy himself by dropping iodine on any given specimen. He finds, on analysis, as much as 44 per cent. of starch in "prepared" bran, 28 per cent. in bran biscuits, and 16 per cent. in gluten bread. He proposes to treat the bran with dilute sulphuric acid, and thus convert all the starch present into grape sugar, which may easily be washed away. He then makes from the purified bran a "flour of bran," which, mixed in certain proportions with his "flour of beef," constitutes a valuable and fairly palatable food for diabetic sufferers. This, varied with Pavy's almond biscuit, or new almond flour deprived by pressure of part of its oil,[1] will be the best and safest substitute for bread that can be obtained. Second in importance to diet still stands fat, especially in the form of cod-oil. Thirdly, the alkalies continue to find favour, and have recently had Dr. Basham's recommendation ('Brit. Med. Journ.,' April 10th, 1869). The phosphate and carbonate of ammonia are the special forms employed by him, and it is advised to continue them uninterruptedly for months. Seegen, who writes from an experience of 160 cases, has no doubt that the sugar-forming process, whatever it be, is checked by the Carlsbad waters. Vichy, likewise, maintains its reputation. Fourthly, the old remedy, opium, has lately been tried on a more extensive scale, having, as it appeared, for a while lost favour. Pavy evidently sets much store by it; and Anstie has made it the subject of some interesting observations ('Lancet,' 1864, Part II, p. 602.) The latter thinks that its beneficial influence in diabetes is wrongly sought for in its narcotic effects, but is rather to be found in its stimulant and restorative action on the medulla oblongata. He gives it the place of an important adjuvant, second, of course, to proper dietetic treatment. Fifthly, a strict attention to hygiene must be enforced. Bouchardat dwells on the importance of this, and even advises a systematic course of gymnastics, insisting on the necessity of regular muscular exercise short of fatigue. Lastly, a cure for diabetes has recently been vaunted in the peroxide of hydrogen; but a full and unbiassed trial of this remedy by Pavy has convinced him ('Lancet,' 1869, March 13th) that not the slightest benefit is produced by it.

[1] To be obtained of Messrs. Darby and Gorden, 140, Leadenhall Street.

Review IX.

Catalogue of the Pathological Museum of St. George's Hospital. Edited by John W. Ogle, M.D., and T. Holmes, F.R.C.S. London. Pp. 886.

This useful volume has been, we understand, for a long time past in preparation. For some years its construction (retarded very considerably by circumstances, and rendered laborious by the necessity of microscopical examination of a large number of specimens existing in the museum), continued to occupy the leisure hours of the editors[1] who, in the compact and readable volume before us, have set an example which might well be followed by all the hospitals in London. A point of primary importance in such a work is, that each specimen shall have appended to it a short *résumé* of the principal symptoms and leading clinical facts in the history of the case which the specimen illustrates. Five or six lines, or even less, will, in the majority of instances, suffice for the purpose; and in the appendix to the catalogue under consideration there is scarcely a preparation which is not thus rendered complete, so that for some years past the St. George's museum must have received great attention at the hands of its curators. It is hardly too much to say that no pathological specimen which is not finished in the way indicated should have a place in a museum. For the practised eye of an amateur collector or artist in museum pathology, the bare dissection or method of "putting up" the preparation has its special interest. But not so for the ordinary student. He will never be induced to profit by the stores of knowledge bottled up in our museums, unless he find an account of the case during life annexed to the post-mortem description, and thus derive an immediate and practical interest from the dry details of the collection.

In this catalogue, pathology is not, as in the College of Surgeons, divided into general and special pathology, but the volume opens at once with special pathology, or the pathology of systems (osseous, circulatory, respiratory, &c.), represented in twenty-two series;[2] each series being preceded by an index

[1] The late Mr. Gray was originally associated with Dr. Ogle, as editor, but after his death his duties were undertaken by Mr. Holmes.

[2] For the series illustrating "Injuries and Diseases of Bones and Muscles," affections of the "Bladder and Organs of Generation," of the "Organs of Special Sense," and also "Tumours," Mr. Holmes is responsible; Dr. Ogle being responsible for the series allotted to "Diseases and Injuries of the Brain, Spinal Cord, and Nerves," the "Organs of Circulation, of "Respiration," and of "Digestion," of the "Kidneys,' of the "Various Glandular Organs," "Calculi," &c.

very conveniently arranged for reference. This index is especially complete in the series which treat of fractures and dislocations, diseases of bone and joints, being here threefold—one anatomical, to show the bone or joint affected; another surgical, to give the symptoms, the complications, and, sometimes, the results of treatment; and a third pathological, to mark in the case of fractures the amount of union that has taken place, and, in the case of disease, the nature of the disease. There is, further, at the end of the volume, a complete alphabetical index referring to the series, the number of the specimen, and the page in the catalogue. The greatest facility of reference is thus offered, not merely to one examining the specimens, but also to the reader, for the book is full of most valuable reports of cases in connection with the specimens, most of them condensed, some *in extensô*. Sir B. Brodie's name figures of course most prominently throughout the book: especially is this the case in the series which include diseases of joints and of the urinary organs. It is interesting to all who have read and reread his original lectures on these subjects, to light upon his descriptions of the very specimens, by the patient accumulation and study of which he made himself the master he became. Other important contributors are Mr. Cæsar Hawkins, Mr. Prescott Hewett, Mr. Stone, Dr. Seymour.

The catalogue opens with Series 1 on *fractures and dislocations*. Those of the spine are worthy of study as indicating the ordinary duration of life, according as the injury involves one or the other part of the column. Speaking generally, after fracture or dislocation in the cervical region, life is a question of hours or days; in the dorsal region a question of weeks; in the lumbar region of months.

In Series 2 and 3, both full of instruction, *diseases of the bones and joints* have their place; while Series 4, a short one, illustrates affections of muscles, fasciæ, tendons, and bursæ. In Series 5, *diseases of the spine* are contained. Series 6 includes *injuries and diseases of the circulatory system*. One specimen in this series (number 48) deserves special comment as being a very curious instance of a good description of embolism long before its pathology was understood, and as such was brought before the notice of the Pathological Society of London, by Dr. Ogle (see 'Transactions,' vol. xiv, p. 39.) On reading the case as it stands, one can only wonder that the riddle was not then read, so simple and self-evident does the explanation appear. The description runs as follows:

"Specimen showing masses of decolorised fibrine lodged within the recesses between the fleshy columns of the right ventricle.

Some of these masses contained puriform fluid within them. A few fibrinous masses were found in the left ventricle also. One of the fleshy columns in the left ventricle was converted into a yellowish white mass, and a large part of the upper portion of the left ventricle near the auricle had partially undergone a similar change. In these places spots of ecchymosis were met with, and *a branch of the coronary artery passing through them was blocked up by a mass of fibrine. The left internal carotid artery passing at the side of the sella turcica contained a quantity of firm fibrine and clotted blood* which appeared as if it had been long coagulated; *and the corpus striatum of the same side was softened and of a yellow colour.* The preparation was removed from the body of a woman, aged 56, who died in the hospital, having been for some days before admission subject to supposed hysteria. Only a few days before death, the patient had complained of great pain at the region of the heart; this was followed by *œdema and incipient gangrene of the lower extremities.* A drawing of the specimen, executed by Mr. Perry, in the year 1829, exists in the museum. Presented by Cæsar Hawkins, Esq."[1]

This hysterical manner was a peculiarity noticed in another similar case later on in the catalogue, which occurred in the year 1863, and in which there was unmistakable post-mortem evidence of clots moving about in the circulation.

The collection of aneurysms seems to be very valuable and extensive.

In Series 7, we find *injuries and diseases of the respiratory organs.* The term "tubercle," with its derivatives, is banished from the nomenclature in this series, and "scrofulous deposit" is generally employed. This is carried to its full extent in the phrase "miliary scrofulous deposit." Some would, no doubt, rather see the old expressions "tubercle," "miliary tubercle," "tuberculosis" retained, as has been done in the new and welcome 'Nomenclature of Diseases.' In Series 8, devoted to the *nervous system,* the specimens which illustrate injuries and diseases of the brain and its membranes are numerous, well-selected and of great value. Specimen 180, p. 388, is highly interesting, as showing that there may be complete retention of all the intellectual faculties for twenty years after "excavation by injury of the convolutions forming the anterior part of both hemispheres." Series 9 is devoted to the pathology of the *chylopoietic viscera.*

In the four following series the pathology of the so-called *vascular or ductless glands,* of *the urinary organs,* and of *the organs of generation,* in both sexes, is extensively illustrated. The names of Sir B. Brodie and Mr. Stone stand out prominently as contributors to the series for diseases of the male and female organs of generation respectively. Some of the great

[1] The italics are our own.

Gooch's preparations are here displayed, and among them one more particularly remarkable, a case, namely, of fibrous polypus, in which his canula had been applied for removal of the tumour, and, "the patient being turned in bed on her back, the canula pressing on the mattrass, perforated the uterus and caused death." Such an accident as this is now rendered impossible, thanks to the invention of the écraseur, and more especially, to Dr. Braxton Hicks' ingenious modification of this instrument for the operation in question. Two specimens of ovarian cysts, removed by ovariotomy in 1846 are worth notice; the operation being successful in the one case, fatal in the other.

Among *diseases of the mammary glands* which make up Series 15, Brodie's valuable collection of sero-cystic tumours is displayed. Series 16, short but well arranged, is devoted to the consideration of *injuries and diseases of organs of special sense and the skin.* A separate series is likewise given to *tumours.* Foremost among the *monstrosities,* which belong to Series 18, stands a cast of a famous double Chinese monster. The principal, named Ake, lived to reach adult life; his brother, if the parasite may so be called, being united by the skin of the neck to the pit of Ake's stomach. In this way the parasite seems to have derived its supply of blood through arteries direct from the principal, and to have returned its venous blood back again to the principal, who thus acted rather the part of a mother than that of a brother towards his unpleasant companion. The phenomena is described at length by Mr. Livingstone, Surgeon to the British Factory in China, who presented this extraordinary specimen. Series 19, the next in order, brings us to *calculi, sediments, concretions,* and *foreign bodies* from the urinary and digestive organs, together with miscellaneous concretions from other parts of the body. The collection of urinary calculi is a large one, amounting in all to more than 400. We are informed that "the majority of these were purchased by Sir B. Brodie at the sale of the late Mr. Heaviside's specimens, and were given by him to the museum;" and that "they were examined chemically by Dr. Bence Jones." It is not, perhaps, known to many besides St. George's men that Brunel's famous half sovereign is a museum specimen. The authentic account of this incident is worthy of insertion here:

"A half sovereign which the late Mr. Brunel, the engineer, whilst playing with his children, dropped into his windpipe, and which was recovered by tilting the body with the feet upwards, a process by which the coin was allowed to roll out through the glottis, an artificial opening having been previously made into the trachea by Sir Benjamin Brodie. The accident occurred April 3rd, 1843. Mr. Brunel himself, on his own responsibility, attempted to obtain removal of

the coin by the expedient of lying on his face and inclining his head and neck downwards. This caused the sensation, as of a loose body existing in the trachea, followed by a violent cough; and on his resuming the erect position, he again had the sensation as of a loose body moving into the trachea towards the chest. Subsequently, the experiment was tried in a more complete manner, the patient being fixed on a moveable platform, and the upper part of the body tilted downwards. As no good result followed, the experiment was repeated, but on this occasion with the effect of inducing much cough and alarming symptoms of choking. On the 27th, the opening before mentioned was made in the trachea, partly with the view of extracting the coin from within the trachea with forceps, and partly in order that, by the opening, spasm of the glottis and impending suffocation might be prevented, in case the experiment of inverting the body should be again resorted to. Fruitless attempts were then made to find the coin by means of the forceps, and repeated on the 2nd of May, with similar want of success, much distress being produced. On the 13th of May the patient was again inverted on the platform, and brought into the same position as formerly; the back being struck by the hand, two or three efforts to cough followed, and presently he felt the coin quit the bronchus, striking almost immediately afterwards against the incisor teeth of the upper jaw, and then dropping out of the mouth; a small quantity of blood drawn into the trachea from the granulations of the external wound being ejected at the same time. No spasm took place in the muscles of the glottis, nor was there any of that inconvenience or distress which had caused no small degree of alarm on the former occasion. On the 20th of May the patient had sufficiently recovered to be able to go for a change of air into the country, and in two weeks more the wound was quite healed. Mr. Charles Hawkins had an opportunity of examining the body after death, and found that the wound in the trachea had perfectly united, and that no disease of the lungs existed. Presented by Sir B. Brodie, Bart."

In Series 20 the various *entozoa* are contained. This collection is a small one, as the greater number of these parasites are described in connection with the several organs—intestines, &c.—infested by them. The last two series are devoted to *drawings* and *casts or models*. In the former of these is placed Brodie's private collection of drawings presented by his son.

The Appendix, to which allusion has already been made, is composed of specimens which have been more recently added to the collection, and was arranged by Dr. Dickinson. Among the preparations particularly deserving of notice we would mention No. 226, Series 6, p. 819, which illustrates the formation of aneurysm as a consequence of embolism—a point in pathology to which we believe Dr. John Ogle first drew attention. The ulnar artery is here the seat of the change in question, while the middle cerebral, and branches of splenic and renal arteries, are

simply occluded by emboli. More recent investigations by the same observer have added to the probability that this explanation is a true one for certain kinds of aneurysm. Several other remarkable cases of embolism are to be seen in this appendix, and also some striking instances of occluded coronary arteries after death from angina.

We are informed that Mr. Pick, the present Curator of the Museum at St. George's Hospital, has added considerably to the collection since the manuscript of the printed catalogue was concluded; the histories of the cases being for the most part given along with the description of the specimens.

The introduction of the histories of the cases which we have above alluded to as forming a peculiar feature of the catalogue, could only have been possible where a system of registration of post-mortem records as perfect as that adopted at St. George's Hospital, has been long in use. The admirable series of yearly post-mortem books well indexed, in which the symptoms during life are in all cases recorded side by side with the appearances met with after death, extends as far back as the year 1840; and for its initiation the hospital has to thank Mr. Prescott Hewett, the present senior surgeon, who at that time was curator, and whose labours in the construction of the original catalogue of the museum are so well known to all students of the hospital.

Review X.

Tenth Annual Report of the General Board of Commissioners in Lunacy for Scotland. Edinburgh, 1868. 8vo, pp. 250.

In the preceding number of this Review an analysis appeared of the last issued Report of the English Lunacy Commissioners, and it is now our duty to present a sketch of the condition of the insane, and of the prevalence of insanity in Scotland. The general Report of the Scottish Commissioners is chiefly occupied with statistical information relative to the numbers of the insane, their distribution, the provision made for them, and the circumstances affecting their condition. In conveying this information, numerous tables are introduced, and tabular statements also constitute a considerable portion of the appendices, showing the number of chargeable pauper lunatics in each county and parish of Scotland, how distributed, and the extent of population in each place. A further appendix is occupied with notes from the entries made by the Commissioners in the course of their visits to the several public and private asylums, and is

supplemented by general reports made by the Deputy Commissioners on the condition of single patients.

The first thing that strikes the reader is the precise knowledge possessed by the Scotch Commissioners respecting the number, distribution, and condition of the insane throughout Scotland, a feature that does not make itself apparent in the report of the English Board. The returns made of lunatics existing in Scotland on the 1st of January, 1867, show a total of 6762, of whom 3178 are males, and 3584 females. Of the total number 3519 were located in royal and district asylums, 672 in private institutions, 440 in parochial asylums, 558 in lunatic wards of poorhouses, and 1573 in private dwellings. At the same date there were in England, in public asylums and hospitals, and in private licensed houses, 31,917 lunatics. To this total must be added those detained in workhouses and those resident in private houses, two categories of patients of whom the English Commissioners have no sufficiently definite information to give. However, judging from the fact, that in 299 workhouses visited by them in the year, there were as many as 7987 persons of unsound mind detained in those institutions, we may fairly assume that, in all the workhouses together, there are half as many insane in existence as are provided for in the whole of the several public and private asylums in this country, a conclusion that must be astounding and most unsatisfactory to the English ratepayer, and to every man interested in the well-being of the insane, in the face of the enormous expenditure incurred in erecting and maintaining special asylums, supposed at one time or other to be adequate to the wants of the several counties and boroughs. The total of English lunatics should be further augmented by the addition of the number of such patients boarded out with strangers or resident in their own homes; of this number no approximative estimate can be made from the data supplied. In the case of paupers boarded out at the expense of parishes, returns might be obtained; but of patients maintained out of private resources, scattered up and down the country, and for the most part unknown to the Commissioners, no statistical information is attainable.

In Scotland the lunatic population increases at a lower rate relatively to population than in England. In the year 1867, 145 lunatics were added, the increase taking place entirely in the public asylums, an actual decrease being observable among patients otherwise disposed of. Hence, in fact, there was an increase in such public institutions of 312. Taking public and private asylums alone, for the sake of comparing the results with those given by the English Commission, the increase reached 171, in England it amounted to 1296.

Unlike what happened south of the Tweed, there was a decrease both of paying and of pauper patients in private houses, and of the

latter class also in the lunatic wards of workhouses. Nevertheless, the rate of accumulation is such, that "the demand for accommodation must speedily overtake the supply, unless constant additions be made to existing establishments, or new asylums continue to be erected." Further, the tables show, "that the accumulation in establishments goes on at a rate three times greater for pauper than for private patients . . . . . The recoveries are nearly in the same ratio in the two classes; but it appears that the proportion of private patients removed unrecovered from our registers is so much higher than that of pauper patients as to afford an explanation sufficient to account for the difference in the degree of accumulation of the two classes."

The Report proceeds to contrast these results with those arrived at by the English Commissioners:

"This difference (just noted) is a matter of so much practical importance that we may be excused for further illustrating it by reference to the Twenty-first Report of the English Commissioners in Lunacy:—Of 24,590 patients in the county and borough asylums of England at 1st of January, 1867, only 216 were private; on the other hand, of 6694 patients in hospitals and licensed houses, 5070 were private. In contrast, the number of patients discharged unrecovered from the county and borough asylums in 1866 was only 894, against 1106 similar discharges from the hospitals and licensed houses. The influence of this result on the accumulation of pauper patients in asylums is very remarkable. At 1st of January, 1866, the private patients in English asylums were 2831 males and 2445 females; and the pauper patients 11,299 males and 13,696 females. At 1st of January, 1867, the private patients were 2845 males and 2441 females; and the pauper patients 11,753 males and 14,245 females. There was thus, in 1866, an increase of only 10 patients, against an increase of 1003 pauper patients. The proportion of private to pauper patients, estimated on the numbers resident, was 1 to 5; whereas, their rate of increase was 1 to 100" (p. 6).

With respect to the relative proportion of the two sexes in asylums, it appears that male patients predominate, as in England, in point of number over female, in private establishments; whilst, in pauper institutions, it is the female inmates that are the more numerous. The returns of the census in 1861, and those of the proportion of male to female paupers made in 1867, in Scotland, would raise the expectation of a predominance of females both among private and pauper patients, and one decidedly larger among the latter.

As to the relative tendency of the two sexes to insanity, the Commissioners are of opinion, that the statistics of the numbers resident and of those admitted into asylums do not supply a safe criterion.

A table is presented of the number of pauper lunatics in 33 counties of Scotland, for each year since 1858, from which it

appears that in some counties, chiefly the small and agricultural, the number has decreased since 1858.

"In others there has been very little change; while, again, in others there has been a large increase. This increase, no doubt, bears a certain relation to the increase of population; but this cause will not afford a satisfactory explanation of the large growth of pauper lunacy in such counties as Aberdeen, Argyll, Kircudbright, and Wigtown. Nor will the recent erection of district asylums afford a solution of the difficulty! for, of the counties named, Argyll is the only one in which, since 1858, a new asylum has been provided" (p. 7).

At p. xii, these wide variations in the proportion of lunatics in different counties are attributed to differences (1), in the constitution of the inhabitants; (2), in education and mental culture; (3), in degrees of social intercourse, and in the amount and nature of their occupations; and (4) in their pecuniary position. "These discrepancies, however, are so various and manifold, as to render it difficult to maintain there is a greater extent of pauper lunacy among a manufacturing or agricultural population, or amoug people of Saxon or Celtic race." And although the greater mental activity of an urban and manufacturing population may be assumed as predisposing to insanity, yet it must be remembered "that the increase of lunacy is found among the lower classes of the population, which neither in town nor country display much mental activity, but which are more exposed in urban and manufacturing, than in pastoral and agricultural communities, to overcrowding, impure air, exhausting labour, insufficient diet, abuse of stimulants, and contagious diseases." Again, "over-excitement of the intellect or feelings is doubtless a not infrequent cause of insanity; but among the pauper lunatics who are admitted into asylums, the cases which originate in this source are few in comparison with those which are due to physical deterioration" (p. xiv).

The mortality in Scotch asylums will compare favorably with that in English and French establishments. The average mortality for five years was, in Scotland, on the two sexes together, 8·24, and in England 10·39 per cent. In France, on an average of fourteen years, the mortality reached 14·03 per cent. The death-rate of males exceeds that of females in each of the three countries named, but the relative excess is less pronounced in Scotland than in England or in France.

The Scottish Commissioners have not in their returns ventured to draw a distinction between idiots and lunatics, as they are satisfied of the fallacy of attempts to do so; and, by way of illustration, cite the returns made to the Poor-Law Board respectively by the parochial authorities of St. Pancras, and by those of Bedfordshire at large,

which represent only 7 idiots in the London parish with 9532 chargeable paupers, and as many as 108 among the 8841 paupers of Bedfordshire.

In Argyllshire the accumulation of lunatics has to a particular degree embarrassed the county authorities; and in April, 1867, they proposed to the Commissioners to be allowed to place incurable and harmless lunatics in the ordinary wards of poorhouses. This application had the advantage of being in accord with the admitted practice in English workhouses, and with the expressed views of the English Lunacy Board. However, the Commissioners "reluctantly came to the conclusion, that it was an inadvisable" proposition, though "they saw no insuperable obstacle to the establishment of lunatic wards in the poorhouses of Oban and Lochgilphead."

Overcrowding is the great fault in the Edinburgh asylum, and this institution is declared to "already exceed the limit compatible with efficient management; while the extent of land, amounting to about forty acres, is quite insufficient for the proper occupation and exercise even of the present numbers" (p. xxvi).

We shall not attempt to follow *seriatim* the remarks entered by the Commissioners respecting the state of the several asylums, licensed houses and parochial wards, and of their insane inmates; suffice it to say, they represent on the whole a favorable condition of things both with regard to patients and to the accommodation provided, the exceptions to this being almost all found in the licensed houses.

Dipsomaniacs claim a brief notice. Seventeen such morally aberrant beings availed themselves of the privilege accorded them by the Lunacy Amendment Act of 1866, and voluntarily placed themselves under control and treatment. Of these, fourteen were admitted into public, and three into private asylums. "The chief impediment (observe the Commissioners) to the success of special institutions for dipsomaniacs is, the want of the power of compulsory detention." At the same time, they do not see the way in which such power can be extended.

The Medical Act and the labours of the Medical Council have not succeeded, as far as Scotland is concerned, in securing for registered practitioners the recognition of the validity of their right to exercise their profession in any part of the United Kingdom. For, in the case of lunatics removed to Scotland, the certificates of the English medical men are held to be invalid for their detention in that (foreign?) land, and consequently certificates from Scotch practitioners are required. We cannot perceive any sufficient reason for this practice, but look upon it as an anomaly that ought forthwith to be abolished as opposed to the intent of the Medical Act.

The remarkable difference observed in Scotland between the ratio of discharges of pauper and of private patients, challenges the

attention of the Commissioners, who, without examining in detail the several causes assignable for such diversity, direct their observations particularly to the statutory provisions for the discharge of patients. By the 29 and 30 Vict. c. 51, the sheriff's order for the detention of a patient lapses at the expiry of three years, and it is incumbent on medical superintendents at the termination of the first three years to certify to the necessity of prolonged detention, in order that the detention may be valid, and to repeat annually a like certificate addressed to the sheriff, in order to obtain his authority for the seclusion of the patient the succeeding year. The intervention here of the magistrate is, in the opinion of the Commissioners, supererogatory; and the assimilation of the proceedings in Scotland with those in England is advocated.

Respecting the discharge of patients from asylums, the Report goes on to say—

"In determining on the propriety of the discharge of a patient, whether private or pauper, it appears to us that, as a rule, superintendents of asylums give comparatively little consideration to the question whether detention continues to be necessary or proper, provided they are satisfied that the patient is still of unsound mind. But the statutory form of the medical certificates requires not only that the patient must be of unsound mind, but also 'a proper person to be detained and taken care of.' It thus appears that the practical power of detention which is placed in the hands of a superintendent is very great, and is liable to abuse, if not exercised with judgment and discretion. Viewed even in the most favorable light, detention in an asylum partakes a good deal of the character of imprisonment. There is a necessity to conform to the rules of the institution, to sacrifice individual inclinations, and to obey the orders of the officials and attendants."

These remarks are weighty, and in harmony with a growing public conviction that there is too much imprisonment of the insane; that the disposal of a lunatic in an asylum is of the character of a final act, a throwing off of all further responsibility about him, a somewhat meritorious deed, inasmuch as it offers a permanent provision for his wants during the remainder of his days.

The deficiency in the means of bathing was remarked upon in English asylums, but it is surpassed in the like institutions in Scotland. We read of six or eight individuals being bathed in the same water, of twelve or fifteen males using a general bath at the same time; of the water being changed only twice for about forty patients. Moreover, there appears a general inferiority of Scottish as contrasted with English asylums in their internal fittings, in their indoor means for recreation, in the possession of books and periodicals, and in general in those particulars which, to use a favorite word with the writer of the Reports, contribute to the "amenity" of those establishments.

The reports by the two Deputy Commissioners, in Appendix F, present many points of interest. They refer to the condition of single patients, and it is pleasing to note a progressive improvement in that matter.

"As regards a large number of them, indeed, the state in which they are now found may be regarded as satisfactory. In comparison with what existed before 1858, the begging, ragged, *henspeckle* village fool is now rarely seen in Scotland. I hear (says Dr. Mitchell) this change often remarked upon, and it has been effected without placing in asylums inoffensive imbeciles, who were capable of enjoying family life and freedom, and to whom the discipline of an asylum would have proved irksome and a form of unnecessary restraint. When such patients are provided with judicious guardianship, plenty of plain wholesome food, a comfortable bed, and warm, well-made clothing, they are often so changed as no longer to attract attention either by their appearance or their habits. But besides this, the consideration which is seen to be bestowed upon them by persons in authority, is not without its good influence on the general community, who are thus led to reflect on the nature of the claims which the infirm in mind have on our sympathies. And thus arises a healthful change of feeling and conduct, which must be ultimately an advantage to the insane generally." (P. 228.)

Dr. Paterson seizes an opportunity to correct a misapprehension which the English Lunacy Commissioners have fallen into regarding the Scottish system of boarding out single cases. They remarked that the plan of boarding out harmless and incurable imbeciles in private houses, as carried out in Scotland, was inapplicable to the circumstances of pauper lunatics in England. They farther stated, that there are already 6600 residing as single patients, whom it is the duty of the parochial medical officer to visit and report upon at stated periods, and any of whom may be removed to asylums, if there is reason to suppose that they are neglected or improperly treated.

"Now (writes Dr. Paterson), if it were to be inferred that in Scotland the class of single patients is in a great measure kept up and recruited by the practice of drafting them out of asylums into private houses, under the care of parties unconnected with them by the ties of natural affection and duty; or that the superintendence and control exercised over them is substantially the same in the two divisions of the kingdom, such an inference would be considerably wide of the mark."

The fact is, that the majority live with their own relatives, and not more than 17 per cent. have ever been in asylums.

"The great majority have been simply allowed to remain where we found them, ... on our being satisfied that the arrangement

was a suitable one, or capable of being made so; and at least 86 per cent. consist of idiotic and demented persons, for whom asylum treatment would have been unsuitable or unnecessary. . . . . The real advantage which the Scotch system can lay claim to in its mode of dealing with single patients, and which is essentially favorable to its still further development, appears to me to consist not so much in the fact of the residence of a certain proportion of pauper lunatics with their own families or with strangers, as in the necessity for the sanction of the Board of Lunacy being given in each case before such residence can be permitted, and in the visits which it is the duty of parochial medical officers and inspectors of poor to pay to the patients at regular periods, being supplemented by those of accredited representatives of the Board of Lunacy, who are charged to inquire into the sufficiency of the guardianship, allowances, clothing, and general accommodation, and on whose unfavorable report the sanction may be withdrawn and the patients sent to an asylum." (P. 241.)

Another feature belonging to the Scotch system of boarding out patients, which is likely to undergo considerable development, is that of granting licenses, free of charge, by the Board to householders for the reception of lunatics not exceeding four in number. In the generality of cases the license is restricted as yet to two patients.

"The character of the applicant, and suitableness of the house, are duly inquired into by the Board before granting the license; and the sanction of the Board, founded on a medical certificate of the patient's fitness to be placed in a special licensed house is further required in each case. Rules and regulations for the conduct and management of the house are also enforced,"

and visitations periodically made by the members of the Board.

In connection with this subject of patients boarded out, it is worth while to notice that the rate of mortality among those so placed is less than among the inmates of asylums and of lunatic wards.

"That it should be less than the mortality among asylum patients is not surprising, considering the amount of active disease in such establishments; but that it should be so considerably less than what occurs in lunatic wards of poorhouses must appear remarkable, especially when it is taken into account that the patients in such wards are, for the most part, like those in private dwellings, idiots and dements; and that, as a rule, the physical wants of the former are more amply supplied. We can offer no explanation of this fact beyond the conjecture that the manner of living in private dwellings, involving, as a rule, greater freedom and greater variety, more than counterbalances the advantages which better diet, better clothing, better bedding, better housing, and greater cleanliness, might be supposed to convey."

In the above quotations and remarks, we have brought under review some of the important results and problems to be met with in this excellent report from the Board of Commissioners in Lunacy for Scotland. It is one great social problem of the day, how are the unsound in mind to be best provided for, at the least cost to the public, commensurate with the best interests of the unfortunate individuals concerned. The system of aggregation has been fully tested and is found wanting. Gigantic asylums are gigantic evils and undoubted mistakes. The questions for solution remain; how far can the principle of distributing, maintaining, and supervising patients in their cottage homes, and in small licensed houses, be extended? Is it necessary to collect together and to shut up in expensive asylums all the crazy and weakminded members of the community?

Review XI.

Principles of Human Physiology, &c. By W. Carpenter, M.D. Edited by H. Power, M.B., F.R.C.S. Seventh Edition. London, 1869. Pp. 1032.

Dr. Carpenter's writings have so long been the accepted standard works on physiology in this country that, in taking up the new edition of his 'Principles of Human Physiology,' we seem to be reviewing rather the progress and position of the science of physiology in England than discussing the merits of a particular treatise on this subject. This may be said notwithstanding the fact that Dr. Carpenter no longer takes any part in the compilation of the work, and does not even exercise the slight supervision over it he gave to the last edition, but leaves the responsibility entirely with the present editor.

When, after an interval of ten years, the sixth edition appeared it was at once recognised that in Mr. Power Dr. Carpenter had been so fortunate as to find a successor competent in all respects to carry on his work. Ten years leave an enormous gap in a science advancing so rapidly as physiology, but almost all the discoveries which had been made, and all the facts of importance which had been established, had been appropriated; the vast stores of scientific literature, foreign, and especially German, as well as English, had been swept, and the results carefully sifted, combined with such older views as had stood the test of time, into a complete and harmonious system.

Five years have barely passed and another edition has been called for. An author is usually considered to have done all that

can be expected of him if under such circumstances he is able to say that two or three chapters have received considerable additions and alterations, but Mr. Power has to state that two or three chapters only out of so large a work have escaped considerable modification. In physiology every year seems to be increasingly fruitful of results; careful and minute investigations are being made in every department, instruments of precision (borrowed from the methods of physical research) are applied in the observation of vital actions, and unheard-of microscopic powers are being brought to bear on the investigation of structure. All the collateral sciences, also, have made great advances, and moreover the principles of abiological science have been extended with increasing boldness into biology. This unexampled activity renders the task of the systematic writer who has the ambition to make his work reflect faithfully the state of knowledge in his time most arduous. Mr. Power has certainly so found it, but he has proved equal to the occasion. The amount and variety of new matter introduced in the present edition cannot be imagined by anyone who has not gone over it passage by passage. It is comprehensible only on the supposition that new researches are noted from day to day, while the harmonious blending of these with knowledge previously acquired, the careful elimination of views rendered obsolete by the progress of science and the exclusion of doubtful doctrines indicate the exercise of much thought and judgment.

It appears to us, however, that respect for opinions and doctrines enunciated by Dr. Carpenter has sometimes been allowed to interfere with the very necessary process of pruning, and we are persuaded no one will more regret it than Dr. Carpenter himself. We do not believe that he has arrived at that stage when the ideas crystallise into rigid and definite forms with the hardening of the cerebral convolutions; he gives abundant evidence that the molecular activity in his brain is as great as ever, and he keeps pace with the best of his contemporaries. The more boldly every doctrine is scrutinised, and every interpretation of fact which may have been rendered doubtful by newer investigations expunged, the more likely is the work to represent what it would have been in Dr. Carpenter's own hands.

Coming now to our task it is, of course, impossible to notice all the modifications and additions which have been made, or even all which are of real importance. We shall briefly mention such new facts and views as seem to us of most consequence; and since English physiology will be judged by this work, and its reputation concerns more or less all English physiologists, we shall devote more attention to the discussion of points which

appear to us doubtful, and we shall be unsparing in our criticisms on any shortcomings we may detect.

The first two chapters have remained unaltered, and are from the hand of Dr. Carpenter. They are followed by two entirely new chapters "On the Minute Anatomy of the Connective Tissue,—Cells and their derivations," and "On the Chemical Composition of the Body." These were unquestionably needed, and we are disposed to attach a certain significance to their introduction; it is in anatomical structure and tissue-metamorphosis on the one hand, and in chemical composition and chemical change on the other, that physiology essentially consists.

The chapter "On the Minute Structure of the Connective Tissues," under which term are included epithelium, fibrous and adipose tissues, cartilage, bone, &c., is in its way perfect. The description of the structures is clear, and includes every point of importance without being laden with unnecessary detail. The terminology of Dr. Lionel Beale, in which the "elementary part," composed of "germinal matter" and "formed material," takes the place of the "cell," is adopted; and, although an outline of other views on the mode of development of tissues is given, that of Dr. Beale is substantially adhered to. Curiously enough, no mention whatever is made of the well-known, and at one time widely accepted, theory of tissue-formation with which Prof. Huxley's name is associated. We believe it has had its day, and that the philosophical and comprehensive theory of Dr. Beale must ultimately obtain general assent, but we did not think it so utterly extinct as this omission seems to indicate.

We cannot speak with the same unqualified admiration of the chapter on the chemical composition of the body. To begin with, the old formulæ are employed. This may make it more acceptable to readers to whom these are familiar; and any one who has gone through the painful process of modernizing his chemistry, would gladly spare Mr. Power the labour of revising and altering every chemical formula in the book which would be involved by a change in the notation here; but this is what it must come to. Then we think it should not be the sole object of such a chapter to give a list of substances found in the body with their chemical composition and properties. A great opportunity is lost when it is not at once shown how descent in chemical constitution is the source of active force. This we acknowledge is mere individual opinion, and we hasten to add that it is done in the section "On the Balance of the Vital Economy;" it would be a great advantage, however, if the principle were stated early so as to be held in view by the student throughout. To trace the successive steps through which the large and complex molecules of blood

and tissue descend to the simple combinations found in the excretions would, moreover, furnish a key to a natural and scientific arrangement of the bodies considered in the chapter itself, the want of which would be evident were we to enumerate them in the order followed. We should thus have first the proximate principles nitrogenised, non-nitrogenised, and inorganic—this term proximate principle being used with its old signification, not, perhaps, easy to define rigidly, but as comprising the substances from which the textures are actually built up. Employed as it often is now to indicate any and every substance found in the body, intestinal gases not excepted, it is deprived of all real meaning. We should then have secondary organic compounds, and, finally, those matters which are on their way to the different excretory organs or are found in the excretions. A contingent advantage which would almost certainly result from the introduction of a comprehensive chapter on the chemical composition of the body would be that the saline constituents would receive more adequate consideration. The paragraph in the section on the balance of the vital economy on the uses of the mineral matters does not fit in well with the line of reasoning there followed, and on that account probably does not satisfy us; still less does the brief notice they receive in the chapter now under consideration. Hitherto, although the importance of saline matters has been forced upon the attention of physiologists and physicians by a great variety of facts, little has been done towards ascertaining the part they play in the organism, but it seems as if we were approaching some comprehension of it in their influence on the large and mobile organic molecule.

In turning to the next chapter, on the "Nature and Destination of Food," we cannot help reverting once more to our ideal chapter on the chemical composition of the body, to say how greatly the consideration of the food would be facilitated by it, and how much more of force there would be in the observation with which the chapter on this subject opens. The information about food was so complete in the former edition that little change has been found necessary; the results of Dr. Edward Smith's recent inquiry into the food of different classes of the community have, however, been introduced. We see that the German sausage poison now explained by Trichiniasis is still attributed to some ferment, an oversight of no great importance, perhaps, but worth while pointing out in passing.

The accounts of the acts of deglutition and of vomiting have been further improved. One of the features of modern physiology of which the author shows himself fully aware, is the importance attached to accuracy and completeness in the de-

scription of what might be considered small matters; this is exemplified in the amount of attention which has been devoted to deglutition. New facts relating to the movements subsidiary to deglutition, are the control shown to be exercised over different parts of the alimentary canal by different sympathetic ganglia, and the inhibitory influence of the great splanchnic on the small intestine. New observations of greater interest have been added respecting the digestive fluids, the saliva, gastric, and pancreatic juice, and their mode of secretion. The differences in the characters and probable uses of the parotid, submaxillary, and sublingual secretions are described, and a fuller account is given of the influence on the activity of these glands by their double nervous supply. Pflüger believes that he has traced nerve-fibres directly into the gland-cells, and his remarkable drawings of this termination of nerves are given. It may be taken as proved that nerves influence secretion directly, as well as indirectly by affecting the supply of blood, and Pflüger's observations might render this more intelligible. We think, however, with the author, that we must wait for confirmation before we begin to build conclusions upon them.

A very interesting point has been made out with respect to the gastric juice, and demonstrated in different ways by Bernard, Brücke, and Schiff; it is, that the pepsine is formed and stored up in the gastric glands, the hydrochloric acid on the surface of the mucous membrane, the admixture of the two, which constitutes the active digestive fluid, taking place only on the arrival of food in the stomach. No explanation of the mode in which the hydrochloric acid is liberated, one of the most extraordinary chemical operations which take place in the body, is attempted, but we think Dr. Bence Jones's hypothesis receives support from the fact that it is proved to be set free on the surface. The old notion that the stomach escaped self-digestion in virtue of its vitality, and that a living animal or part enjoyed the same immunity has been conclusively disproved. The leg of a living frog inserted into a gastric fistula is speedily acted upon by the gastric juice, and Dr. Pavy's experiment of ligaturing one or more of the vessels of the stomach shows by the erosion of the parts from which blood has been cut off, that it is the alkalinity of the blood circulating in it which preserves the integrity of the mucous membrane.

The new matter of greatest importance, however, is probably that which relates to the modification in character of the so-called proteïds during digestion, by which they lose their colloïd non-diffusibility and pass readily through organic membranes, ceasing also to undergo coagulation by heat and acids. The osmotic equivalent of albumen is 100, *i. e.* it is absolutely non-diffusible;

of peptones, into which it is converted by digestion, 7·1 to 9·9. We have in this change a simple and satisfactory solution of one of the difficulties in the physical explanation of the process of absorption. We may hope, perhaps, for some equally satisfactory explanation of the absorption of fatty matters, which will render unnecessary the pores and channels of Heidenhain and Brücke with the tubular connective-tissue corpuscles forming part of their absorptive apparatus; or the vacuoles of Letzerich, which are figured and described. These observations ought, no doubt, to have a place in a systematic work, and we do not find that undue importance is attached to them by the author; but we may as well say, for ourselves, at once, that we regard them, together with the nerve-supply to glandular epithelium described by Pflüger, already mentioned, and the diagrammatic bile-passages of Hering figured later with almost invincible suspicion. We have only to add that the pancreatic fluid has now been conclusively shown to have a digestive action on albuminoïd substances, and we pass to the section on absorption and sanguification, in which a crowd of minor alterations and improvements have been made, amounting, in the aggregate, to a considerable change, no important modification of doctrine, however, having been introduced.

The lymphatics are described as having their origin in the interstices of the tissues, in which the spare nutrient fluid exuding under pressure from the capillaries, travels to delicate canals with distinct walls, which are the first lymphatic vessels, properly speaking; and even the commencing lacteals, of which Teichmann has given the magnificent drawings with which we were here made familiar by the former edition of this work, are pronounced by His to be merely inter-textural spaces. Mr. Power does not endorse the views of His, which would obviously exclude the idea of selective absorption, the power so long attributed to both lacteals and lymphatics, but especially to the former. For ourselves, we fully accept them, and account for the characteristic fatty matters of chyle by the superior diffusibility of the salts and peptones which pass through the capillary wall into the blood, leaving the fat behind in the interstices of the structures to be carried on to the blood in the lacteal system. We can only mention the fuller account of the formation of the lymph-corpuscle, and of the successive appearances presented by the chyle in the elaboration which it undergoes.

In the chapter on "The Blood," which follows, the additions are both numerous and important. It contains new representations of the various forms which may be presented by the blood-corpuscles, white and red, and gives the results of recent investigations, by which our knowledge of the constitution of these

bodies has been rendered much more definite. The white corpuscle is larger than the lymph-globule, which, according to Mr. Gulliver, is a nucleus; it has the appearance of a nucleated cell, but exhibits lively amœbiform movements, and may enclose particles of colouring matter or carbon, or even a red corpuscle. The white corpuscles also have been seen to pass through the capillary walls. The red corpuscles are described as consisting of a colourless stroma, composed of protagon, in combination with which is the colouring matter hæmo-globin; they have no cell-membrane, but are homogeneous masses of formed material —"germinal matter" is the term actually used; but this must be a slip of the pen, since they have none of the characters of this substance. The hæmo-globin has a tendency to assume the crystalline form, especially in some animals; and it can be split up into an albuminoïd substance and "hæmatin," formerly supposed to be the colouring matter of the blood. Spectrum analysis of the blood has already yielded important results, more particularly in the hands of Prof. Stokes, by showing the changes which hæmo-globin may undergo: it seems clear, for example, as Prof. Stokes suggests, that the colouring matter may be regarded as the carrier of oxygen from the lungs to the tissues. This means of research is also being employed as a potent instrument of investigation as to the action of poisons on the blood. A paragraph, consequently, is devoted to the subject of spectrum analysis, an additional guarantee of the accuracy and completeness of which, were any needed, is furnished by the fact that Mr. Sorby has supplied a table in which the spectra of scarlet and purple cruorine or oxidized and reduced hæmo-globin, of hæmo-globin with carbonic oxide, of blood-stains, and of hæmatin in various combinations, are referred to the standard interference spectrum to which his name is attached.

The controversy as to the cause of the coagulation of the blood has shrunk into very narrow limits. The only hypothesis which now holds its ground is that which refers it to the combination of fibrinogen and fibrino-plastic substance. Mr. Power does not encumber his pages with the new controversy which has arisen on the question why these two substances do not combine while the blood is circulating in the vessels.

In no department of physiology, perhaps, have such advances been made as in our knowledge of the circulation. Movements which could be seen and felt, invited the application of the methods of physical research, and the result is an exactitude and certainty in our knowledge, such as has been attained with respect to no other equally extensive and important function. The arrangement of the muscular fibres of the heart, also, has been the subject of recent investigation, more particularly by that

Dr. Pettigrew, and the influence of the nervous system on different parts of the circulatory apparatus—always a favorite line of experimental inquiry—seems to have lost none of its attractions. Notwithstanding the amount of new matter which found a place in the last edition, great additions have again been made, and it may be said that the results of all the important investigations made up to the present moment are embodied. There is just one omission which we cannot but regret, and that is, that a fuller account of Chauveau and Marey's cardiograph has not been given. By this instrument the movements of the auricle, of the ventricle, and of the surface of the heart, are simultaneously recorded, and the order and duration of the contraction and dilatation of the different cavities placed beyond the region of conjecture. The trace yielded by the cardiograph is given, but we should have wished that no English student could escape being made acquainted with the instrument itself; and no one can study its action and revelations without profit. We think, for example, that the following quotation from Dr. Halford could not have co-existed in the text with an account of the cardiograph:—"When the auricle is about to inject the ventricle, the latter is empty and contracted, with its distal or ventriculo-arterial valves firmly shut down by the pressure of the blood upon their upper surfaces. Immediately upon the contraction of the auricle, its contained blood passes into (distending and lengthening) the ventricle; and the force which it transmits not being sufficient to overcome the arterial pressure and weight of the blood upon the upper or arterial surface of semilunar valves, is expended in distending the ventricle and closing the auriculo-ventricular valve ..... To this succeeds the ventricular contraction, &c." This description of the action of the heart is altogether inaccurate, and is, indeed, inconsistent with the scheme of the heart-movements given in close juxtaposition with it, by which it is seen that when the auricle is about to inject the ventricle the latter cavity is already dilated, and all but full. We must demur, also, to the account of the movements of the apex and base, and to the cause assigned for these movements, apparently drawn from the same source. The apex is *not* pressed downwards and backwards (except, perhaps, in the donkey; and in this animal not in the way described), and the downward movement of the base is *not* due to the recoil of the arteries. Curiously enough this recoil of the arteries has also at one time been supposed to throw the heart forwards and upwards, and to cause the impulse.

We regret extremely that Mr. Power had not the opportunity before writing this chapter of consulting part of Dr. Sibson's 'Medical Anatomy,' which we notice at another page in

this number of the Review, in which the change in the form and position of the heart in systole and diastole is described with admirable minuteness and accuracy. It is there clearly shown that the heart as a whole has no movement of translation impressed upon it either by the vessels or by its own contraction, but that a certain part, near the septum between the ventricles, remains comparatively at rest; and that towards the septum and this point the apex, base, and great vessels are approximated in different degrees in systole by the contraction of the muscular walls of the heart. The causation of the impulse is also perfectly elucidated. We refrain from entering upon the much disputed question, as to the cause of the sounds of the heart, on which the last word has not by any means been said; and we need say little of the movement of the blood in the arteries since this was fully considered in the former edition. A new instrument, however, is described—the hæmodromograph of Mr. Lortet, which indicates the rapidity, or, we might more accurately say, the variations in the rapidity of the blood-current. The indications obtained by means of this instrument, correlated with those of the sphygmograph, give very interesting results, showing that the maximum of rapidity does not coincide with the maximum of pressure, but precedes it somewhat, the resistance in the capillaries checking the speed before the *vis à tergô* has reached its greatest intensity.

The application of instrumental means of investigation has also rendered our knowledge of the influence of respiration on the action of the heart more precise, and we have to congratulate ourselves that an English physiologist, Dr. Sanderson, has contributed to this in an important degree. An instructive trace by this observer is given, which shows that inspiration is followed by increased tension of the blood in the arteries, and increased frequency of the pulse.

Before leaving this part of the subject, we must express our regret that the mode of production of the pulse is not more distinctly shown. The time-honoured discussion respecting the relative amount of the elongation and lateral expansion of the artery suggests, or rather confirms, the idea which first occurs to the observer, that what we feel when we place the finger on the wrist and what lifts the sphygmographic lever is the actual enlargement of the vessel; and, indeed, a well-known 'Handbook of the Sphygmograph' opens with the statement that the "pulsation is principally due to the fact that the artery enlarges during the contraction of the heart, and returns to its previous condition during the diastolic relaxation." A moment's reflection shows that this is not the case. Pulsation would be felt were the arteries entirely devoid of elasticity and incapable

of any enlargement, lateral or longitudinal, provided, of course, that their walls were flexible. What we feel and distinguish is the increased tension of the walls of the vessel by the pressure of the blood in its interior, and we recognise it by compressing, and more or less flattening, the vessel during the diastole of the heart; the increased pressure of systole then tends to make it resume its circular form and push away the finger. We do not think that argument can be needed in support of this view, when once it is stated, and it is of consequence, that in a simple but important matter of this kind right ideas should be entertained.

We have passed over the account of the researches on the influence on the heart's action exerted by the different nerves which pass to it, a question of the most complicated character, which cannot as yet be considered to be finally settled. It appears, however, that certain nerve-fibres from the medulla which pass out by the last cervical, and two upper dorsal nerves into the corresponding sympathetic ganglia, must be looked upon as conveying an accelerating influence to the heart, while the retarding or inhibitory action of the vagus is confirmed. It has been found, also, that the action of the heart may be retarded by irritation of the *central* cut end of a small branch of the superior laryngeal nerve, which has been called by the discoverers, MM. Cyon and Ludwig, the *depressor* nerve of the heart. This nerve also causes dilatation of the aorta; the splanchnics, on the other hand, cause powerful contraction of the vessels of the abdomen, and by this effect on the great vessels the blood-pressure in the arteries is diminished or increased.

In the chapter on "Respiration" are some recent contributions to the anatomy of the lungs, among which are Professor Turner's investigations of the bronchial system of vessels. There are new facts, also, which tend to show that absence of oxygen rather than presence of carbonic acid is the exciting cause of the respiratory movements; but the most important recent addition to our knowledge in this department of physiology is the discovery by Pettenkofer and Voit, supposing it to hold good, of which there is some doubt, that in the night a large excess of oxygen is retained in the system, and stored up for the active work of the waking hours.

We are glad to see that the undue prominence formerly assigned by Dr. Carpenter to overcrowding, as such, in the causation of cholera has been rectified, and that an incidental effect of the overcrowding, the poisoning of the water-supply, is recognised as the main element in the spread of this terrible disease.

There is one statement made in connection with the function

of respiration in almost all works on physiology which it is impossible to understand. It has its origin in the best authority; it is repeated by every one, and could not possibly be omitted from a book like the one under review without reason given. It is that in females at the age of puberty the amount of carbonic acid excreted by the lungs abruptly ceases to increase as it otherwise would with age and growth, and remains stationary so long as menstruation is regular, but is augmented when this function is suspended, whether from pregnancy or other temporary cause; and again, when it finally ceases. Of course the inference is that the catamenia carry off a something which is accumulating in the intervals, of which accumulation the diminished excretion of CO_2 is a sign; but this is preposterous. The loss of a small quantity of blood once a month cannot possibly compensate for the retention of an ounce of carbon per diem, which, at a moderate calculation, would be the difference between the amount given off by a girl of fifteen, and the amount which ought to be given off by a woman of twenty-five or thirty-five. Do women require less food per pound of body weight? Or does carbon habitually leave the system by some other channel than the lungs, and in some other form than CO_2? Or have we not in the whole statement a hasty generalisation from insufficient data?

But we hasten from this to a part of the work for which the present editor is directly responsible, as he certainly is not for the statement just discussed. We refer to the section on the "Balance of the Vital Economy," which first appeared in the last edition. It then embraced a consideration of the total movement of matter in the organism, and to this is now added an estimate of the amount of work done in the body, and an explanation of the mode in which the various forms of force engaged in this work were evolved from the food. This is a subject which has occupied much of the attention of physiologists of late years, and as we have seen in the chapter on circulation the application of the methods of physical research yield great results, in the form of more extended and accurate knowledge of physiological actions, so the application of the principles of physical science has led to a deeper insight into physiological processes. We should have wished to give a *resumé* of this section, as an illustration of the admirable way in which a great question is grasped and handled by the author, but we must limit ourselves to a bare outline. After a statement of the problem involved in the balance of the vital economy, with some preliminary observations, and of the methods by which its solution is to be sought, a table of the ingesta and egesta of a healthy man is given, showing in detail

how food, plus oxygen, equals the excretions. Then the effects of complete abstinence, and of various modifications of diet, are traced, and the conclusions obtained in this way pointed out. This involves most complicated chemical reasoning. Next the distribution of the different elementary bodies in the excretions is traced on the one hand, and on the other the stages in the disintegration of the great organic molecules are followed. It is here that the uses of inorganic substances in the organism are given. So much for the changes which take place in matter; we must now follow the author in the consideration of the force thereby evolved or rendered active, which ought to correspond with the calculable results of the chemical change. This force takes the form of heat, motion, and nervous action; but the internal mechanical work, such as that done by the heart, and nervous work generally, do not enter into the calculation, as they are again expended within the body. We cannot describe the experiments and calculation by which the external mechanical force exerted by the body, and the heat given off from it, are estimated, or explain the way in which the force which should be yielded by the food is calculated. It must suffice to say that these are carefully given, and that when reduced to any homogeneous measure, such as the unit of heat, the kilogrammeter, or the foot-ton, the correspondence between the force evolved, as ascertained experimentally, and that calculated to be derivable from the chemical change, is very striking.

A branch of the general question is, whether the mechanical force exerted by muscles is derived from oxidation of its own substance or of matters brought to it by the blood? This has been decided by the well-known experiments of Fick and Wislicenus, of Professor Parkes and Professor Haughton, but it has been attempted to show that not only is this oxidation mainly at the expense of non-nitrogenised substances brought by the blood, but that the oxidation actually takes place within the blood-vessels. We cannot, however, with Professor Haughton, accept the arguments of Mr. Heaton, who has revived this view, as conclusive, or even accord to them such weight as they seem to have with Mr. Power. They rest, in fact, entirely on the notion, which cannot be sustained, that oxygen leaves the blood only by means of the fluid which exudes from the capillaries for the nourishment of the tissues, and that, consequently, the lymph which is this exudate returned to the blood by the thoracic duct, may be taken as the measure of the oxygen which passes out of the blood-vessels.

We must pass over other improvements which are neither few nor small in the chapter on "Nutrition," nor can we stop to mention the many new facts which have been introduced in

the chapter on "Secretion." In the question as to the glycogenic function of the liver, the author inclines to the view taken by Pavy. The experiments of Dr. Pavy have been repeated by Dr. M'Donnell with confirmatory results, and this observer has contributed new facts and views on this point of great interest.

In connection with the urine we have a renewal of the discussion as to the relation between muscular work and the production of urea, and the experiments are described which have been made within the last few years for the purpose of determining whether the urinary constituents exist pre-formed in the blood, or whether the last stage in their production is not effected by the kidneys. Unfortunately, the contradictory results arrived at by different observers, do not permit of a definite conclusion, but, on the whole, the old view that the urea is simply filtered off from the blood seems to hold its ground.

Our review has reached this length, and we have yet before us the nervous system. We pass over, therefore, the evolution of heat, light, and electricity, notwithstanding the interesting points which are discussed, pausing only to notice that the experiment of Becquerel and Breschet of shaving and varnishing a rabbit, is still adduced as proof of the importance of cutaneous oxidation and exhalation in the maintenance of the animal heat, whereas it has been shown that the fall in temperature which follows is due to the loss of the fur and the abstraction of heat by the evaporation of the varnish.

We can give but the barest enumeration of the new items of information introduced in the chapter on the nervous system. Much new light has been thrown on the minute anatomy of the nervous structures by the use of higher microscopic powers, and on the arrangement of the cells and fibres by new methods of preparation. Dr. Beale's descriptions and drawings of the nerve-cells found in different parts of the cerebro-spinal centres, and in the sympathetic ganglia, and of the mode of termination, or, rather, distribution of nerve-fibres in muscle, which are here given, exemplify the former, Dr. Lockhart Clarke's account of the structure of the cord, medulla, and cerebral convolutions, the latter.

In the nervous system, the import of structural arrangement has to be elucidated by experiment, and, unfortunately, there is great discordance between the results obtained by different observers. This is most evident, perhaps, in the experiments on the spinal cord. Brown-Séquard, Schiff, Chauveau, Van Deen, Sanders, perplex us by their varied statements, but we think a diagram which is to be found at page 584, expresses simply

and clearly the arrangement of parts to which microscopic structure, experiment, and pathology, point as the mechanism of the spinal cord, and a great service is done to the student by this evolution of order out of the chaos of conflicting opinions. We have often heard a distinguished physiologist and physician who has devoted much attention to the study of the nervous system use the expression "Anarchy rather than error" with reference to the functions of the different centres. We should say on the contrary, 'error rather than confusion;' but we believe that the diagram in question has not only the merit of clearness but of truth.

Dr. Carpenter's original theory of the functions of the corpus striatum and optic thalamus, viz. that the former is the motor and the latter the sensory ganglion, through which, on the one hand, impressions are translated into sensations, and, on the other, volitions put into execution, the two constituting also an independent sensori motor apparatus as well as acting under the higher centres, holds its ground, and some of the difficulties which formerly beset it are now explained.

The time does not seem yet to have arrived for the uses of the cerebellum to be satisfactorily known—that is, when it is not only proved that it has the functions assigned to it, but that it has no others. Our knowledge, also, of the brain as the instrument of the intellectual operations is still of the most general—we had almost said vague—kind. The exact significance of the frequent association of aphasia with disease of the left cerebral hemisphere, while it is much less frequently caused by disease in the right side of the brain, so much discussed lately, has not yet been made out. That it is a most significant fact cannot be doubted. We have rather put down the reflections which have been suggested by the changes made in the chapter on the nervous system than attempted to give any outline of the new matter introduced, which must have been fragmentary and imperfect, and we have not yet referred to the researches of which an account is here given, by which a comprehension of the nature of nerve-force is gradually being approached. The velocity with which an impression is transmitted along a nerve, for example, is now approximately ascertained. Helmholtz, who led the way in this investigation, estimates it at 111·22 feet per second in man. The electrical phenomena observed in passive and excited nerve, again, are brought to bear on this question, and many interesting facts ascertained. We may also refer here to the new insight obtained into the mode in which muscular contraction takes place, although this subject is considered much later in the book itself. The experiments of Marey show that a muscle contracts on the application of an

electrical or mechanical stimulus to its nerve by a sudden "secousse," and that a continuous contraction, comparable to the sustained physiological action is kept up, not by the travelling of partial contraction from end to end of the fibres, as has been supposed, but by "secousses" or shocks, succeeding each other so rapidly, that there is not time for relaxation between them. It is an interesting fact that the number of shocks per second required to produce this effect corresponds precisely with the number of sonorous vibrations which would yield a note of the pitch of the "susurrus."

Very considerable additions and improvements are made in the physiology of the special senses. The section on the sense of vision is particularly complete, as might be expected, and a great number of new facts have been introduced relating to the theory of sound, the structure of the auditory apparatus and the uses of its different parts.

We have by no means exhausted the list of points of interest we had noted, having been compelled to omit many in the subjects we have gone over; and as they do not occur quite so thickly in those which remain, we here leave off.

Our object has been, not to trace the advances in physiology, which have been made during the interval which has elapsed since the last edition of this comprehensive work was issued, but to test the book itself, and examine how far it has kept pace with the progress of the science on which it treats, and in what degree it represents its present state. That we have found what we must look upon as deficiencies is true. We must, however, in justice, say that, in pursuance of our object, these are made to assume undue prominence. Imperfections are inevitable in so vast an undertaking; and the wonder is, not that so many, but that so few are found. We have, moreover, indicated points in which a change of plan seems desirable, not having before us the enormous labour involved in the dislocation and rearrangement of such a mass of material. The author, on whom this would fall, may not agree with us, and he may be right. We cannot conclude without expressing our hearty appreciation of the thoroughness of purpose evinced in every part of the book. While such conscientious care is taken with the successive editions there can be no doubt that this work will long remain unrivalled in this country; and we can have no hesitation or fear in accepting it as the representative of English physiology.

Review XII.

St. George's Hospital Reports. Edited by J. W. Ogle, M.D., &c., and Timothy Holmes, F.R.C.S. Vol. III. 1868. 8vo, pp. 409.

We are glad to welcome the third volume of the 'St. George's Hospital Reports,' and we trust to see them develop into a self-existent, perpetuative species, progressively adapting itself to surrounding circumstances and beneficially influenced by them. For its healthy existence suitable pabulum is essentially necessary, and the most important ingredient therein must be the support of the alumni, new and old, of St. George's medical school. We should be pleased to find this ingredient even more plentiful than it appears to be from the list of subscribers appended to the volume. The number of present and former pupils of the great West-end hospital is so considerable that a moderate amount of interest in and affection towards their alma mater among them would secure a stability and permanence for the "Reports" as a trade venture, and, what is more, would be the means of rendering them a still more perfect representative of the teaching received within its walls.

Including the able introductory address by Dr. Acland, there are in all twenty-two communications contained within this third volume. Most of them are the production of members of the medical staff of the hospital. The other writers are Dr. Allbutt, Dr. Handfield Jones, Dr. Blake, and Mr. R. J. Lee, M.B. The gentleman last named, indeed, is the contributor of a case also that occurred in the practice of one of the physicians of the hospital, and must, therefore, be looked upon as so far connected with the institution, and not an extra-academic writer. In respect of this matter of the contributors, it would be preferable did a larger proportion of past students, now engaged in practice at various places, appear upon the list. Among them are many who must often meet with cases deserving record, and some at least who enter upon original investigations, or are prepared to discuss most points in pathology and therapeutics. To all such a volume of the sort under notice furnishes a more fitting medium of communication than the pages of ephemeral journals, and is altogether a form of record possessing more qualities of endurance.

The list of illustrations includes several diagrams, some woodcuts, and two plates of coloured lithographs, illustrating cases.

The treatment of Rheumatic Fever.—No subject has of late received more attention, and been more debated, than the treatment of rheumatic fever. The 'expectant' doctors have had a considerable say on the matter, and tried to show how worthless they are to rheumatic patients; the blanketing and the blistering doctors have descanted on their merits as successful eliminators of the rheumatic poison; and these several sorts of therapeutists, with others less renowned, have concurred so far only as to assert their several special plans of treatment equal, if not superior, to that of the alkalinists. As might be supposed, the great advocate of alkalies at St. George's, Dr. Fuller, takes the opportunity in this volume of defending the treatment he invariably pursues. The line of defence followed is to appeal to a very large experience in treating rheumatism, and to show what the alkaline treatment is, and what it is not, and to indicate the circumstances that may defeat its operation. He says that he has submitted 417 cases of rheumatic fever to the alkaline treatment; has not had a fatal case among them, and in 9 only has any cardiac complication occurred while the patients were under his care. Moreover, in almost every one of these nine there were special circumstances explanatory of the exceptional result.

The alkaline treatment, as Dr. Fuller practises it, "is not merely the administration of salines and small doses of alkalies, but the exhibition of alkalies or the neutral salts in full and repeated doses—in doses adequate to produce alkalinity of the urine, if possible, within twenty-four hours." As to the pathology of rheumatism, he is disposed to believe "that rheumatic fever is due to the presence of an acid product of a peculiar form of mal-assimilation, which frequently originates in disturbance of the nervous system." Hence he proposes, as indications of treatment, to eliminate the poison, and restore the normal condition of the urinary and cutaneous secretions, and to tranquillise the irritability and suffering of the patient. This last aim is the most important, but, as he proceeds to show, it is not to be effected by sedatives, or by opium; for in more than half the cases treated by opium cardiac complications occurred. On the other hand, an effective administration of alkalies, besides accomplishing the other indications, secures also remission of the pain. Except the alkaline treatment, no other plan, unless it be that of blistering, has, in the author's opinion, the slightest influence in shortening the duration and mitigating the danger of rheumatic fever. But this latter plan is not so reliable, and has the disadvantage of causing additional pain, and even, when carelessly employed, of creating dangers of its own, sloughing and pyæmia.

Dr. Fuller goes on to describe how he gives alkalies, and in

what doses. He insists upon them pure and simple, and rejects blistering even as an adjunct, except to joints in which rheumatism has long fixed itself. In this matter we consider he pushes his pet practice too far, and needlessly throws aside a valuable aid; for the pain of a narrow strip of blister around a joint is a trivial inconvenience, and much more than compensated by the relief it speedily affords.

Moreover, Dr. Fuller teaches that alkalies may be given in excess, and so retard rather than accelerate recovery. To restore tone as soon as circumstances will admit, he combines bark or quinine with the alkali, "as soon as it is found that two doses of the alkaline mixture in twenty-four hours suffice to keep the urine alkaline." Another important point is to prevent the recurrence of mal-assimilation, which is readily brought about by improper diet. If alkalies fail to cure, they do so from error in diagnosis, such as mistaking osteo-arthritis or gonorrhœal rheumatism for rheumatic fever; or from their being given in powerless doses, or otherwise in too long-continued large doses; or from neglected chylopoietic derangement, or from improper alimentation; or lastly, from some exceptional condition whereby they prove aperient, and run off by the bowels.

Cases of Delirium.—Dr. Barclay recounts, with comments, some few cases of delirium from impoverishment of the blood; a cause of delirium long recognised, particularly since Dr. Marshall Hall's 'Essay on the Effects of Loss of Blood.' His first case is that of delirium with rheumatic fever. It ended fatally, and its post-mortem results illustrate the error of inferring from active brain disorder the presence of inflammatory action. To the general utility and propriety of stimulants in such cases Dr. Barclay cannot subscribe. He, indeed, considers the stimulating plan of treatment to be often mischievous, and available only for those prostrate by want of nourishment as well as by the effects of the disease; in a word, by failing power.

Mr. Henry Lee has contributed an abstract of four clinical lectures on *Special Questions in Surgery:* viz., on the *Medio-lateral Operation of Lithotomy;* on *Repair of Arteries* after Injury; on *Mortification and other Secondary Affections in consequence of Disease of the Arteries;* and on *Different Local Syphilitic Actions.*

The method of performing the medio-lateral operation is described and illustrated by an engraving, and Mr. Lee claims for it the advantages of great facility of performance, and the avoidance of the usual accidents and difficulties attending the ordinary lateral operation. In the matter of repair of arteries after injury, Mr. Lee denies the occurrence of adhesion of

opposite sides from mere apposition, and likewise the idea that the material found in blood-vessels when inflamed is produced as a secretion would be from an inflamed serous membrane. The lining membrane of the blood-vessels is, in fact, a non-vascular tissue, and does not secrete the ordinary products of inflammation; but when altered in structure, or so destroyed that the vascular coats come into play, then those products are formed.

The general assumption is that, where mortification follows on disease of the arteries, the result is due to deficiency of blood, but the appearance of the mortified parts is opposed to that conclusion; for in reality they are more full of blood than natural, but this fluid is stagnant, and altered in colour and consistence. And, in short, Mr. Lee believes that "the alteration in the constitution of the blood, and the consequences of that alteration, are the most frequent and the most effective cause of mortification." The conclusions arrived at by the writer are, that the morbid products of disease of the arteries may mingle with the blood, and by inducing coagulation of, or deposit of fibrin from the blood, impede the circulation. The tendency to deposits of fibrin and the process of cell-development is greater in the capillaries. The principal secondary effects attributable to such morbid processes are—1, gangrene; 2, softening; 3, solid œdema; and 4, chronic local multiple abscess.

In Dr. Allbutt's interesting case of *cerebral disease in a syphilitic patient*, the condition found after death was a universal chronic arteritis of the brain, with general deterioration of cerebral tissue consequent thereupon. The vessels were unequally thickened, but without manifest patches or prominences, and they had assumed a yellowish-white tint, resembling cartilage stained of a salmon colour. There was no structure of a gummatous nature, and nothing that could be recognised as nodose, or specifically syphilitic, unless some specks on the arachnoïd were perhaps gummatous.

In his paper on the "Reduction of Old Dislocations," Mr. Brodhurst, after referring to the opinions of eminent authorities on the advisableness of attempts at reduction, relates two cases of successful treatment, one where the humerus had been dislocated beneath the pectoral muscle for 175 days, the other where the wrist had been dislocated forwards six years previously. He argues that the amount or absence of repair deserves more consideration in determining an operation than the period during which the limb has been displaced; and that, in old dislocations, recourse is to be had to manipulations, with

or without the previous subcutaneous section of tendons, rather than to the pulleys and violent extension of the limb.

Mr. Pick, who recently held the office of Surgical Registrar at St. George's Hospital, gives the result of observations of the majority of serious wounds admitted into that institution during a period of six months, as illustrative of the phenomena of "Traumatic Fever." In these observations the thermometer was chiefly relied upon as a means of diagnosis. It appears a remarkable fact, "that the character of the wound has nothing whatever to do with the nature and extent of the fever, or indeed with its presence or absence." The attack usually comes on about the second or third day, but may be delayed to the fourth, or even the fifth. "In no case was it ushered in by a rigor." The fever augments very rapidly, and subsides gradually after from two to six days. In most cases the highest temperature attained precedes the establishment of suppuration by about twelve hours, and after this takes place there is a rapid fall. A sudden increase denotes some impending important change in the wound. Moreover, various modifications take place in the course of the fever from extraneous causes. Secondary fever is the prelude to phagedæna, pyæmia, or erysipelas, and presents a peculiar type in each of these three conditions.

Paralysis of the Extensors is considered by Dr. Reginald Thompson in a short paper. The cases he brings forward are designed to show that this form of paralysis, though commonly due to lead poisoning, is not peculiar to it, but may depend on spinal disease.

Are there Special Trophic Nerves? is a question discussed by Dr. Handfield Jones, and decided in the negative, "inasmuch as all the phenomena, to explain which their existence might be invoked, seem to be fairly explicable by alterations in the condition of those (nerves) which have been long familiar to us." This argumentative essay will be read with much profit, but is incapable of brief analysis.

On Improved Methods of Inducing and Accelerating Labour, with the view of obtaining increased safety to mother and child, is the subject of an excellent practical paper by Dr. Robert Barnes, elucidated by cases, which must be read as it stands to be appreciated and understood.

On Counter-Irritation, considered in reference to the remote and indirect effects of local morbid changes. Dr. Dickinson commences his essay by intimating that excoriating, iodine-

painting, and blistering the surface with the view of modifying disease in subjacent viscera, are practices repugnant to reason and common sense. He then passes under review the lines of communication which exist in the body, or the paths by which a local action can influence remote organs or the system at large, and concludes that there are none which are adapted to convey the traditional virtue of counter-irritation in the direction which it is reputed to follow. Local applications he believes to have nought else than local action, limited within the short range of immediate influence:—

"We have no knowledge which will warrant us in ascribing any remote or indirect remedial action to the excoriations and other local inflictions which have been practised under the idea of counter-irritation. We have no reason to suppose that we can, under any circumstances, lessen an internal inflammation by exciting inflammation of the superincumbent but disconnected skin. . . . We may therefore cease to apply irritations to the skin of the head in disturbance of the brain, to the back in affections of the cord, to the chest in diseases of the lung, and in general forbear to apply remedies to parts which have no direct vascular connection with the structures diseased, unless the remedies are of such a kind and of such magnitude as to bring the whole system under their influence."

Thus does Young Physic undermine the outworks of traditional therapeutics! Where is the champion to come to the rescue, to vindicate an inherited faith in the value of medicinal agents, to uphold the lessons gained from the experience of centuries? But, seriously, the question of the efficacy of counter-irritation requires reconsideration. Dr. Dickinson's argument is much to the effect that, because we do not comprehend the way in which counter-irritants act, except locally, on the part to which they are applied, therefore they exert no other and more remote action. Of this we have not as yet obtained sufficiently convincing proofs.

Ultimate Destination of Glycogen.—Dr. William Ogle is in favour of the hypothesis concerning the ultimate destination of glycogen, wherein it is made to appear that this substance is consumed in the muscles, and that thus the liver furnishes the fuel, from the oxidation of which the muscular force is derived. To substantiate this hypothesis he resorts to chemical and physiological argument, and endeavours to show also that it harmonises in a remarkable degree with many and various well-known phenomena, and supplies a rational interpretation of them.

Poisoning by Stramonium.—In this case, related by Dr. C.

Paget Black, a drachm and a half of tincture of stramonium had been swallowed. After long and active delirium complete collapse occurred, with almost entire *closure* of the pupil and loss of speech for a long time, and subsequently aphasia and loss of memory. Ultimately recovery was brought about.

Loss of Speech from the Bite of Venomous Snakes is an occurrence that must enlist attention at a time when the phenomena of aphasia so strongly challenge it. Dr. W. Ogle has collected notes of six cases of loss of speech from the bite of poisonous serpents, from which it appears that it is an early and frequent phenomenon of snake-bites preceding the approach of paralysis. He accounts for it by supposing that the poison produces spasm in the middle cerebral arteries, and that, when it becomes permanent, it follows from thrombosis of the arteries above the temporary obstruction.

Upon Certain Morbid Conditions of the Appendages of the Liver, is the subject of a considerably extended lecture by Dr. John W. Ogle. Five cases of cholecystitis are described, in which that disease proceeded to ulceration of the walls of the gall-bladder. In four of the cases, however, gall-stones were found in the gall-bladder. In the sixth case the ulceration occurred in the common bile-duct, and was accompanied by abscesses in the liver and gall-stones. Dr. Ogle rightly regards gall-stones as the general cause of inflammation of the gall-bladder and bile-passages; but he at the same time admits that a morbid condition of the bile may occasionally induce the same result. We regret, however, to see that he repeats the unfounded, but popular notion, that gall-stones are necessarily of light specific gravity and float. Other interesting examples of diseased gall-bladder are adduced, the later ones illustrating carcinoma of that viscus. For two of his cases the writer is indebted to Dr. Day, of Stafford.

A Case of Thoracic Aneurysm is narrated by Mr. R. J. Lee, M.B.:—"For more than a year the progress of the disease, already far advanced, was arrested in its course by a simple plan of treatment, which resulted in spontaneous cure of the aneurysm." The history of the case is accompanied by several wood engravings, which are very useful in understanding it.

A Series of Fatal Cases of Poisoning is presented by Dr. John W. Ogle. Were it not impracticable, it would be an ill-judged attempt, to aim at even a condensed account of the leading features of the many cases put upon record, but it is well

to mention that two examples of poisoning by chloroform, and one by amylene, are here described.

On the Treatment of Wounds by the Application of Carbolic Acid on Lister's Method, is the title of a communication from Mr. T. Holmes and Mr. Holderness. It is intended to show the results of a series of cases so treated in the hospital during the last few months. Forty cases in all are noted, but the reporters are unable to claim for the treatment any decided results demonstrative of its advantages.

We now come to what, according to the literal acceptation of the words, are the hospital reports—the records of the cases, of their results, and of observations made upon them in the wards. The ophthalmic-department report comes first. It is written by Mr. Power, who, as ophthalmic surgeon, has charge of the two wards, first opened in 1867, for the special treatment of eye diseases. In the course of the first year, since the opening, 195 in-patients were treated, besides numerous out-patients. The cases noted have been selected on account of some special interest attaching to them, and two coloured lithographic plates are introduced to illustrate them. The first plate is occupied by six ophthalmoscopic views, showing the appearances in optic neuritis, in exudation and in hæmorrhage on the retina, in progressive myopia, and in posterior staphyloma. The other plate presents figures of sub-conjunctival nævus, of intra-ocular cancer, of inflammation of the eye consequent upon abscess in the pons, implicating the origin of the fifth pair of nerves; of episcleritis, and of abscess in the orbit. The report is followed by tables indicating the months of the year in which the several forms of eye-disease came under treatment.

Pathological Observations made in the post-mortem-room of the hospital during the year are recorded by Mr. Pick, curator of the museum. He has dwelt principally "on those points which seem of interest in a pathological point of view, or which appear in any way to throw light on any disputed or obscure question of morbid anatomy." The notes of the several observations are brief, but are of much interest. The various organs of the body are taken *seriatim,* and notices offered of morbid appearances presented in them; reference being also made to any pathological changes discovered elsewhere.

The reports of the medical and of the surgical cases treated in the hospital during the year have been prepared according to the plan adopted in the previous volumes. Dr. Reginald Thompson, the medical registrar, regrets that the rarer forms of disease, when admitted into the London hospitals, are not so publicly

registered as to place it in the power of students to visit them for observation and study. This suggestion is a very good one, and as one mode of attaining its fulfilment, it might be proposed to the weekly medical periodicals to print a list of such rare instances of disease present, week by week, in the several hospitals, supplied to them by the resident medical officers, with the sanction of the physicians and surgeons. This list would assume much the same character as that now given by several journals of the operations to be performed each ensuing week.

Dr. Thompson has given a short account of some rare forms of disease treated in St. George's Hospital, and has also added such statistics of certain maladies as could fairly be deduced from the number of cases admitted. He praises the method of registration adopted in that hospital, for its simplicity and intelligibility. The first statistical table appended shows the admissions, the number of cases of each malady, and the number and percentage of deaths among them; the second table is occupied with the cases of acute rheumatism treated, and presents so much of their history as relates to age, sex, previous attacks, time of admission, length of residence in hospital, amount of joint inflammation, state of heart on admission, and the result of treatment; the third table gives the history of the cases of pneumonia, of the sex, age, date of disease, state of lungs on admission, treatment adopted, days in hospital, and the result. This table indicates that antimony is the chief medicinal agent relied upon at St. George's Hospital in the treatment of lung-inflammation. It would have added much to the value of the tabulated history of the rheumatic cases also to have had a column to show generally the treatment pursued.

In the report of the surgical cases, the division adopted is into cases of injury and cases of disease. The former are again subdivided into general and local; the local again being treated of according to the seat of injury. Cases of disease are also divided into general and local, but in the further divisions reference is made to the organ affected, and not to the region of the body the disease occupies. The tables are:—A general one showing the nature of the cases admitted, the deaths and their percentage; a table of compound fractures, and another of operations performed. This last will be of much value to future statistical inquirers into the results of operations. Mr. W. Leigh, the surgical registrar, deserves recognition for the able and clear manner in which he has drawn up the surgical report and accompanying tables.

The third volume of the St. George's reports concludes with the insertion of the eloquent address delivered at the opening

of the new school, October 1st, 1868, by Dr. Acland, the Regius Professor of Physic at Oxford. Most of our readers will already have become acquainted with the admirable principles and advice put forth in it, from the notices published soon after its delivery in the medical weekly periodicals.

The preceding brief memoranda of the contents of this volume of essays and reports sufficiently exhibit the character and value of the book. They also show that in no respect has the value deteriorated in this last issue, as compared with the two preceding portions published. And we would wish them to act as an encouragement to the editors to continue their labours, which, we expect, get remunerated in no other way than by the good opinion of their professional brethren.

Review XIII.

Reports of the Inspectors of Factories for the Half-Year ending 31st October, 1868, 8vo. pp. 339. London, 1869.

On previous occasions we have noticed these reports, and have gathered from them various particulars relating to the physical and moral condition of the manufacturing classes of interest and importance, as well to the ordinary medical reader as to the student of state medicine. In the present volume there are also numerous references to the conditions of labour and their effects upon health, to the state of education and the social condition of the operatives in various branches of industry. These are especially to be found in the report of Mr. Inspector Baker; but the portions of this parliamentary blue-book which are likely to attract, and indeed are most deserving, the attention of the profession are those discussing the place, purpose, and usefulness of medical men in the working of the several Factory Acts.

On these points there is a complete difference of opinion between the two inspectors. The one pronounces factory surgeons to be useless, the other enlarges upon their usefulness and desires to afford it increased scope. Mr. Redgrave writes with an evident *animus* against those officers, and exhibits small esteem towards the profession at large. To make out his case against certifying surgeons, he endeavours to show that factory legislation has, since 1833, had in view only the promotion of education, the curtailing of the hours of labour, and the prevention of the employment of children at too tender an age; and that medical men serve no other purpose than that of giving a

doubtful opinion respecting the age of children and young people, a purpose entirely set aside by the now prevalent registration of births as enforced by law.

To make good his arguments he gives his own version and interpretation of the evidence originally collected by the several commissions of inquiry respecting factory labour, and also of the intentions of the Acts passed to regulate such labour; and hazards many loose assertions and suggestions, as though they were beyond dispute and to be accepted on his *ipse dixit.* He purposely keeps out of sight the primary purpose of the Factory Acts as sanitary measures, intended, on the one hand, to prevent overwork and employment altogether at an immature age, with their consequences, the progressive degenerescence and destruction of factory operatives; and, on the other, to secure to them proper intervals for meals and seasons for recreation, duly ventilated shops, and the removal of dust and noxious emanations engendered in manufacturing operations, and lastly to provide that the physically weak and sufferers from disease shall not be employed at all.

Again, he very casually alludes to the former wretched physical condition—and its evident correlative, the moral and intellectual degradation—of the factory "hands," which forced an inquiry upon an unwilling Parliament, and brought about the legislation of 1833. And, although he recognises the amelioration in the physical well-being now reached, he can assign no portion of it to the work done by the certifying surgeons whom he perversely misrepresents as simply and solely concerned in the determination of the age of those engaged in labour. To give colour to this depreciatory estimate of those officials, he does not hesitate to make the assertion that "the number of children rejected by the certifying surgeons, on the ground that they are incapacitated by disease or bodily infirmity to perform the amount of labour required, has been so small as to be inappreciable," an assertion which, notwithstanding the long experience he is fond of quoting as possessed by himself, he could not justify; for the fact is, there is no register, no memorandum of the causes for rejection kept by the surgeons for the information of the inspectors, and consequently the latter have no means of ascertaining those causes.

Another worthless argument is that "impotent children" will not be employed by manufacturers, an argument contradicted by the results of every inquiry ever made into the condition of the working classes, and further invalidated by the custom, prevailing in many trades, of the children being engaged, not by the masters, but by the workpeople themselves, whose first consideration—unfortunately it must also be said—almost the only

one, is the cheapness of the labour they have to pay for out of their own earnings.

In the same reckless fashion he asserts that certifying surgeons, in the case of those above thirteen years of age, are required to certify only to the fact of age, and not to the physical capacity. Whereas, by the schedule of the Factory Act every certificate is so worded that the examining surgeon is required to express his opinion that the "young person" presented to him has the development and physical capacity of an individual of the age specified, and is not incapacitated by disease.

Among the same class of ambiguous statements—for the reception of which he must count on crass ignorance on the part of the Home Secretary, to whom his report is addressed, as well as on that of his readers generally—are the exaggerated representations respecting the fewness of young children brought within the scope of the Act of 1867 and their immunity from overwork, from unhealthy shops and from exhausting employments —representations largely opposed to the evidence obtained and published by the Children's Employment Commissioners.

"The physical condition of the operative classes . . . ." he affirms, "has been greatly ameliorated, and there is not the same necessity for general medical examination of young hands under the present system." We have already noticed that he ignores the surgeons entirely as having any share in effecting this amelioration; yet, we would ask him, what security would there be against a relapse into the former state of physical deterioration, if his fond scheme of abolishing the office of certifying surgeons were carried out with its complementary parts, —the cancelling the registers of persons employed, and the proving of age only by certificates of birth that might be traffieked in and interchanged largely by their possessors? He would treat the age of a child or young person as a hard and fast line, qualifying or disqualifying the individual for work, or for so many hours of work, according as it fell above or below the received standard; would deal with the human body as a machine of so much estimated mechanical power according to its years of existence, and so taking no account of shortcomings in size or development, or from debility or sickness, would allow the full measure of labour to be extorted from it. Such is the admirable proposition of an Inspector of Factories supposed to maintain and carry out the provisions of the Factory Acts in behalf of the physical and moral well-being of the manufacturing operatives!

Presuming on the cogency of his arguments in demolishing the functions of medical men as certifiers of age and physical capacity, he next encounters a possible plea for their existence

as sanitary officers in connection with those clauses of the Factory Acts requiring the enforcement of ventilation and cleanliness, and of measures to obviate the ill-effects of dust and noxious vapours and of other incidents arising in the processes of manufacture. This little impediment to the realization of his scheme of disendowment and disestablishment, he at once gets over by asserting that such "matters come under the cognizance of the provisions of the Sanitary Act, and are subject to the supervision of medical officers of health under that Act," although he at the same time must or should know that the provisions of that Act are not applicable to the internal regulation of factories —are practically not available to secure for the operatives the ventilation or cleanliness of shops, to deal with the healthiness of the occupations carried on, or with the fact of the prevalence or absence of disease among the workpeople. The health officer has no right of entrance or of inspection of manufactories without a justice's order, nor until a nuisance has been reported to the local authorities; and so far as clause 19 of the 29 and 30 Vict., cap. 90 (on which Mr. Redgrave's statement must rest) is concerned, it is inoperative, and must remain inoperative in its application to the internal condition of factories and to the sanitary state of factory operatives.

Having proved to his own satisfaction that medical men are worthless instruments for the purposes of the Act, Mr. Redgrave assesses their payments in proportion. Unluckily the ambiguous wording of the clauses relating to surgeons' fees has led to considerable discrepancy among factory medical officers in the matter of remuneration for their services; and it is quite conceivable that the demands made upon manufacturers has, as Mr. Redgrave reports, in some instances, given rise to discontent and complaints. Hence, appeals having been made to him for instruction in the matter, it behoved him to suggest a scale of remuneration, but, instead of consulting with his colleague, Mr. Baker, and joining with him in a common recommendation, he took his individual course of action, and in harmony with his estimate of the duties of the surgeons, propounded the lowest scale the law seemed to sanction.

In accordance with the same estimate of the value of the factory surgeons' examinations is the memorandum issued, whereby their visits to the factories to examine and certify are allowed to be dispensed with, and the children to be taken to the house of the surgeon for the purpose, this officer being remunerated for the examination and certificate by the magnificent sum of sixpence per head.

In connection with this point it is well to turn to the report of the other inspector, Mr. Baker. This gentleman enters

into the history of the amendment introduced in the Act of 1844, which first disallowed the personal inspection and certifying elsewhere than at the factories where the names of the children to be examined were duly enrolled on the register. He quotes from instructions issued by the late Mr. Inspector Horner, which show the frauds practised while the plan prevailed of sending children to the surgeon's houses, the trafficking in certificates, and the substitution of one child for another, and he refers to his own experience that certificates were, in fact, prior to 1844, given at most of the mills *by choice of the mill-owners themselves*, on account not only of the frauds committed, but also "of the trouble and expense of sending messengers with the children, and their constantly returning without finding the surgeon at home." Now surely this experience in the past should prevail against Mr. Redgrave's revival of a scheme proved to be a failure. Unlike, again, his colleague, Mr. Baker advocates regular weekly visits, and the making of agreements between manufacturers and surgeons for such visits; showing that such arrangements conduce to the due fulfilment of the conditions of the Act, and to economy in respect of the cost of the medical visits. Indeed, were a searching inquiry made, it would be found how largely the provisions of the Act for securing registration and examination are evaded where no arrangement for regular visits has been agreed to.

A very pertinent remark in relation to the value of the surgical examinations is made by Mr. Baker, viz., "Under the knowledge by the parents that no child can get admission to work who is in a state of disease, in consequence of this examination by the surgeon, cases requiring a critical examination are comparatively few."

Whilst Mr. Redgrave is scandalised at the frequent examinations to which factory children are subjected under the present acts, and would be pleased to dispense with them altogether, his colleague, on the contrary, would enlarge the functions of the surgeons, and has recommended, in the interest of both employers and employed, that these officers should, once a month, pass through all the rooms of factories, during the hours of work, to notice the operatives engaged in their several departments of labour, and to point out any that are suffering from the kind of work, or from the dust, gases, &c., to which they are exposed. "Nobody can doubt but that young hands, and even old ones, sometimes need this sort of medical supervision, after being brought, perhaps, from the fresh air of the country, and submitted to high temperatures, lengthened confinement, and impure miasma for weeks or months."

But Mr. Baker does not rest here. His desire is to make the

Factory Acts efficient as sanitary measures in all that relates to the well-being of factory operatives; and to show how the factory medical organisation can be much more largely utilised, he reprints a circular letter sent by himself to all the certifying surgeons in his district. It is too long to reproduce here, but its purpose is to encourage those officials to turn their appointments to the best account, and not to rest content with the routine performance of their duties. At the same time it indicates in what direction they can as medical men be useful.

On the whole question of the employment of medical men in the working of the Factory Acts, Mr. Baker cogently writes thus:—

"If we recall to mind the condition of the children *physically*, on which ground alone the outcry for an Act was raised at first, arising not more from the disregard of parents for their offspring than from the neglect of the employers, and that the greater mischiefs arise in the smaller factories and workshops rather than in the larger, there can be no doubt that, without the protection of the surgeon's certificate, we should soon experience anew the physical evils of the factory work as they exhibited themselves from 1827 to 1834, till, indeed, they demanded and obtained legislative interference."

In the matter of the cost inflicted on manufacturers by the employment of surgeons, which Mr. Redgrave takes upon himself so grievously to bemoan on their behalf, his colleague affirms that no other proof of age and physical fitness which the law could recognise could be found, than the certificate of birth countersigned by a medical examiner. But the substitution of these two attestations would be more expensive and more difficult to obtain than the proofs of age and physical ability as now provided for by the merits of surgeons to the works where the fact of employment and the identity of the person are at once easily attested.

Many more matters of interest to the medical profession occur in the reports of the two inspectors, such, for instance, as the question of the utility of the returns of accidents in factories. Pursuing his usual policy of antagonism to doctors, Mr. Redgrave pronounces such returns to be generally useless. To test the validity of this conclusion, an appeal need be made to the working classes, whose conviction would be found, we apprehend, to be that the inquiry into the cause and nature of accidents among them is a protective and useful measure. Another matter of much interest to medical men is the Workshops' Act of 1867. In respect of this, again, the two inspectors are much at variance; the one is seemingly delighted with it and boastful of the manner in which he has sought to carry out its provisions; the other with more calmness and foresight, ex-

amines diligently into the Act and discerns its shortcomings, and, consequently, proceeds very discreetly to put it into force. The merits and demerits of the Act form too wide a subject for discussion here, but it will require little examination to detect in it grave anomalies, and also the essence of ineffectiveness and neglect in being entrusted for its enforcement and administration to the local authorities of towns.

In reference to the Factory Acts, the general policy of Mr. Inspector Redgrave is that of destructiveness. He would undermine their efficiency by abolishing registration and medical examination, and by the permission of a multitude of modifications of their provisions to meet the views of manufacturers. He would deprive those Acts of their value as sanitary measures, and would treat them as chiefly of educational importance, although the reports of the sub-inspectors show how unavailing are their provisions in securing the education of children in many trades, particularly those brought within the scope of the last extension Act of 1867. On the other hand, Mr. Inspector Baker seeks to impart to the Factory Acts a greater importance as sanitary measures, to render them more efficient in regulating labour and making it more healthful to the labourers, to add to the value and scope of the duties of certifying surgeons, and to bring those Acts into harmony with the Workshops' Act, so that large and small manufacturers may be on an equality in relation to the conditions of work, and the children both of factories and workshops be equally protected in their labour and placed under equal advantages both with regard to medical supervision and to schooling. He accepts the factory system as a great fact and a great success, but withal admits the necessity of progressive reform. Indeed, no one who attentively surveys the whole state of legislation with regard to factory and workshop labour, and the changed circumstances of the present time compared with 1833, when the general scheme of Government inspection of factories was matured, can fail to be impressed with the conviction that it demands considerable modification and readjustment. The tampering that would satisfy Mr. Redgrave would only render abortive what does exist and what has operated beneficially. The reform needed must be proceeded with on large principles, recognising the greatly advanced movements in sanitary science, and the need of a widely embracing state sanitary organisation of which factory inspection constitutes but one portion.

In conclusion, we would advert to the very extended tables in Mr. Baker's reports, setting forth all the trades carried on in this manufacturing kingdom, and comprised within the provisions of the Act of 1867, showing their distribution

throughout the several counties in the immense district under his inspection, the amount of steam power employed, the number of firms engaged in each description of manufacture, and also the number of adults, young persons, and children, distinguishing them as males and females. The drawing up of these tables must have cost enormous trouble and time, but they cannot fail to be of the highest value to both the political economist and the trader, and will also, in future histories of the manufactures of the country, constitute a most valuable standard of comparison in tracing the locality, the rise and decline of the several industries of the country.

Review XIV.

Die Membrana Fenestrata der Retina. Von W. Krause, Professor in Göttingen. Leipzig, 1868. Pp. 59.

On the Fenestrated Membrane of the Retina. By W. Krause.

The work of Krause on the membrana fenestrata appears to be of sufficient importance to deserve a careful analysis. Prof. Krause commences with a short historical account, in which it is shown that as long ago as 1856 the presence of an investing membrane or sheath attached to the outer segment of the rods of the retina was believed to have been demonstrated by H. Müller in the perch; and this was subsequently corroborated by Ritter, Manz, and Schiess, in the frog, and by Hulke in the retina of the frog and *Chelonia mydas*. Hannover pointed out, in 1840, that under various circumstances the substance of the rods split up into disks of different thicknesses: and Müller expressed his opinion that the line of division between the outer and inner segment was a post-mortem appearance. Wilson had already, in 1851, noticed the lamellated structure of the rods, and founded on it a peculiar theory respecting the perception of light; and more recently Schultze's paper appeared, in which the outer segments were regarded as composed of layers of differently refractile substance, on which he also raised a theory of "arrested waves," to account for the perception of light. Instead of a transverse a longitudinal striation is sometimes observed in the rods, which led Hensen to describe them as composed of an external sheath of vertical fibres arranged in a circular direction, and three central fibres. Ritter, in 1859, was only able to observe the presence of a single central axis fibre in the outer segment of the rods, and Krause saw a similar fibre in the inner segment. Hulke, in 1864,

observed in the frog a small subglobular mass at the outer extremity of the internal segment. Schultze has noticed the same in several other animals. In 1862 H. Müller maintained that no distinction existed in the perfectly fresh retina between the outer and inner segments of the rods. Lastly, in the outer segments of the cones Schultze observed the same lamination as in the rods; whilst in the inner segments bundles of fibres could be distinguished, which were obviously artificial. At this point Krause takes up the subject. He divides the retina into the following layers:

EXTERNAL LAMINA. Pigment layer.

INTERNAL LAMINA. Bacillar layer { Rods / Cones / Needles } { Outer segment / Inner segment } { Ellipsoïd / Axis fibre. }

Membrana limitans externa.

External granule layer { Rod granules. / Cone granules. }

Cone-fibre layer { Cone-fibres—Cone spheroïd. / Rod fibres—Rod spheroïd. }

Membrana fenestrata.

Internal granule layer { Membrana perforata in fishes / External layer / Middle layer / Internal layer / Nuclei of the radial fibres } Radial fibres.

Granular layer { Radial fibres. / Processes of the ganglion cells. }

Ganglionic cell layer ... Radial fibres.

Optic fibre layer ... Radial fibres.

Membrana limitans interna.

Membrana hyaloïdea (of the vitreous).

It will be observed that, besides the rods and cones, Krause enumerates certain bodies, which he calls needles, which rest on the membrana limitans externa, and point outwards towards the choroid. These he regards as unquestionably constituting a third kind of element belonging to the bacillar layer. The layer which has been termed *membrana fenestrata* by Krause intervenes between the inner and outer granule layers, and is, therefore, quite internal to and distinct from the membrana limitans externa. It appears as a very transparent, finely granular membrane, perforated at regular distances with holes, which are of roundish or oval form, and have a diameter of 0·0038 to 0·0057 mm. The membrane is composed of flattened cells of considerable size, of irregular form, with prolongations of variable length, that are often *branched*, and which are often fused together. It is constant in all vertebrata, and its structure and relations are in all essentially similar. The cells present considerable resistance to the action of acetic acid. Krause considers that the so-called inter-granular layer does not exist, and that which since the time of H. Müller has generally been regarded as a finely-granular or reticular structure is really composed, on the one hand, of flat cells seen in section; and, on the other, of certain processes

to be presently described, given off from the rod-fibres, which, with low powers, and also in section, appear as points.

It can easily be shown that the well-known radial fibres of the retina are intimately connected with the cells of the membrana fenestrata, either directly or through the intervention of processes of the latter. The fibres, however, never appear to penetrate the membrane. The fenestræ of the membrana fenestrata are occupied by the outermost granules of the internal granule layer. The several features above alluded to may be most conveniently shown in the retinæ of rabbits, macerated in arseniate of soda or carbonate of potash.

At the yellow spot in man, as was shown by Henle, only cones are present. The fibres of these cones are broad and flattened, and run obliquely to the membrana fenestrata, constituting in their long course the horizontal cone-fibre layer.

From the fovea centralis outwards the fibres constantly become longer; but at length they bend somewhat suddenly towards the membrana fenestrata, and become continuous with certain conical bodies, the position of which has been disputed, Henle placing them on the outer, Schultze on the inner side of the cone-fibre layer. Krause believes that, in perfectly perpendicular sections of the retina, Schultze's statement will be found to be the most correct, and maintains that they lie in immediate contact with the outer surface of the membrana fenestrata. It is a matter of importance to notice that, except, perhaps, in the chameleon (H. Müller), no radial fibres can ever be seen, under any mode of examination, coursing through the cone-fibre layer.

If sections are made near the periphery of the macula lutea, which cut the cone-fibre-bundles at right angles, as Henle and Hasse appear, unfortunately for the elucidation of the subject, to have made, the cut surfaces of these bundles appear as a thick layer of granular aspect between the outer granule layer and the membrana fenestrata.

Further investigations on retinæ, treated with various reagents, have convinced Krause that, as with the cone- so also with the rod-fibres, it may be clearly shown that they stand in direct continuity with the cells of the membrana fenestrata.

At the inner end of the rod-fibres there exists constantly in mammals a small, club-shaped or fusiform enlargement, not exceeding $\frac{1}{12000}$th of an inch in man, which is analogous to the rod-cones of the lower vertebrata, and may receive the same name. By means of it the rod-fibres are attached to the membrana fenestrata. A kind of trellis-work formed by the rod-fibres in conjunction with the coarser cone-fibres, situated externally to the membrana fenestrata, has given occasion to the erroneous, though generally received opinion, that the radial fibres traverse the inter-granular layer, and

are inserted into the membrana limitans externa, whereas it is certain that the radial fibres only extend from the membrana limitans interna to the membrana fenestrata, where they terminate, and no fibres exist running in a radial direction in the outer granular layer in any vertebrate animal (except, perhaps, the chameleon) besides the rod- and cone-fibres.

The peculiar course of the cone-fibres, which form a fibrous layer of considerable thickness at the fovea centralis is explained by the consideration of the development of the eye. It is now known that the fovea centralis is the remains of the fissure of the eye which exists in the fœtus; and it is to close this that the cone-fibres in question are so much elongated. The unequal growth of various parts of the bulb, and, consequently, of the retina during development, is best ascertained by observing the changes of form of the globe after birth in young rabbits. During the first days of life the bulb has the form of a transversely-lying ovoïd, pointed at both ends, of about 10 mm. long, 7·5 mm. broad, and 8 mm. thick. In the adult the dimensions are 16, 17, and 18 mm. respectively.

Krause enters into a full description of the causes which lead to the appearance of Ritter's fibre in the outer segment of the rods and cones, and regards it as an optical illusion.

He describes the outer segments of the rods and cones as constituting, when fresh, simple, homogeneous, essentially cylindrical structures without sheath, destitute of longitudinal striæ, without axis fibres, and without the lamellar structure described by Schultze. The refractive index of the rods and cones (outer segments) in the frog probably lies between 1·45 and 1·47, and there is reason to think does not vary much in other animals. The outer segments are doubly refractile (Valentin, Schultze), and a difference exists between the outer and the inner segments in this respect (Krause, Henle, Schultze).

The inner segments of the rods and cones contain at their outer part the well-known ellipsoïd particles. They also contain in their interior an axis-fibre, but the presence of this has never been fairly substantiated in the perfectly fresh retina treated only with its own vitreous. The cones of the retina are wanting, according to Schultze, in the owls, and in some nocturnal mammals, whilst the outer segments of the rods in the latter are of very large relative size.

Outer granule layer.—The granules of this layer present transverse striation, which is most apparent when the retina is treated with dilute acetic and osmic acids, but in chromic acid and in bichromate of potash only traces of it are visible. The usual appearance presented is that one more and one less strongly refractile layer are found in superimposed lamellæ, arranged parallel to the plane of the retina. The more strongly refractile substance occupies the outer and inner extremities of the corpuscle. The less, forms an interme-

diate layer. There may, however, be two layers of the latter, separated by a biconcave layer of the strongly refractile substance, in this case making five layers in all, the outer and innermost layers being convexo-concave. In consequence of the smaller thickness of the discs in the centre of the granules, the transverse striation is most distinct, if the surface, and not the centre, be examined with high powers.

Similar but finer striæ are seen in the cone-granules, the striation being extremely distinct in the cones of the macula lutea of apes, and in raptorial birds. In these instances from five to six striæ are observable, and here, as elsewhere, it would appear that the cones are more highly and delicately organised than the rods. As regards the development of the bacillar layer, there has been some controversy, Schultze denying its existence in kittens and young rabbits, and Hensen admitting it. Krause holds that the bacilli may easily be shown to be present in young rabbits within two hours after birth, and the striation of the granules is certainly visible on the third day. The outer segments of the rods and cones develop outwardly from the membrana limitans externa, as stated by Schultze, and not inwardly from the pigment-cells, as supposed by some. The membrana limitans externa corresponds morphologically to the inner surface of the inner layer of the primitive eye vesicle; that is, to the ependyma of the ventricle of the brain, whilst the pigment layer of the choroid proceeds from the outer layer of this vesicle. It is on this account that we must regard the pigment as a portion of the retina, to which it no doubt functionally belongs. The rods and cones are originally solid projections from the membrana limitans externa, and are to be regarded as essentially cuticular formations, as are also the needle-like processes connected with the same membrane. As regards the ganglion-cells and nerve-fibres of the retina, Krause observes, that to obtain an accurate knowledge of the functional significance of various parts of the retina, experimental investigation is of great importance, and the most satisfactory mode of proceeding in this respect, is to effect section of the optic nerve. To this end Krause has invented a knife, by which the nerve can be divided with little injury to surrounding parts. After three weeks the animal may be killed and the eye examined. After having performed this operation in various instances, he found all parts of the eye, besides the retina, unaltered, and even of the retina the only layer affected was that composed of nerve-fibres, which, together with the ganglion-cells, had undergone fatty degeneration. Hence the conclusion may be drawn, that none of the other layers can be regarded as truly nervous, or as standing in direct conducting continuity with the nerve-fibres. He particularly remarked, that even in fowls, neither the rods and cones, nor the ellipsoïd bodies, nor the pale axis fibres of the internal segments, had undergone any change whatever.

In speaking of the internal granule layer, he observes that it is composed of at least four elementary structures, namely,—1. Elongated nuclei, a single one of which is attached to each of the radial supporting fibres. Hence these fibres are to be regarded as developed from fusiform cells. 2. Near the internal part of this layer are certain ganglion-like cells, which have a large nucleus and a small quantity of protoplasm in their interior. 3. The middle and largest portion of this layer consists of spherical elements, which resist the action of even 3 per cent. of acetic acid, and which send out an external and an internal fibre, distinguished from the radial fibres by their smaller thickness and resistance. 4. The most external portion of this layer consists of somewhat larger granules, which project into the spaces of the membrana fenestrata, and unlike those last mentioned, are only unipolar, the process running inwards.

Granular layer.—Respecting this layer Krause only remarks, that it never in any vertebrate contains anastomosing cells, like those which form the so-called inter-granular layer. It is remarkable as appearing to consist in many animals of several layers.

Membrana limitans interna.—This is a distinct membrane from the hyaloïd, as Kölliker and Schultze maintain in opposition to Henle and Steinlin. It is directly connected with the radial fibres. In the ox it appears to consist of flat polygonal cells, so fused together as to render their boundaries distinguishable with difficulty.

In reviewing and summing up the principal points of his essay, Krause makes the following observations:

From the facts previously stated the conclusion may be drawn that the rods and cones cannot be regarded as the terminal organs of the nervus opticus, and the reasons for this opinion may be thus stated. 1. The rod- and cone-fibres incontestably terminate in the connective-tissue cells of the membrana fenestrata, which are connected on the other side with the clearly defined connective-tissue radial fibres, which extend from the membrana fenestrata to the membrana limitans interna. 2. After division and consequent fatty degeneration of the optic nerve, there is no doubt that the ganglion cells and their processes degenerate; but the rods and cones do not undergo this change, even when the nervous layers of the retina have become altogether atrophic. This holds true for the fowl, the rabbit, the dog, and man. 3. Birds and amphibia have oil-drops in the cones, which entirely fill them. But, so far as we know, no nerve-process can be effected through a fat-spherule, although the waves of ether can pass through it. It follows, consequently, that the outer segment of the cones in question cannot be of a nervous nature. 4. As long as the transverse striation of the external granules was supposed to be limited to the rod-granules of mammals, it could scarcely be supposed that, however peculiar, it possessed any physiological importance. They were held to be merely inter-

polated ganglion cells. But with the evidence of the presence of a similar but more complicated structure in the cone-granules of apes (?) and falcons, another explanation is required.

The arrangement cannot be compared to anything better than to that of the numerous superimposed vitreous lamellæ, of which an achromatic objective glass is constructed. That such an apparatus should possess a dioptric power is immediately obvious when the extreme transparency of an external granule is once observed. Moreover, that in point of fact waves of light can pass through the whole apparatus in such fashion that a smaller but more minute image is formed beyond the bacilli is shown by an experiment to which reference is made in the text, in which the bacilli were illuminated by oblique light. The entire complicated arrangement:—The cells of the retinal pigment, outer and inner segments of the rods and cones, the colourless or coloured oil-drops, the rod- or cone-ellipsoïds, rod- and cone-granules, perhaps, also, the needles of the membrana limitans externa—all represent, in truth, nothing more than a compound catoptric system, in which the delicacy of detail in the structures may ever present some difficulties to our comprehension of their utility. The transversely striated external granules are clearly arranged in columns, which are separated from one another by the cone-fibres. This appears to possess signification in a physical point of view, as does also the peculiar lamination of the granular layer in birds. 5. The history of their development shows that the rods and cones, as well as the needles of the membrana limitans externa, are simply cuticular developments, so that they originally constitute only solid outgrowths of the skin. But we learn from the study of the other organs of sense that such cuticular formations are constantly met with in the immediate neighbourhood of the parts where the nerves terminate, and are frequently erroneously regarded as true nervous structures. 6. Amongst entoptic phenomena the experiment of Czermak has not been sufficiently considered in which, in some eyes, the mosaic arrangement of the cones at the macula lutea can be made apparent. But it stands to reason that a nerve adapted for perceiving light cannot see itself. The other physiological matter of fact on which the view that the bacillar layer is that in which the perception of light occurs, is essentially grounded on the well known parallax of the veins in Purkinje's experiment. But it has been overlooked that the same phenomenon of parallax must occur if the external segments of the rods and cones act catoptrically, and the light-perceiving elements lie externally to the bacillar layer, as may easily be shown. The alternative is, either the rods or cones are light-perceiving apparatus, or the latter, though still unknown, become excited only by light reflected from the bacillar layer. Since the first alternative is excluded, the consideration already adduced—the parallax referred to—becomes an interesting proof that, as Goodsir

held, only the light reflected from the choroïd is perceived, by which an analogy is established with the arrangements in the eyes of invertebrata; moreover, the construction of the retina in nocturnal animals, with long external segments to the bacilli, between which the cones can with difficulty be recognised, becomes by this means capable of explanation. For if only the light reflected from the choroïd is perceived, the more complete reflection which may indubitably be given with a longer outer segment renders such animals capable of being affected by feeble grades of illumination.

We must, therefore, recognise three structures in the retina—a catoptric-dioptric apparatus, a connective tissue supporting apparatus, and the nervous element. Amongst the first are to be recognised pigment cells and sheaths, tapetum, rods and cones, oil-drops, cone- and rod-ellipsoids, cone- and rod-granules, and perhaps also the needles. To the second belong membrana limitans externa, cone- and rod-fibres, cone- and rod-spherules, membrana fenestrata, radial fibres with their nuclei, membrana limitans interna, and probably also the axis fibre in the interior of the inner segments, if this be present during life. The nervous elements are the optic fibres and ganglion cells, and probably also a portion of the inner granules. The termination of the optic nerve is not at present actually known, but is supposed to be concealed in the inner granular layer, and this is rendered probable by the circumstance that the blood-vessels do not penetrate beyond this point. An intelligible differentiation of the very various elements which are associated under the name of the internal granular layer is much demanded.

It is to be observed that both the external and internal layers of the retina in their structure, so far as our means of recognition extend, appear to be completely understood, which certainly cannot be maintained in regard to the inner granular layer lying near the middle of the thickness of the retina.

As regards the theories which have been advanced in respect to the perception of light, the following may be noticed:—E. H. Weber expressed the opinion that the external segments of the rods might have a lamellar structure, since they are so easily cleavable in a transverse direction. The waves of light may then induce a movement of electricity in their columnar rods. H. Müller, to a certain extent, adopted this theory. On the other hand, Draper believed that by the absorption of the rays of light by the black pigment of the choroïd an elevation of temperature of the rods occurred, in consequence of which the mechanism for the perception of light was not different in principle, but only through the various arrangements, dimensions, &c. of the elements from such apparatus as are constructed to communicate perceptions of heat. In support of this hypothesis the well-known pigmentation of the eyes of the lower animals may be adduced, which must be necessarily better warmed

than the rest of the surface of the body, just as a piece of black cloth, placed on snow in sunshine, will sink through it more rapidly than white.

Hensen, again, supposes that products of disintegration are developed in the rods and cones by the action of light, which exert an exciting influence on the nerve-fibres coursing through the axis of the rods. The hypothesis of Draper has recently (1867) been adopted by Czerny, who blinded animals with a burning-glass, and with concave mirrors. At the injured parts of the retina the vessels were found to be contracted, with spots, apparently of coagulated albumen, in the retina, and especially in the rods. In some cases, however, as in guinea-pigs, the rods were unaltered. Inflammatory changes were observed to occur secondarily, terminating in atrophy of the retina. The crystalline lens was troubled. It is obvious that in these experiments the heat applied was too great to allow of any accurate physiological deductions to be drawn, and they only show that heat is produced at the pigmentary layer with the absorbed light. Krause himself endeavoured to ascertain whether any perceptible change occurred in the retina by placing the eye of a rabbit bled to death in the sun, and comparing it with the opposite eye, after the action of hardening agents, but was unable to observe the faintest difference.

Lastly, Zenker has endeavoured to deduce a theory of perception of light by arrested waves, on the supposed laminated structure of the rods; and he imagines that the entering rays of light interfering with those that are reflected act on the proper substance of the rods; but the varying thickness of the plates, even supposing them to be primarily present, is sufficient, Krause thinks, to negative this hypothesis.

PART SECOND.

Bibliographical Record.

ART. I.—*I Anledning af "Punktur af Leverkyster og Abscesser."* Ved Distriktslæge JÓN FINSEN (Særskilt Aftryk af 'Ugeskrift for Læger,' 3die Række, 7de Bind, Nr. 15).

On Puncturing Hepatic Cysts and Abscesses. By JÓN FINSEN, District Physician. (Reprinted from the 'Ugeskrift for Læger,' 3rd series, Vol. 7, No. 15). Copenhagen, 8vo, pp. 11.

THIS little essay consists mainly in a comparison of the various modes of opening hydatid cysts. The methods of which the author principally speaks are what he calls the simple puncture of the English; Simon's double puncture; Récamier's method, of which we have already spoken in our forty-first volume, p. 348, in reviewing a former work by Dr. Finsen; and a combination of Bégin's and Récamier's methods, now suggested by himself.

The simple puncture ought, according to the experience of Dr. Finsen and some other Icelandic physicians, to be rejected, for the following reasons:—1. Because it must fail when the echinococcus contains daughter-cells, as these cannot be evacuated through the canula. 2. Because, in puncturing a non-adherent echinococcus with purulent contents there would always be a risk of peritonitis. 3. Because the puncture is often only palliative.

Simon's double puncture and Récamier's operation are looked upon by the author as about equal in their results. The statistics of the first extend to only six cases, all of which were cured; those of the second we have given in our former article above referred to. The tediousness and painfulness of Récamier's method are, however, objectionable; while the double puncture has not yet been sufficiently tested. The author has, after due consideration, come to the conclusion that the disadvantages of Récamier's method may

be removed by a modification, which, in conclusion, he proposes in the following terms:

"As it has proved to be a fixed rule that cauterisations of the abdominal wall have no effect in producing adhesion between the laminæ of the peritoneum until they have reached down nearly to the peritoneum itself, we should save ourselves much time, and the patient much time and much pain, by adopting a more rapid mode of arriving at that membrane. My proposal, therefore, is to divide, under the influence of chloroform, the abdominal wall layer by layer, down to the peritoneum, and then, after all hæmorrhage has ceased, to apply Vienna or Canquoin's paste in the bottom of the wound. A scab would then, if the cauterisation had acted powerfully, have formed, involving both layers of the peritoneum; and a firm adhesion would thus have been at the same time produced between the cyst and the abdominal wall; on loosening, the scab would subsequently be separated from the adhesion now being organised. If it were not thought advisable to wait for the separation of the scab and the establishment of the adhesion, the hydatid tumour might, so soon as the scab had become firm, be without danger opened through the same scab.

"The principal point in this operation is, when the incision has reached to the deeper layers, to beware of opening the hydatid tumour itself—dividing the peritoneum will probably, if the hydatid tumour is large and close to the abdominal wall, not be of so much importance with respect to the result—and it will, therefore, be necessary, while dividing the several layers, to recollect the anatomical relations of the parts. The difficulty would, however, probably be greater if the incision were made equally long throughout—its length in the bottom of the wound ought not to exceed from $2\frac{1}{2}$ to 3 centimètres, as an opening in the cyst, more extensive than 2 centimètres is, probably, not desirable—and it would, therefore, be well to begin with a longer incision through the outer layers and gradually to shorten it according to the depth.

"Should this mode of treatment, which thus becomes a combination of Bégin's and Récamier's methods, appear to be practical and give as good a result as the original method of Récamier, it is to be hoped that the plan of cauterisation will maintain its place as in all respects an excellent operation in hydatid tumours in the abdomen." (pp. 10-11.)

ART. II. — *Medical Anatomy.* Fasciculus VII. By FRANCIS SIBSON, M.D., F.R.S., F.R.C.P.L., Senior Physician and Lecturer on Clinical Medicine to St. Mary's Hospital, Member of the Senate, and formerly Examiner in Medicine, of the University of London. London, 1869.

THE present, which constitutes the concluding Fasciculus of Dr. Sibson's valuable work, contains three fully coloured lithographic plates, and eight pages of letter-press, illustrated with twenty woodcuts. It is occupied with a description of the movements, structure, and sounds of the heart. The nineteenth plate represents the position of the heart and lungs in a robust man with a large and full heart, the twentieth the same organs as seen in a youth in whom the heart was small and empty, consequent on a considerable loss of blood having taken place before death. The twenty-first, and last, represents in two figures the position of the heart in the opposite conditions of systole and diastole.

Dr. Sibson commences his account of the movements of the heart by stating that his observations were chiefly made on the dog and the ass. His description is not altogether confirmatory of that given by Dr. Halford, and it is interesting to compare these accounts together. Dr. Sibson says, "When the ventricles contract, they do so with a twisting movement, their walls become rigid and corrugated; their apex and base approximate, the descent of the base being greater than the ascent of the apex, and the arteries and veins on their surface become prominent and tortuous." It will be noticed here that Dr. Sibson describes the apex as ascending. Dr. Halford, on the other hand, in his 'Essay on the Action and Sounds of the Heart,' says, Obs. 4, "During the systole the base of the heart approaches the apex, the *latter* at the same time is pressed *downwards*, backwards, and from right to left, describing part of a circle." Both sets of observations were made on the same animals, Dr. Sibson estimating the amount of movement by stretching a millimètre measure across the organ exposed, but still retained in the pericardium, and Dr. Halford by sticking a pin through the integuments, the movement of the head of which was, of course, in a direction the reverse of the point, the skin constituting the fulcrum. It is difficult to explain this discrepancy; it might be supposed that Dr. Sibson considered the movements of the parietes of the organ as regards themselves only, without reference to the adjoining structures, whilst Dr. Halford's attention was chiefly directed to the movement of the organ as a whole. But this explanation can scarcely be accepted, since in the next column Dr. Sibson repeats that the apex ascends towards a zone of rest, which

he places near the middle of the ventricle, though, perhaps, somewhat nearer the apex, and subsequently states that a downward movement was indeed visible, but only when the finger was pressed gently upon the apex, and that such movement was the reverse of the ordinary movement. And again, after describing Skoda's view, that the heart is pressed downwards as a whole, in consequence partly of the pressure which the blood exerts (owing to the contraction of the ventricles) upon the walls of the heart opposite to the opening whence the stream escapes; and partly because the aorta and pulmonary artery, being free and unattached for some distance from their origin in the heart, allow of a lengthening of the blood column downwards. Dr. Sibson continues—

"Now these two agencies exist, and they tend to produce the effect described of forcing the heart downwards. They are, however, overbalanced by the more powerful agency of the muscular contraction upwards of the lower half of the ventricle. The result is that whilst the upper portion of the ventricles is lowered, their lower portion, including the apex, is raised during the systole, when the ventricles contract from all sides towards their own centres; and that practically the heart's impulse is not influenced by either of those causes."

In speaking of the action of the auriculo-ventricular valves, Dr. Sibson appears to hold that the mitral valves do not simply droop flaccid during the diastole, but are actively opened by the muscular contraction of the papillary muscles. He says—

"As soon as the muscular walls *relax* after the end of the systole, the two papillary muscles move as far from each other as possible. In doing so they open the valve by stretching, and so drawing forward its anterior flap; when the diastole is complete the anterior flap is held taut between the two papillary muscles, so that at this period the mitral orifice is fully open."

It may be said, that if such a contraction as is here referred to occurred, we should have something very like the active diastole admitted by Cruveilhier and others; if it be so, the papillary muscles must immediately relax again, or the margin of the valves could not come into opposition on the systole of the auricle.

The descriptive portion and the woodcuts illustrating the form of the cavities of the heart and their relative position, are very well done, with the exception of the sixteenth and seventeenth, which, whilst giving the musculi papillary rightly, certainly do not render faithfully the delicate branchings and arborescent appearance of the chordæ tendineæ.

In reference to the sounds of the heart, Dr. Sibson is not satisfied with the view advocated by Billing and Halford, that the first sound is due to the tension of the auriculo-ventricular valves; for he

remarks that it is of uniform character and equally loud over the conus arteriosus, close to the pulmonary artery, over the base near the tricuspid orifice, and over the lower border of the ventricle, where it is occasionally of a ringing character. "This equal diffusion of the sound over every part of the ventricle, demonstrates that the cause of the sound *is not concentrated upon any one valve* or outlet, but is spread over the whole cavity." The cause of the second sound again, he believes, is not limited to the semilunar valves, but is common to them, and the walls of the arch of the aorta, and is attributable not to the closure of the semilunar valves, but to the shock of the return flow of blood upon those valves when already closed.

We must here conclude this brief notice; we cannot do so, however, without at the same time congratulating Dr. Sibson on the completion of his great work, and on his being able to present to the profession in a collected form the results of many years of investigation. The 'Medical Anatomy' is certainly a very creditable addition to our few original anatomical works, and will constitute for every working student and physician a very valuable aid in the prosecution of physical diagnosis, and in the study of clinical medicine.

Art. III.—*Nordiskt Medicinskt Arkiv.* Redigeradt af Dr. Axel Key, Prof. i Patolog. Anat. i Stockholm. Första Bandet, Första Häftet, Med sju Planscher, 1869. Stockholm: Samson och Wallin. 8vo, pp. 172.

Northern Archives of Medicine. Edited by Dr. Axel Key, Professor of Pathological Anatomy in Stockholm. First volume. Part I. With seven plates.

In the review of recent Scandinavian medical literature which appeared in our number for January last, we stated that the publication of the Swedish 'Archives of Medicine,' to many of the admirable essays in which we have from time to time called the attention of our readers, would cease with the appearance of the supplement to the third volume, and that that excellent journal would be replaced in the course of the present year by another on a wider basis, which, under the title of the 'Northern Archives of Medicine,' should represent the current medical literature of all Scandinavia, including Denmark. Of the new journal, the first part has just appeared under the able conduction of Dr. Axel Key, with the co-operation of Drs. J. Nicolaysen, Vogt, and Professor Winge in Christiania; Professors Panum and Reisz; and Dr. F.

Trier in Copenhagen; Professors Ask and Naumann, and Dr. V. Odenius, in Lund: Drs. Bruzelius, Rossander, and Oedmansson, in Stockholm; Dr. Björkén, Professor Hedenius, and Professor Holmgren, in Upsala. It is intended that the journal shall be the organ also of the medical literature of Finland. No editorial committee has as yet been formed in that country, but eminent scientific men there likewise have promised their active co-operation in promoting the objects of the undertaking. It is proposed to issue three or four numbers of the 'Archives' yearly, each number to contain about ten sheets. The number which has appeared is brought out in excellent style, and is illustrated with seven beautifully executed plates, two of which are printed in colours. We cannot on the present occasion do more than enumerate the subjects of the essays it contains; these are, the origin of malformations, by Professor Panum, of Copenhagen; grey degeneration of the spinal cord, by Axel Jäderholm, of Stockholm; disease of the hip-joint, by J. Nicolaysen, of Christiania; uterine tumours, by Professor A. Anderson and Dr. Ernst Oedmansson, of Stockholm; the treatment of spedalskhed, by D. C. Danielssen, of Bergen; four cases of ovariotomy, by Professor Voss, of Christiania. To these valuable essays are added reports of northern medical literature from the first half of the year 1868 under the several heads of pathology and therapeutics, surgery, and pædiatrics. We hope on a future occasion to notice some of the important papers in this new journal in detail.

Art. IV.—*On Varicose Disease of the Lower Extremities and its Allied Disorders; being the Lettsomian Lectures delivered before the Medical Society of London in* 1867. By John Gay, F.R.C.S., Surgeon to the Great Northern Hospital, &c. London, 1868. Pp. 171.

Mr. Gay has long been known as a surgeon who has paid particular attention to the varicosities, indurations, and ulcerations, of the lower extremities. We are, therefore, glad to see that the Lettsomian Lectures, which he recently delivered before the Medical Society, have been published in a separate form, and we welcome this little volume as a valuable addition to our knowledge of a class of diseases which are at once very common, and very difficult to treat with any measure of success. Varicose veins and varicose ulcers are the bane of our working people. There are, perhaps, no maladies not immediately dangerous to life which are equally common, and which give rise to an equal amount of suffering. They induce a premature

lassitude and weariness, and hamper all the energies and activities of life; and unhappily it is chiefly the young and the middle-aged who are affected by them. Every inquiry, therefore, which tends to throw light upon the pathology and treatment of these affections is a direct contribution towards the alleviation of human misery.

In these three lectures Mr. Gay enters fully into (1) the anatomy and physiology of the saphenous system; (2), the morbid anatomy and the causes of obstruction of varicose veins; (3), the treatment of varicose veins and varicose ulcers. In each of these divisions he shows a thorough insight into his subject, and takes a comprehensive and philosophical view of it. Some of the experiments by which he has illustrated the physiology of the venous currents are extremely interesting, and many of the cases that he has related are very instructive.

An example of varicose disease has lately been under our treatment, which is the worst of the kind that we have ever seen; and we have not observed any case like it among those which are mentioned in these lectures. The patient we allude to is a middle-aged woman, a hawker by occupation, and she had an ulcer of considerable size above the ankle, with varicose veins which extend all the way up the leg and thigh, and culminate in a large bunch upon the mons veneris. Have we any effectual means of dealing with such a case as this? Can we cure this distressing state of things? Mr. Gay seems to say that we cannot. We may do much to relieve symptoms and to keep the disease in check, but to cure it we are almost powerless. The various operations which have been proposed for obliterating the dilated veins do not seem to commend themselves to the judgment of our author. After a full trial and an experience which extends over many years, he does not appear to have much confidence in any of them. Rest in the horizontal position, cold sponging, and the use of bandages or elastic stockings—these are the means upon which he places most reliance, and which he thinks are the most efficient remedies we possess in dealing with these frequent and distressing maladies. If these are the only suggestions that surgery has to offer, it is clear that we are still far from being able to cure varicose diseases, and that our art must make a considerable advance before it will be able to hold out an effectual remedy for a class of cases which a tyro may recognise, and whose pathology is tolerably well understood.

These lectures are illustrated by a few lithograph drawings by the author. They are not very artistic, but they have the merit of being clear and distinct, and they serve to make the subject more intelligible.

ART. V. — *Ricerche Chimiche sul Veleno della Vipera.* Pel PRINCIPE LUIGI-LUCIANO BONAPARTE. (Lette in occasione della quinta unione degli Scienziatti Italiani, tenuta in Lucca l'anno 1843.)

Chemical Researches on the Venom of the Viper. By PRINCE LOUIS-LUCIEN BONAPARTE. (Read at the fifth meeting of the "Scienziatti Italiani," held at Lucca in the year 1843).

IN a former number we placed before our readers a brief account of Professor Weir Mitchell's investigations connected with the venom of the crotalus (rattlesnake); and, as the subject of snake poisoning has very recently excited a good deal of interest, we have pleasure in directing attention to a pamphlet, written some twenty-six years since, containing a full notice of the chemical composition of viper venom, and of the discovery by the writer—Prince Louis-Lucien Bonaparte—of its active principle, to which he gave the name of "echidnina," deriving it, he says, "*dal Greco* ἔχιδνα *echidna vipera, oppur quello di viperina.*"

The pamphlet commences with a very short, but, nevertheless, very interesting *résumé* of the physical and chemical qualities attributed by Fontana to the venom of vipers; and the prince then proceeds to say that, in presenting the simple facts brought forward by this authority, he feels he has only been discharging a duty towards so distinguished a physiologist; but, having done this, he must abstain from commenting on Fontana's theoretical views, inasmuch as they were founded on the chemistry of a period which would now-a-days be considered obsolete, and, of course, unsatisfactory to the present students of this "*sacred science.*" "*Dico i soli fatti, poichè non prenderó a discutere le vedute teoriche dell' Autore, che fondate in sulla chimica di quel tempo non possono piú soddisfare oggigiorno i cultori di questa altissima scienza.*"

Our author very fairly states, that he does not consider the experiments he himself has performed, are sufficient for the complete chemical study of the venomous fluid, "*umore venefico,*" but he nevertheless is induced to hope they will not meet with an unwelcome reception, as the subject has not been treated chemically for some time, and also because most persons have an aversion to enter into any manipulative examination of these reptiles whilst alive.

We may here just remark, incidentally, that although this extremely modest estimate of his labours may have been very natural at the time Prince L. L. Bonaparte made his communication to the scientific public, it can scarcely fail to be gratifying to him to find

that his work has met with such ready recognition by those who have subsequently written upon the same subject. Professor Weir Mitchell, in his exhaustive Smithsonian essay, "Researches upon the Venom of the Rattlesnake," &c. &c., makes very repeated references to the prince's pamphlet, fully crediting him with the discovery of the active principle of the poison, and with the first and only complete analysis of serpent venom: he also admits that "*echidnina*" and "*crotaline*," the latter being the active principle of rattlesnake venom, are identically the same; but in his process for obtaining crotaline, he somewhat differs from the course pursued by the prince, and thus has succeeded in obtaining three, instead of two, distinct albuminoids.

In quoting the pamphlet before us, Professor Mitchell has fallen into an error as regards the name of the writer, styling him Prince *Charles* Lucien Bonaparte, who is the well known naturalist, and brother to Prince Louis Lucien Bonaparte, the author of the memoir we have under notice. The cause of this mistake is obvious enough, for Professor Mitchell states that he had not the opportunity of consulting the pamphlet itself, as it did not exist in any of the American libraries, and, consequently, he derived his information from Claude Bernard, "Lécons sur les subst. Toxiques, &c.," and also from Orfila, but principally from the former, who calls the prince *Ch.* Lucien Bonaparte.[1]

Our author, it appears, before proceeding to make any chemical examination, of his own devising, for discovering the active principle of viper venom, repeatedly tried all the experiments made by Fontana, and says that he is able to corroborate their general accuracy; that is to say, so far as they went, but this was not sufficient to effect what he desired, namely, the isolation of the *active ingredient:* to accomplish this he had recourse to a method which we will describe in detail.

He directs that the greatest possible quantity of venom must be obtained by offering to the bite of the deadly reptile "*al rettile mordace*," the edge of a watch-glass, and then pressing on the part of the head of the creature which is just above the venomous glands. The fluid, thus obtained, is then to be mixed with rectified spirit, "*alcool concentrato*," which has the effect of coagulating it. The liquid is next filtered, and the filter washed several times with alcohol.

These alcoholic liquors are subsequently volatilized under the receiver of an air-pump, by which process a small residue of a slightly yellow colour is obtained. By this first proceeding any substance dissolved in the alcohol, together with the yellow coloured body,

[1] At page 32 of Professor Mitchell's "Smithsonian Essay," when quoting from Orfila, the Prince is called correctly, Louis Lucien Bonaparte.

which seems but little capable of being dissolved in spirit, is removed from the venom.

The filter, saturated with alcohol, and containing also the coagulated venom, is next to be dried and then put back into the funnel. Distilled water is now to be poured over the filter: this redissolves the venom, affording a colourless solution, which passes rapidly through the filter. To complete this part of the process, distilled water is repeatedly dropped upon the filter. The quantity of water used in this last proceeding must be very small, in order that the solution of venom obtained may not be too much diluted: at the conclusion of the filtering there may sometimes be found a few flakes of mucus, or albumen, which do not appear to admit of being dissolved.

The next step is to place the solution of venom in watch-glasses, and these are directed to be put under the receiver of an air-pump; when their contents have been rendered dry by exhaustion the residue is to be pulverised and treated with ether for the purpose of getting rid of fatty matter should any be present.

After having been subjected to such treatment, some of the resulting body is to be burnt on a plate of platinum, and, if pure, no residuum or ashes will be left. Should any ash remain, the other portion of the venom, or rather the body which has been obtained from it, is to be redissolved in a very little distilled water acidulated with acetic acid; it is once more to be precipitated with alcohol, and, after several alcoholic washings, it is again to be dissolved in distilled water and then rendered dry under the receiver of an air-pump. Two such treatments with acidulated water and alcohol are generally found sufficient, the Prince says, to free the "echidnina" from any salts which it may be disposed to obstinately retain; but, at any rate, these various washings must be repeated until the particular substance obtained, when burnt, leaves no residue whatever. It is only when this can be accomplished that the echidnina obtained is to be considered a pure and elementary substance, differing from all other known organic substances. "*Non è che inquesto stato che considero l'echidnina come un principio immediato puro e distinto da tutte le altre sostanze organiche conosciute.*"

The difference between the above process and the one made use of by Professor Mitchell to obtain the active principles of rattlesnake venom (crotaline) will best be seen by placing a brief summary of each side by side.

Prince L. L. Bonaparte.	*Professor S. Weir Mitchell.*
Coagulate venom with alcohol, collect precipitate on filter; filtrate contains the extractive and colouring matter. Press filter to get rid of alcohol, and treat it, drop by drop, with cold distilled water; then dry the residue, which is "echidnina," and this may be cleaned from fats and salts by ether and acidulated water.	Boil venom, mixed with a little water, until it coagulates and settles. Decant the supernatant pearly fluid, and treat with excess of alcohol, a precipitate forms which is "crotoline."

The method described as being employed for obtaining the venom from the viper is pretty much that first made use of by Professor Mitchell in his experiments with rattlesnake poison; the only real difference being that Mitchell stupefied the animals with chloroform before getting the fangs on the edge of a saucer (the Prince using a watch glass). Now, however, Professor Mitchell dispenses with the chloroform, and makes use of a very ingeniously contrived and effectual "lasso" for the purpose of securing the creature during the operation.

The echidnina of the viper is said to have a gummy appearance somewhat resembling uncoloured varnish; it is perfectly clear and transparent, and when removed from the watch-glass in which it has been dried, it is in the form of extremely fine, brilliant scales, somewhat resembling those of tannic acid, but much whiter. It has not any odour nor any determinate taste.

The writer next proceeds to furnish a very minute account of the various chemical tests and re-agents to which he had submitted "Echidnina," and makes a few brief allusions as to the effect this substance produces on the blood of some vertebrate animals; then points out how, and in what manner echidnina differs from a number of "azotic" substances, and, finally, comes to the conclusion that of all bodies of this class it most resembles 'Ptyaline;' he thinks this should not excite surprise if we reflect that viper venom is secreted by an organ quite analogous to our parotid gland: "*né ciò debbe far maraviglia allorché si rifletta che il veleno della vipera secretato da un organo al tutto analogo alla nostra ghiandola parotide, altro non è al dire dell' illustre zoologo De Blainville che una vera saliva di questo rettile* ('*Cours de Phys. Gén. et Comp.*' *t.* 3, *p.* 124.)"

The 'Memoir' concludes with the following introduced as an '*Appendix.*'

"Having previously heard some questionable tales of hydrophobia being cured by means of viper venom, I was induced some months ago to solicit Professor Betti, in the course of some conversation I had with him on this subject, to oblige me by letting me know whenever there was any one suffering from this awful disease at the Hospital of Saint Maria Nuova, of which Professor Betti is superintendent. I thus tried to obtain the opportunity of proving the power of the antidote, rightly or wrongly so called, by subjecting

the patient to the bite of several vipers, or to inoculation with 'echidnina.' . . . . . The distinguished Professor, remembering my wish, had the kindness to let me know that a youth fifteen years old, suffering from hydrophobia had been brought to the hospital. He had been bitten by a mad dog fifty-three days previously, and the vote of the majority of the physicians consulted being in favour of the employment of viper venom, '*il voto della pluralità dé medici, â quali fu proposto il mezzo terapeutico del velen viperino*,' he requested me to bring the vipers with me, but not the 'echidnina,' so that I might be present at the various experiments made under the direction of Dr. Panattoni, the physician attending the sufferer; and I take this opportunity of publicly tendering my thanks to him for having permitted me to be present, although not a physician, in that worthy conclave—'*in quella rispettabile adunanza.*'

"As Dr. Panattoni had resolved to lay before '*Sezione di Medicina*' the detailed account of this case of hydrophobia, I shall merely mention that as many as six vipers in succession were applied to the patient; that the bites of these reptiles did not in the slightest degree diminish the hydrophobic symptoms, and that they (the symptoms) became more violent after the application of the viper venom, just as would have happened if the vipers had not been applied at all, no trace of the symptoms of poisoning by viper venom appearing, neither was there any modification of the symptoms of hydrophobia.

"The unfortunate youth expired shortly afterwards in the most violent convulsions."

We refrain from making any comment on the 'Appendix,' but unhesitatingly commend the chemical portion of Prince Louis Lucien Bonaparte's brochure to the notice of all those who are specially interested in the study of serpent venom generally, and viper venom in particular.

Art. VI.—*On Going to Sleep.* By Chas. H. Moore, F.R.C.S. London, 1868.

"How do we go to sleep? We know something of sleep, and something also of dreaming or incomplete sleep; but the child's old question, 'How do we go to sleep?' has never been answered."

This is the problem that Mr. Moore has set himself to solve. It will be shown, we believe, that he can help us on towards the solution of the problem, and therefore necessarily towards the solution of its converse (to some people harder still), "How do we keep awake?"

Reasoning from the known condition of the brain during sleep, shown by Mr. Durham to consist in a diminished supply of blood,

and taking it "without question that the reduction of the quantity of arterial blood in the brain is affected by contraction of the arteries themselves," the means by which this arrest of supply, at the moment of going to sleep, remains to be explained.

The cause of the contraction of arteries, as the author points out, must be ganglionic:

"The brain does not send nerves to its own arteries; they are supplied from the sympathetic system. Around the carotids is a large number of them proceeding from the first great ganglion in the neck. The vertebræ receive their endowment in less abundance, and chiefly from the second and third cervical ganglia. The vertebræ plexus communicates in each interval between the cervical vertebral with a spinal nerve; the carotid plexus with but one such nerve, the *abduceni oculi*."

The result arising from these and other anatomical differences will be found fully spoken of in the pamphlet before us. The author adds, "The fact must first be contemplated that there exists a power outside the brain which is capable of arresting its functions." In these words is contained the clue to the solution of the problem given above. Mr. Moore sees, in the abdication of the mental supremacy at the moment of passing into the state of sleep, the influence of the ganglionic system, controlling the contraction of the arteries. Mr. Moore relies upon Kölliker's statements that the fine nerves which accompany the vessels of the pia mater "do not accompany the arteries into the cerebral substance, and that no nerves exist in the vascular plexuses."

So far, then, the author has put forth a theory which, we think, is physiologically consistent with the phenomena, and will be found highly suggestive when applied to the explanation of pathological conditions of the brain, *e. g.*, in epilepsy, chorea, and convulsions. Furthermore, the theory that thus serves to explain how we go to sleep, will obviously explain how we may keep awake only by maintaining the supremacy of mind over body; but for the more complete consideration of the waking state, of somnambulism, &c., we must refer our readers to this little work by Mr. Moore, confident that they will find therein an example of a carefully and philosophically elaborated hypothesis.

ART. VII.—*Den kgl. Födselsstiftelse, fra 1ste April,* 1867 *til* 31*ste Marts,* 1868 (Overakkoucheur, Dr. STADFELDT).

Report of the Royal Lying-in Institution (*Copenhagen*) *from the* 1*st April,* 1867, *to the* 31*st March,* 1868 (Dr. STADFELDT, Accoucheur in Chief).

[1] Kölliker, 'Manual of Histology,' Lond., 1853, vol. i, p. 455.

Om Födslen ved Pandestillinger og dens Behandling. Af Dr. A. Stadfeldt (Særskilt Aftryk af 'Bibliothek for Læger,' 5 Række, XVIII). Kjöbenhavn. F. S. Muhle. 1869.

On Frontal Presentations in Birth and their Treatment. By Dr. A. Stadfeldt (Reprint from the 'Bibliothek for Læger,' 5th Series, XVIII). Copenhagen. 8vo, pp. 32.

From the Report quoted above it appears that the number of women delivered in the Copenhagen Lying-in Institution and its auxiliaries during the year was 1229; as 14 of these produced twins, the births were 1243, of which number 496 took place in the institution, and 747 in the auxiliaries.

Of the women admitted, 868 were unmarried, widows, and wives separated from their husbands, 385 were married; total, 1253. Twenty-three went out without having been delivered, 2 were not delivered until the 1st April, 1868; 1 admitted during the previous year was delivered on the 1st April, 1867, leaving the number delivered in the year, 1229, as above stated. Of the total number *admitted*, 544 were *primiparæ* (237 in the institution, and 307 in the auxiliaries), 709 were *multiparæ*. Of the children, 630 were boys, and 612 were girls; 1182 were born alive, and 61 were stillborn. Of the latter, 33 were putrid; deducting these the fresh stillbirths were 28 out of 1210 deliveries, or 2·1 per cent.

Fourteen of the patients admitted into the institution had, during pregnancy, been under treatment in various hospitals for the following diseases:—Syphilis, 4; gonorrhœa, 1; rheumatic fever, 2; catarrhal fever, 2; mastitis, icterus, rheumatism, ulcer of the thigh and scabies, one each.

The following *anomalies* were met with *during delivery*:—1. Congenital imperforation of the hymen in an unmarried primipara aged thirty-one. The hymen was thickened, and presented a small opening, capable of admitting only a common catheter. It was divided, and the child was extracted with the forceps.

2. Œdematous swelling of the cervix uteri in a primipara aged thirty-seven. Three incisions were made in the cervix previously to the application of the forceps. Mother and child left the house in good health on the twelfth day after delivery.

3. In November a patient was admitted with incipient cancroid in the cervix uteri. She gave birth to a putrid child at the full term. The labour was natural.

4. Rupture of the perineum occurred 70 times among the 237 primiparæ delivered in the institution, or in about 30 per cent.; in no case, however, was the rupture considerable, and in the majority it was very slight.

5. Contraction of the pelvis was noted in 23 cases, 19 times

in the institution, and 4 times in the branches. The shortest diameter varied between $2\frac{3}{4}''$ and $3\frac{1}{2}''$.

"Artificial premature delivery was not resorted to this year—spontaneous pains having supervened on the day of her admission—in a woman who came in for the purpose of submitting to it. She was the same rachitic patient on whom the operation was resorted to in January of the preceding year. The child lay in an oblique position; turning had to be employed, and the extraction of the head was attended with much difficulty. The child was stillborn. The mother died in her confinement of metroperitonitis. Of the other cases delivery ended in nine naturally, and in eight with the aid of the forceps.

"In one case of contracted pelvis *versio spontanea duplex* took place. On admission the os uteri was dilated, and the vertex was felt presenting, high up, with a small portion and a small loop of the funis. There was much liquor amnii. Eight hours later both feet and the breech were felt presenting, and when the os uteri, twelve hours subsequently, was about two inches in diameter, the vertex was again felt presenting. The membranes were now ruptured, and a living child was expelled by the natural efforts. We this year observed also a case of spontaneous version in a primipara, aged twenty-three, with much liquor amnii. The vertex was repeatedly felt presenting by the entire medical staff. On the discharge of the waters the breech turned downwards into the superior orifice of the pelvis. The fœtus was a boy at seven months."

6. Prolapse or presentation of the funis occurred eight times in addition to the case mentioned in the preceding paragraph. Twice a forearm came down beside the vertex, and once this took place unattended with prolapse of the funis. In one case the arm was spontaneously retracted, and in two cases it was successfully replaced.

7. Spontaneous evolution took place in the case of a putrid immature fœtus in an oblique position.

8. Hydramnios was met with once. From seven to nine quarts of water. The child was an anencephalous girl born from six to eight weeks before her time.

True knots on the funis occurred twice in the institution; both children lived. Torsion of the funis was met with twice in abortions; both fœtuses in a state of fatty degeneration.

The other "anomalies during delivery" were four cases of considerable hæmorrhage, and one case of convulsions.

The forceps was applied forty-two times, or once in thirty deliveries; in three of these cases cephalotripsy had subsequently to be resorted to. Turning was performed ten times, once for placenta prævia, and nine times for oblique position of the fœtus.

Anomalies in the subsequent confinement.—The total puerperal

mortality was 30, or 1 in 41, or 2·4 per cent. The causes of death were peritonitis, diffuse parametritis and endometritis diphtheritica. In one case emboli in the pulmonary arteries must be looked upon as the cause of death, a patient having died rather unexpectedly on the ninth day after a confinement, which was on the whole favorable. There was no post-mortem examination. In addition to these thirty cases, two deaths occurred from anæmia, raising the mortality to 32, or 1 in 38, or 2·6 per cent.

Anomalies in the infants.—Twenty-three children died during the first twenty-four hours after birth. The causes of death were in general atelectasis and premature birth. In addition thirty-five children died during the mothers' stay in the hospital.

The causes of death were hyperæmia cerebri, seven times; premature birth, six times; atelectasis pulmonum, three times; anæmia cerebri and cerebral hæmorrhage, each three times; atrophy, twice; icterus and tetanus, each twice; umbilical phlebitis, once; erysipelas, once; pleuropneumonia, once; enterocatarrh, once; phlegmon of the head from pressure of the forceps, once; pulmonary emphysema, once; congenital syphilis, once.

The cases of *malformation* were eight; atresia ani et œsophagi, once; spina bifida, three times; in one case, with varus of the lower extremities. Anencephalia, fissure of the palate, hernia in the linea alba abdominalis, and supernumerary fingers, each occurred once.

There were sixty-four cases of ophthalmia, generally of a mild character. Cephalohæmatome occurred twice.

In the second of the above works, Dr. Stadfeldt remarks that it is only within the last ten years that a special place has been assigned in systematic arrangements to presentations of the forehead, older writers having usually referred such cases to the so-called imperfect face-presentations. He agrees with those who adhere to the term frontal presentation, both because this position may be maintained to the termination of the delivery, and because change of the position, when such takes place during the course of the labour, may be attended with very unusual and often dangerous phenomena. His cases of this presentation, strictly defined, are eight in number.

In these cases the labour in two instances followed the first, in two the second, and in two the third course, described by Helly.[1] Cases will also be met with, adds Dr. Stadfeldt, "where the forehead enters in an oblique direction into the superior pelvic opening, and consequently not always in the transverse diameter, as Helly asserts."

On account of the mechanical disproportion which occurs in frontal presentation, the prognosis is very unfavorable, especially for the child. In four of the author's eight cases the children were still-born, in four they were alive. Of twenty-six cases reported by

[1] 'Wiener med. Jahrb,' xvii Jahrg., 1861, II Band.

other writers, the children were living in fourteen instances, and were stillborn in twelve.

Frontal presentation is rare; according to Spaeth it occurs once in 2000 cases. Including only those cases where the forehead continues to present to the completion of the labour, the author has met with it still more rarely, or once in about 3000 births; adding those where a change of position took place above the lower opening of the pelvis, it occurred five times in the 6000 women delivered in the institution during the last five years. Its *causes* include all the elements which, in head presentations, are capable of exercising a disturbing influence on the normal position of the fœtus in the uterus. In addition to narrowness of the pelvis: oblique position of the uterus, an excessive amount of liquor amnii, discharge of the waters while the mother is in the erect position, and, finally, the presence of twins, may be enumerated.

With respect to treatment, Dr. Stadfeldt remarks that before the discharge of the waters the question may arise whether turning ought to be resorted to. He very properly answers this in the negative, unless such complications as narrowness of the pelvis, prolapse of the funis, threatening convulsions, or, perhaps, their frequency should in some cases justify such a course. After the rupture of the membranes, turning would often be desirable, but in most cases the operation cannot then be performed, and an unsuccessful effort would, for a longer or shorter period, disturb the normal pains. Previously to the discharge of the waters, the physician ought, as a rule, to confine himself to endeavouring, by regulating the position of the patient, to promote the change from a frontal to a face or vertex presentation. After the waters have been discharged, it may be advisable to attempt a direct change of presentation in the mode described by Hildebrandt;[1] should this fail, we must trust to the pains, unless their diminution or cessation should render the application of the forceps, or, if this does not succeed, even perforation necessary. The author concludes his useful essay with some practical hints with respect to the application of the forceps in frontal or face presentations.

Art. VIII.—*Il Colera in Milano nell' anno* 1867. Relazione della Commissione Straordinaria di Sanità. 1868. Fol. 142.
The Cholera in Milan in 1867. Report of the Extraordinary Commission of Public Health.

On going over this official account of the outbreak of cholera

[1] 'Monatsschrift f. Geburtskunde,' 25 Band.

which occurred in the capital of Lombardy two years ago, one might fancy that he was reading the history of an invasion of the plague in the last or previous century, and of all the rigorous measures of coercion and restraint which were then deemed necessary for the arrest of the dreaded pest. The very same view is taken as to the chief element or agency by which the one and the other disease is spread wherever it has found an ingress, viz. contagion; and, with logical precision, the same mode of prophylaxis and prevention is strenuously insisted upon for the subjugation of both. "The isolation of the sick, and of all persons and objects which have been in contact with them, we consider to be the only means to prevent the spread of cholera, and to quickly extinguish it." Accordingly the attacked were at once sent to special hospitals or infirmaries, there to be strictly secluded from ordinary communication; the other inmates of the dwelling were removed to buildings (case di contumacia) set apart for their detention during a period of at least five or six days; and the house was then taken possession of by the public authorities, to be thoroughly disinfected before it was allowed to be again occupied. All persons whose duties brought them into proximity or contact with the infected or with the suspected, or with any articles that had been used by them, were sedulously fumigated, and required to adopt other precautions to prevent the dissemination of the morbific poison. The medical attendants were to put on dresses, provided for the purpose, before they went in to visit the sick, and to undergo fumigation with chlorine before leaving the hospitals; and the whole resident hospital staff were under an embargo not to quit the building, at any time, except with permission and under strict limitations. For the washing of the bed and body clothes of the sick, and the interment of the dead, special and very stringent rules were laid down. Such were the principal items in the complicated and costly machinery of action instituted by the municipality of Milan, on the advice of their medical counsellors, for the suppression of the pestilence. It appears that the Italian Government did not share the opinion of the civic authorities as to the necessity of many of the measures that were adopted; but the latter claimed, and seem to have exercised, the right to do as they saw fit in the matter, and the population of Milan were with them.

The earliest cases in 1867 occurred in the middle of June. Their origin could not be traced; neither could the subsequent transmission of the disease from one part of the city to another be satisfactorily made out. But it is to be observed that a few cases had taken place in the city both in 1865 and 1866; they had been imported from infected localities in other parts of the kingdom, and the disease did not then spread. In 1867 it made little progress for several weeks. Its chief prevalence was from the latter part of July to the first week

in October. Only five cases occurred in November and two in December. The total number of attacks amounted to 522, and of this number 402 proved fatal. This excessive death-rate might be partly owing to the enforced removal of almost all the sick from their homes to the hospitals, which were set apart for their reception.

In the cholera visitation of 1854 the number of the attacked was 371, and in that of 1855 it was 1403. In the former year not more than 24 per cent. of the attacked recovered: in the latter year the ratio of recoveries was 27 per cent.; while in 1867 it was only 23 per cent. Most of the cases occurred in the poor and crowded districts; they seem to have been widely disseminated over the whole city. Very few of the well-to-do inhabitants were attacked. The report is silent as to the frequency of premonitory symptoms or the results of early treatment; neither do we learn anything about the influence of the water-supply of the city on the extension of the disease. In short, little is said as to the effects of what is ordinarily meant by the term of sanitary precautions, with one striking exception, which, after the previous declaration as to the prime necessity of restrictive measures, deserves special note:—"la pulitezza è il vero specifico per impedire che il colera faccia le sue esiziali stragi."

Altogether this document affords a curious insight into the views at present in vogue among many medical men in northern Italy on some of the more common questions of State medicine and public hygiene. Are they in accord with those of their brethren in other parts of the peninsula? It may be observed that they are in strict unison with the opinions held by the majority of the members of the late International Conference. The present report is certainly noticeable as "a sign of the times."

Art. IX.—*Nogle Meddelelser om Genesen af den hereditære Syfilis.* (Meddelt i den medicinske Section den 8de Juli, af Adam Öwre, praktiserende Læge i Christiania.) 8vo, pp. 29.

Some Notes on the Genesis of Hereditary Syphilis. (Read before the Medical Section at the Meeting of Naturalists in Christiania, on the 8th of July, 1868. By Adam Öwre, practising Physician in that city).

The author points out the great diversity of opinion which has prevailed, and still prevails, among writers, respecting the etiology of hereditary syphilis. In answer to the question, from whom syphilis is inherited, he would be most inclined to answer, from the

mother alone; and yet he does not at present venture to announce this view so positively.

Of 107 children in the Royal Hospital affected with hereditary syphilis, and of 5 cases in his own practice, he has been decidedly able to show that, in 95 instances, the mother had had constitutional syphilis before conception. The remaining 17 patients are reported to owe the disease either to a syphilitic father (in 5 cases), or to both parents (in 12). So far as his statistics go, therefore, they tend to confirm the proposition, that the mother has the preponderating share in the transmission of hereditary syphilis.

Under the head of "Syphilitic father, healthy mother, healthy issue," the author quotes seven cases from his own practice and five from Dr. Budde's, also observed by himself, on which he remarks that—

"These cases are not exactly demonstrative from their number, but are, nevertheless, sufficient to establish that the syphilitic father, through his semen does not, as a rule, affect either his offspring or the system of the mother by any 'choc en retour' (Ricord), or through the 'fœtal fluids' (Hutchinson), or in and by 'fecundation' (Bärensprung)" (p. 7).

Having briefly quoted from the journals of the Royal Hospital four cases, supposed to afford evidence in favour of the father's capability of propagating syphilis directly to the fœtus, the author adds:

"In eleven years we have only 4 cases out of more than 100, a proportion which, if these numbers be really the expression of a strict investigation, would of itself show that the infecting power of the father but rarely comes into operation" (p. 9).

With respect to the issue of mothers who have been infected at the time of or subsequently to conception, the author, from the experience of 48 observations, is able to confirm the views of Augier Ferrier, and to lay down the following rule, that—

"The child is infected, when the mother during pregnancy becomes universally syphilitic, whether the infection takes place in the first or in the latter half of pregnancy; the later (the nearer to birth) the infection occurs, the less the offspring is affected, but it still has always the disease in it, although this be not apparent on the surface at birth" (p. 17).

This regularity in the diminution of the intensity of the symptoms, accordingly as the moment of infection is more remote from the date of conception, has led the author to suggest that if the infection has taken place at a time when the fœtus is viable without the uterus—that is, after the lapse of the seventh month—the indication should

be as quickly as possible to free the fœtus from the further influence of the poisoned blood of the mother's system, and that by the only means at our command, *partus promaturus artificialis*. He adds that this subject has occupied his attention for two or three years without any case adapted to the experiment having presented itself in his private practice, but he offers the suggestion to those at the head of hospitals for venereal diseases. He is even of opinion that some of the children who, in the cases he has recorded, perished after the mother's infection in the second or third month of pregnancy, might have been saved by such means employed in time. Artificial premature delivery has long since been proposed in cases where syphilitic mothers have in previous confinements given birth to dead children; whether such interference would be justifiable also, under the circumstances described by the author, is a question which would require grave consideration.

ART. X.—*A Manual of Practical Hygiene, prepared especially for use in the Medical Service of the Army.* By EDMUND PARKES, M.D., F.R.S., Professor of Military Hygiene in the Army Medical School; Member of the General Council of Medical Education, &c. Third Edition. London, 1869. Pp. 640.

IN July, 1865, we took occasion to review Dr. Parkes's work on 'Practical Hygiene' at some length; and all that we need do now is to offer a few words of welcome to the third edition.

The science of hygiene may almost be said to have come into existence during the last twenty years. Though the laws of health, as affecting individuals and communities, have been studied more or less in all ages, yet it is only of late that the study of them has risen to the dignity of a separate science. But though the science of health may be said to be of such recent origin, it is rapidly growing in importance. The store of facts which it is accumulating is enormous; the deductions which it is drawing are of the utmost value. It is no wonder, therefore, that the science is making progress in public estimation; and there there is no lack of evidence that such is really the case. The Medical officer to the Privy Council is constantly enlarging the sphere of his observations, and his reports have an increasing interest and value. Sanitary legislation is becoming more perfect. The British Medical Association has found it necessary to form a department of State medicine. Our army surgeons are required to receive instructions in practical hygiene; while one, at least, of our metropolitan schools has recently appointed a professor to teach the students this branch of their profession.

We mention these points to show what rapid progress hygiene, as a distinct and recognised science, is making; and when it has once accomplished thus much—when it has once asserted an independent position, and gathered round it a band of special workers, it is more than probable that it will go on advancing at a still more rapid rate. What its future history may be it is impossible to forecast. But this much we may say with confidence—that a science which deals with the medical economy of the nation—a science which gathers up "the long result of time," and applies it on a large scale, and with the force of law for the physical benefit of the whole community—has a noble and brilliant career before it.

In this third edition of his work, Dr. Parkes has followed the same plan as heretofore; but the materials at his disposal have increased so much, that he has found it necessary to rewrite several chapters. Indeed, the volume as it now stands is a perfect encyclopædia of the subject, brought up to the level of the latest information. Space would fail us if we were to attempt even to enumerate the subjects which are treated in these pages, and those subjects, too, of the first importance, for they include the supply of pure air and pure water; the food, clothing, lodging, and equipment of soldiers, together with all the various questions which arise under these comprehensive heads. And the field of Dr. Parkes's labours has extended still further than this; for though his chief business has been with soldiers, yet he has not confined his observations to them, but has endeavoured to make his work a guide to the hygiene of all classes of society.

The tone which pervades Dr. Parkes's writing, the way in which he studies the mental and moral, as well as the physical improvement of the men who compose our armies, leads us to hope much from the influence which his lectures and his published works are likely to have; and we cannot but think that, as the laws of health become more positive and more generally accepted, they will do much to raise the mental and moral condition of the people. If they conduce to this end—so important in itself, so important to our very existence as a nation, and to our standing in the civilised world—we shall be indebted in no small degree to Dr. Parkes for the share which he has taken in bringing about this happy result.

Art. XI.—*On Anal Fissure.* By W. Bodenhamer, M.D., &c. &c. New York, 1868. Pp. 199.

Dr. Bodenhamer is already favorably known in the department of practice to which this book refers, as the author of the most complete treatise in existence on the malformations usually classed toge-

ther as 'Imperforate Anus.' The present volume equals that monograph as an exhaustive statement of the matter to which it refers; in fact, the only objection we see to Dr. Bodenhamer's work is, that it is somewhat too exhaustive; that too much space is bestowed on a question which though of great practical importance, yet lies really in a narrow compass, so that the reader's patience is likely to be exhausted as well as the subject. Dr. Bodenhamer's first chapter is devoted to a long account of the notices of this disease which are to be found in the works of old surgeons, and to a refutation of the opinion of those who have treated of anal spasm as being a disease in itself, instead of merely a symptom of other affections and usually of the one in question. Under the head of *physiology* our author gives it as his opinion that "the extreme and agonizing pain" in this affection "is the result of the violent involuntary contraction of the sphincters of the anus upon the already highly painful and sensitive ulcer, thus rendering it, if possible, still more exquisitely painful, as well as more or less preventing it from healing, (p. 49).

The causes of the disease Dr. Bodenhamer arranges as follows:— 1. Constipation producing hardness of the fæces, foreign bodies, excoriation resembling that produced by cracks and aphthæ in the lips. 2. Severe straining efforts. 3. Mechanical injuries. 4. Contraction from congenital malformation, organic deposit, or spasm. [Herein the author seems rather at variance with his previous argument that spasm is only a symptom, not a substantive disease, or as he here calls it in transatlantic phrase "a proeguminal cause" of fissure.] 5. The frequent use of enemata. 6. Hæmorrhoids and condylomata. 7. Cutaneous affections in prurigo, eczema, psoriasis, and herpes. 8. Venereal discharges. 9. Lesions produced in surgical operations. In the classification of the fissures themselves our author is equally minute, dividing them into four kinds, according as the ulcer is situated external to the anus, just within it, in the sinus between the outer and inner sphincter, or on the mucous membrane covering the latter muscle. The two latter are, of course, only accessible with the speculum; and the last is especially difficult of detection. After a minute and very good account of the symptoms and diagnosis of the disease the author proceeds to detail the treatment appropriate to the different forms of the disease. We can only quote here the brief description given in the table of contents of "the treatment as pursued by the author. It consists of topical medication combined with dilatation and sometimes scarification or incision of the mucous membrane. The chief indication is to modify the surface of the ulcer and transform it into a simple or common sore." For the methods by which Dr. Bodenhamer endeavours to fulfil these indications, as well as for the elaborate review which he gives of the treatment recommended by others we must

refer to the original. Its perusal, or rather its study, will be found highly remunerative by all who have much opportunity of treating the affections of the rectum.

Art. XII.—*On a new and successful Mode of Treating certain Forms of Cancer.* By Alexander Marsden, M.D. Pp. 96.

We shall not detain our readers with any long notice of this volume. One of its objects is to serve as a vehicle for a panegyric on a relative of the author's who founded "those two glorious institutions, the Royal Free Hospital and the Cancer Hospital." Far be it from us to sneer at the filial piety of such a panegyric; but it is certainly, to say the least, a matter of doubt whether the late Dr. Marsden's name deserves to rank, as it is ranked in this book, with those of "Paget, Walshe, Collis, and Velpeau." This, however, is subordinate in practical interest to the "new and successful mode of treatment" spoken of in the title. This turns out simply to be the very ancient mode of cauterising with arsenic, the only novelty in this matter being that Dr. Marsden makes his paste with mucilage, while others have applied the arsenic either as a powder with calomel (Dupuytren), or as a paste with spermaceti ointment (Sir A. Cooper). In order that there may be no mistake, we quote the following from Dr. Marsden's book, p. 61.

"The application of arsenious acid is not new—it has been used in various ways and compounds; but hitherto such success has not attended its use, as to make it appreciated as it ought to be. The mode I adopt is as follows. A thick paste of arsenic is made according to the following formula:—Arsenious acid, ʒij; mucilage of gum acacia, ʒj. The whole of the cancerous surface is to be spread over with this paste, provided it is not more than a square inch," and then follow some directions as to the minutiæ of the process. In what sense this can be called a new mode of treatment we know not. As to its success, we confess that we should desire ampler evidence than the cases appended to the paper (in some of which the nature of the disease appears to us at the least dubious—see particularly the description of Case 3) before admitting that it has been shown to be more successful than the other caustics so often used in cancer, or being disposed to reverse the following dictum of Pareira,—'Various empirical compounds, which gained temporary notoriety in the treatment of cancer, owe their activity either to arsenious acid or the ter-sulphuret of arsenic. But by the best surgeons of the present day it (arsenic) is never employed, because experience has fully shown that it is incapable of curing genuine cancer, while it endangers the lives of the unfortunate patients. It cannot, however, be denied that diseases resembling cancer have been much relieved, if not cured,

by it, and that the progress of cancer itself has been occasionally somewhat checked by its use."

As the drug is in itself so dangerous that even the author does not venture to recommend it, except in cases where the cancer might be easily extirpated with the knife; and as more manageable caustics have been found for cases which seem appropriate for the caustic treatment, while the specific action of arsenic on cancer has been sufficiently disproved, what encouragement can there be for further trials of what has been amply tried under the auspices of eminent surgeons, and has completely failed?

ART. XIII.—*The Wasting Diseases of Infants and Children.* By EUSTACE SMITH, M.D., &c. London, 1868. Pp. 261.

The Surgical Diseases of Children. By T. HOLMES, M.A., F.R.C.S., &c. Second Edition. London, 1869. Pp. 687.

Leçons Cliniques sur les Maladies Chirurgicales des Enfants. Par M. Giraldès. 4e et 5e Fascicule. Paris, 1869.

Softening of the Stomach in Children in Australia. By C. E. REEVES, B.A., M.D. Melbourne. 1867. Pp. 66.

IN the very useful little volume before us, Dr. Eustace Smith gives an account of the principal chronic diseases of early life. These are connected, in his scheme, by the symptom "wasting," which is common to them all, and which we should have been glad to have found more distinctly defined in his Introduction. The principal merits of the book are the practical hints for diagnosis and treatment, many of which are very valuable: its chief defect is the abuse of reference to other authors, in a degree quite disproportioned to a merely clinical work. Sir W. Jenner's published lectures, especially, are so well known to all who take any interest in children's diseases, that it might surely have been sufficient to confess a general obligation to them, instead of constantly repeating his name.

We are very glad to see that Mr. Holmes's "Surgical Diseases of Children" has so soon reached a second edition. He has added to his now standard work a chapter on thoracentesis, and one on orthopædic surgery. In the vexed question of the treatment of club-foot, he is decidedly in favour of tenotomy in all but the slightest cases of deformity, to which he considers Mr. Barwell's apparatuses most applicable.

The fourth and fifth parts of M. Giraldès' lectures conclude the series. One principal objection to them is that, being so good, they are too short. The lecture on acute periostitis ("la périostite

phlegmoneuse diffuse") is very suggestive, as pointing to the very close connection between this disease and acute rheumatism, if indeed the former is not merely an unusual form of the latter. As Mr. Holmes's treatment of the results of periostitis by resection has met with rather severe critics in France, it may be well to remark that M. Giraldès entirely approves of the course taken by the English surgeon. Coxalgia is dealt with in a very detailed manner; and the other lectures, on genito-urinary diseases, on resection of the knee, on injuries to the cranium, and on traumatic tetanus, fulfil entirely the promise which the earlier parts afforded.

Dr. Reeves has had ample opportunities (which he has used well) of observing that imperfectly understood condition, softening of the stomach; and, had he realised what are the points still in dispute, he might have done much towards finally settling them. It appears that this change is observed after death in infants who have suffered from an acute form of vomiting and purging, much resembling infantile cholera. Attacks of this kind are common during the hot months in the ill-drained and ill-ventilated houses which abound in Melbourne: Dr. Reeves is no doubt right in looking upon them as merely forms of "colonial fever," which is so common in the capital of Victoria. Whatever the precise nature of this fever may be, we may probably consider the stomach-affection to be produced (like the lung-congestion of older patients) by perverted innervation. Morphia, either by the mouth or by the rectum, has proved the most effectual remedy in Dr. Reeves' hands, and he has generally combined it with acetate of lead or tannin. He also strongly recommends the rectal use of morphia in ordinary infantile cholera, which we see in England as well as in Australia, and which he carefully distinguishes from the epidemic disease of which he treats.

Art. XIV.—*A Treatise on the Transport of Sick and Wounded Troops.* By Deputy Inspector-General T. Longmore, C.B., Professor of Military Surgery in the Army Medical School, &c. Printed under the Superintendence of Her Majesty's Stationery Office. Pp. 514.

The art of war in allits branches has made wonderful progress of late years. Indeed, it may almost be said to have passed through a revolution since the old days of the Peninsular campaigns. The long peace which followed the battle of Waterloo gave time and leisure for the development of arts and sciences; and when the Crimean war broke out in 1854 the conditions of warfare were no longer what they had been half a century before. Some notable changes had taken place. Steam-ships and railways had sprung

into existence; electric telegraphs had been invented; the manufacture of arms had reached great perfection; and, last but not least, chloroform had been discovered. These great changes carried with them of necessity many minor changes; and among these not the least important were those which affected the medical service of the army. With an alteration in the weapons used came also a change in the nature of the wounds inflicted. With an increase in the facilities for transport came also an increase in the means for carrying off the sick and wounded. And with the introduction of chloroform came the painless performance of surgical operations. It is not merely, therefore, among the combatant portion of the army that great changes have occurred. The medical service has participated in them as well; and the treatise before us shows what an important bearing they have had upon the welfare of the sick and wounded soldiers.

It would appear that at the outbreak of the Crimean war this country had not even the nucleus of an ambulance transport establishment. The experience gained during the Peninsular campaign had almost been forgotten, and the corps which had been formed at that time had been allowed to dwindle until it had disappeared altogether. But on the declaration of war this state of things was soon rectified. Drivers and conveyances were procured without delay, and a brigade was formed which became afterwards during the progress of the war, very perfect in its equipment, and very effective in doing its work. Since 1854 there has been unhappily only too much need for ambulance transport; and the Indian mutiny, the Italian campaign, the American civil war, and the recent struggle in Germany have given military surgeons plenty of opportunities of adding to the experience which was gained in the Crimea. It has been Professor Longmore's aim to embody the results of those different wars, so far as they relate to the transportation of the sick and wounded in the present volume, for he says,

"What is felt to be wanted by every one taking a practical interest in the question is a work of reference in which may be found, without much loss of time, an account of what has hitherto been done towards its solution, an explanation of existing arrangements, and such guiding principles as may not only serve the purpose of preventing a repetition of former failures, but also of steering the way to future improvements."

In carrying out these objects he has entered fully into the subject, and has produced a work which cannot fail to be of great use to the army. He begins by some general remarks upon ambulance transport, and then follows out in detail the various methods which have been used in the armies of modern Europe. But as the

British empire includes dependencies far beyond the limits of Europe, he has been obliged to extend his inquiries to distant parts of the globe. Accordingly he gives us an account of the methods of transportation in use in India, New Zealand, and elsewhere; and this comprehensive mode of treating the subject adds no small interest and variety to it. The reader is carried agreeably forward from one contrivance for removing the wounded to another, and, indeed, the number of such appliances, when they are drawn out in a systematic form, is seen to be very great. There are several different ways in which one or two men may carry off a wounded comrade without any appliance at all. Then there are chairs and hammocks and stretchers and litters in almost endless variety. Then there are conveyances with two wheels and conveyances with four wheels. There are carriages moved by men and there are carriages drawn by horses; and, finally, there are railway ambulances. From this catalogue the reader will see how large and varied is the subject which Professor Longmore has systematized; and we owe him no small gratitude for the way in which he has done it. We hope it may be long before this country is again involved in a great war; but, if that day ever arrives, our military surgeons will turn to this work for a sketch of the principles upon which ambulance corps ought to be formed, and for a record of past experience in the transport of sick and wounded; and, when the day of battle comes, many a brave man—though he may not know it—will have reason to thank Professor Longmore for what he has done to diminish pain and suffering, and to mitigate the horrors of war.

Art. XV.—*Pennsylvanian Hospital Reports.* Vol. I, 1868. Vol. II, 1869. Philadelphia. Pp. 420 and 320.

These are the first volumes of hospital reports founded on our own well known models which have appeared in America, and were it for this reason alone are worthy of attention. A volume of reports by the staff of the Bellevue Hospital, New York, has been for some time promised, but has not, at the time at least of writing this notice, made its appearance. The present volumes are edited by Dr. Da Costa, whose name is already well known on this side of the Atlantic as the author of a valuable treatise on medical diagnosis, and Dr. Hunt. With such an extensive *clientèle* of old pupils as the Pennsylvanian hospital now possesses, these works ought, were it for that reason alone, to succeed in a pecuniary point of view; but apart from this consideration their contents are sufficiently worthy of careful attention. The space

at our disposal forbids us to enter into extended details with regard to every paper, but we shall strive to give something like an adequate notice of each as we proceed.

Vol. I begins with a paper by Dr. C. D. Meigs, on the former physicians and surgeons of the Pennsylvanian hospital. The next paper is by Dr. Hayes Agnew; it treats of laceration of the female perinæum, is intended to be exhaustive, entering into the anatomy of the parts, the history of the injury as to prevention, &c., and, finally, there are given full instructions as to the various modes of remedial procedure. The whole is appropriately illustrated. Dr. Agnew describes the operation he usually performs, which differs from some others, inasmuch as he does not divide the sphincter ani, and then he uses perforated shot for fixing the deep sutures. He reports a considerable number of successful cases. The next paper is one of great importance from the pen of Dr. Forsyth Meigs. This gentleman treats of the morphological changes of the blood in malarial fever. Frerichs has pointed out how in malarial fever there is an unusual amount of pigment formed in the blood, which causes the blackening of the organs so often seen in that disorder. Dr. Meigs confirms these observations, and describes the morbid appearances in six fatal cases which came under his observation. The spleen, the liver, the blood, the kidneys, and the cerebro-spinal system, were all deeply dyed with pigmentary granules. This pigmentation Dr. Alonzo Clarke has seen in the liver two years after remittent fever. Several other cases bearing on the nature and treatment of malarial poisoning are recorded, but the above are the most interesting. Dr. Addinell Hewson next contributes an article on acupressure, wherein he speaks strongly in favour of this method of arresting bleeding, even when applied to large arteries. He gives certain cases in which death, from some cause or other, followed the operation, and where, consequently, the effects of the needles could be seen, and these he figures. He says the process reduces risk to life and shortens convalescence. A statistical account of the cases of amputation performed in the hospital during the ten years 1850—1860 follows. This is compiled by Dr. G. W. Norris, and will afford good material for comparing the results obtained in large and old hospitals with small and new ones.

Next come some observations on a case of large artificial anus by Dr. Hunt. The patient had been a soldier in the Confederate service, and had received a gunshot wound in the abdomen, which in course of time resulted in an opening of the gut situated in the right iliac region. It measured two inches and a half in its transverse and two inches in its longitudinal diameter. The cæcum and colon were the parts engaged. Certain careful and interesting physiological observations and experiments were made, after which closure was attempted first by surgical, then by mechanical means.

The former might be said to have failed, only the opening was rendered rather smaller, but a water-bag truss was then fitted which enabled the patient to recover rapidly. The succeeding paper is by Dr. Da Costa, and treats of the action of narcein. Claude Bernard had determined that this substance was the most powerful narcotic agent in opium, but this notion Dr. Da Costa completely upsets as far as men are concerned. Given in the same doses as morphia it is absolutely inert, in very large doses uncertain and often useless. The narcein was the best obtainable and gave the reactions supposed to be characteristic of the drug. Dr. Da Costa gives a number of cases supporting his views, or rather leading to his conclusions. A most important surgical paper by Dr. T. G. Morton follows. It deals with the ligature of large arteries as performed in the Pennsylvanian hospital between 1835 and 1868. Aneurysmal disease would seem not to have been common, for out of 80,177 patients admitted only 105 have been treated for aneurysm or varix. This includes internal and inaccessible aneurysm, and even varicose veins. So that the major operations for ligature during that period were seventeen in number; these were mostly of the carotid and femoral. A companion paper by Dr. Addinell Hewson on aneurysm of the innominata follows. A single case, that of a seaman, aged 51, is recorded. The common carotid was tied, but the operation was not successful in saving life, for the patient died on the tenth day after operation from asphyxia caused by pressure of the tumour. Dr. Gerhard writes on the treatment of continued fevers; his directions are plain and simple. Dr. Rhoads and Dr. Pepper treat of the fluorescence of the tissues. This is *àpropos* of Dr. Bence Jones's observation as to the existence of a fluorescent substance in the body. Malarial subjects were selected for examination, and these researches show that in malarial disease fluorescence is diminished, whilst by cinchona alkaloïds it is restored to its normal standard. The number of cases given is too small to afford any decided induction, but the experiments undoubtedly go to favour Dr. Bence Jones's views.

Rather a lengthy paper but an interesting one on penetrating wounds of the skull follows from the pen of Dr. T. H. Andrews. The case he gives occurred in the person of a young married woman accidentally shot by her husband. The wound penetrated deep into the brain. The patient was kept quiet, and sixty-two days after the accident was as well as if nothing had happened. She continued so four months and a half after the occurrence. A most instructive paper by Dr. Hunt follows. It gives the result of his own personal experiences of toxæmia, having several times in his life been troubled with bad consequences after exposure to the vapour of fœtid fluids, as pus and such like. The most marked symptom was utter anorexia. Notes on various medical cases by Dr. Horatio Wood constitute the

subject of the next communication. A valuable paper is also sent by Dr. J. H. Hutchinson on the subject of locomotor ataxy. Three cases are recorded. The next paper is by Dr. H. Agnew, and deals with the treatment of atropine poisoning by opium; in the case given this treatment was successful. A grain and a half of atropine had been taken—quite enough to cause death. There was no vomiting. A large quantity of opium was administered, eighty drops of laudanum for the first dose. Dr. A. D. Hall contributes a brief note on fracture of the acromion. A short account is also given of a retroverted uterus, with a large fibrous tumour on its posterior wall. An important addition to our knowledge of heat-fever or sunstroke is given by Dr. J. Levick; for cases, it will be remembered, were plentiful in 1868. He separates exhaustion from heat from heat-fever. Dr. Addinell Hewson recommends oiled paper in place of lint as a surgical dressing. He says it is very serviceable, and being so cheap it can always be thrown away, thus tending to limit the possibility of a patient contaminating himself or others. Dr. Da Costa strongly advises the use of atropine injections, 1-60th or 1-40th of a grain, in certain forms of muscular rheumatism, as wry neck. A list of specimens added to the museum and an account of the patients admitted during the year concludes the volume.

The *second* volume is also good but shorter than the other. The first paper is by Dr. Addinell Hewson, and deals with the influence of weather over the success of surgical operations. This is really a matter of great interest, and in our short space we can scarcely do justice to Dr. Hewson's observations, which have extended over many years. He deals with 259 operations, of which 102 were performed with an ascending barometer, 123 when it was descending, and 34 when stationary: 54 proved fatal; 11 of these cases were operated on with an ascending barometer, 35 when it was descending, and 8 when stationary. Of the successful cases 91 were operated on when the barometer was rising, 88 when descending, and 24 when stationary,—so that the mortality with an ascending barometer was 10·7 per cent.; when stationary 20·6 per cent.; and 28·4 per cent. when descending. These facts speak for themselves. Dr. Morton gives a statistical account of the cases of urinary calculi operated on in the hospital from 1756 to 1868. Only 124 cases have occurred during that time, or not much more than 1 in a year, so that calculous affections would seem to be rare. Of the 124 cases of stone, 110 of the patients underwent lithotomy, and 14 lithotrity. Of the 110, 90 were cured and 4 died; of the 14 cases of lithotrity 2 died. Some interesting particulars of various cases are given.

One of the most interesting and valuable papers in the volume is communicated by Dr. Da Costa, and relates to the subject of acute rheumatism. Dr. Da Costa's attention was drawn to the value of

the bromides in certain affections, and he determined to try their effect in acute rheumatism. The bromide of ammonium was chiefly used, and was given in ten- or fifteen-grain doses every second or third hour. Thirty cases are reported, and in these the mean duration of the attack was 22·5 days, and the mean time under treatment 14·16 days, the mean duration of the attacks prior to admission being about 8 days. The urine remained unaffected throughout with regard to its acidity. The specific gravity was high in most instances, but sometimes low. Pain was markedly lessened. Out of the 30 cases 23 recovered without any heart complication, and some affected when admitted improved much under treatment. This is very encouraging. It is at all times difficult to compare the observations of one man with those of another, when rheumatism is concerned, as the dates given vary in different reports. Still, Dr. Da Costa's results appear to be satisfactory, and men will do well to keep them in mind. Were it only that the pain was lessened, that in itself would be no small boon.

Dr. J. H. Hutchinson writes on intra-cranial aneurysm, of which he reports one case occurring in a lad aged fourteen. There was no history which would point to any definite cause, only bad health and continual headaches, frequent and violent bleeding from the nose, and latterly slight convulsions. On the second convulsion supervened intense headache, causing the patient to cry out. After admission to the hospital he gradually grew worse, and he died in a convulsion six days after. There was much coagulated blood about and in the brain, and a communication was found between the left lateral ventricle and an aneurysm of the posterior cerebral the size of a filbert. Dr. Hutchinson next proceeds to analyse all the cases hitherto recorded. This has previously been done by Gull and Brinton, but Hutchinson has been able to add to their number. Altogether, 85 are recorded, and particulars are given of 34.

Dr. Hartshorne contributes a review of the treatment of oblique fracture of the clavicle. He speaks of the bad results which have hitherto been obtained, and of the despair which fills men of ever doing better. He goes into the matter most elaborately, and concludes from an anatomical consideration of the subject that the proper plan of procedure is to act upon the scapula diagonally opposite to the insertion of the clavicle. This might be done by means of a splint to be so applied as to force the whole scapula upwards and outwards, and to lift the acromion backwards and outwards by pressing the antagonistic angle and adjacent half of the lower plate, or 2-5ths of the whole bone in the opposite direction, that is, towards the ribs.

Another valuable contribution to surgery follows from the pen of Dr. J. Ashurst, jun., already favorably known as a surgical writer. He treats of excision of the hip-joint. Curiously enough, the operation

has not recommended itself in Philadelphia, for only one operation of the kind, prior to that reported by Dr. Ashurst, has been performed, and in that case it was unsuccessful; so that up to 1867 there had not been in that city a single successful case of excision of the hip-joint. The subject of the operation was a child, four and a half years old, who had been a considerable time in hospital when he came under Dr. Ashurst's care. A large abscess had formed and broken, after which the child's health began to deteriorate rapidly. The head of the bone was excised by Heyfelder's lines, and the parts brought together. The child slowly but gradually improved, and finally left the hospital, about thirteen months after the operation, in tolerable health. The limb has grown much like the other. Dr. Ashurst proceeds to analyse the cases recorded; altogether he has collected 242. The sex is stated in 208, and of these 142 were males, 64 being females. Of the males 71, or 50 per cent., recovered; 51, or 36 per cent., died; the result is not stated in 20, or 14 per cent. Of the females 31, or 47 per cent., recovered; 19, or 29 per cent., died; the result is not given in 16 instances, that is, 24 per cent. Of the cases where the sex is not stated, 7, or 21 per cent., recovered; 16, or 47 per cent., died; the result is not given in 11, or 32 per cent. of the cases. Altogether, therefore, 109 recovered, 86 died, and the result is not stated in 47 instances.

A most interesting case of fatal chorea is next recorded by Dr. Hunt. The patient was a book canvasser, and had been choreic and hemiplegic from the time he was four years of age. One sleety day he fell in the streets and broke the left humerus. He was taken to the hospital, and a fixing apparatus applied. Some morphia was given subcutaneously, and the patient fell asleep. When he awoke his troubles began; the pain aggravated the choreic movements of the limb, so that the extremities of the bones were constantly grinding the one on the other, and threatened to penetrate the skin. All retentive apparatus had to be thrown aside, and the only prospect of success lay in amputation; to this the patient would not consent. The movements became worse and worse, and the condition of parts grew fearfully bad. He sank from exhaustion on the tenth day after his admission into hospital. This very extraordinary case forms a fitting pendant to the cases of fatal chorea recorded in this Review by Dr. John W. Ogle. There was absolutely nothing to be seen with the naked eye about the brain or spinal cord. Unfortunately they were not examined microscopically until twelve months later, and as they had most likely been preserved in spirit, the report of their state of course is less valuable.

Dr. Forsyth Meigs narrates two cases of cerebritis occurring as far back as 1838. The cause of the one was unknown; in the other it arose from injury. Both patients were bled and purged, as was then the custom, and both recovered. Dr. Meigs thinks we

may have gone too far in our complete and thorough revulsion from bleeding. A valuable and interesting article on the treatment of fractures by Dr. Packard follows. Dr. Packard is known and esteemed as an authority on this subject; unfortunately his article is one which will hardly bear abstraction. Dr. Agnew gives a condensed abstract of the cases under his care from February to August, 1867. They represent the common run of surgical cases. A curious case of retroversion of the womb during pregnancy is narrated by Dr. Harlan. He enters into a discussion as to who first described the condition, and lays down the general laws of treatment. The plan he advises is to distend the vagina with air by means of a colpeurynter. Dr. James Tyson makes some careful and interesting remarks on a case of spindle-celled sarcoma, or recurrent fibroïd growth. And Dr. J. G. Richardson records some observations, which lead him to believe that the salivary corpuscles, the white corpuscles of the blood, mucus and pus corpuscles, are identical, and that the difference in their appearance depends on the density of the medium in which they are examined.

Dr. Addinell Hewson describes a method of applying remedies to the urethra, bladder, and uterus; it is of the nature of a continuous current, such as that afforded by Thudichum's apparatus for rinsing out the nares.

Dr. J. G. Morton describes a curious case of congenital sacral tumour which contained fœtal remains. No doubt it was a shrunken fœtus connected with the better developed one by the sacrum. The tumour was removed, but the child had been neglected and died. Some extracts from clinical lectures by Dr. Hunt, chiefly regarding gunshot wounds, follow, also some notice of a ward carriage for conveying dressings, &c., from bed to bed. The temperature of a case of phlegmasia dolens occurring in a patient suffering from typhoïd fever is recorded by Dr. Elliott Richardson. The highest degree recorded was 107° Fahr. Dr. Hutchinson recommends the hypodermic injection of morphia in sunstroke, and gives records of certain cures.

A descriptive list of specimens added to the hospital museum during 1869, and the statistics of the infirmary, conclude the volume.

It will be seen from the short account which we have been able on account of deficient space to give of these volumes, that they are really thoroughly good and sound contributions to medical science. May they live and flourish.

ART. XVI.—*Traité Pratique des Maladies Chroniques.* Par le Dr. MAX. DURAND-FARDEL. Paris. 1868.
A Practical Treatise on Chronic Diseases. By Dr. MAX. DURAND-FARDEL. 2 vols. Pp. 688 and 714.

IT is certainly true, as the author complains in his preface, that too little attention and space have generally been allotted to chronic diseases in systematic works on the practice of medicine; yet we doubt very much whether a book devoted exclusively to their consideration can ever be satisfactory. Apart, however, from the imperfections due to what we must call a mistaken plan, the work before us is a highly satisfactory one. It gives a very clear and well-condensed account of all the most recent labours in the very extensive field over which it extends, and may therefore save the time and trouble of reading innumerable monographs and systematic treatises. Indeed, the chapters which treat of the nature of diabetes, cancer, and phthisis, might be proposed as excellent models of the way to state conflicting opinions on difficult questions in medicine, and of fair and judicious criticism.

There are, also, many points on which M. Durand-Fardel has a right to speak with authority, from the special attention he is known to have devoted to them. Thus, it is very interesting to see how the chief defender of the theory which ascribes softening of the brain to inflammation deals with the results of microscopical research, and with Prevost and Cotard's experiments on animals. He points out that these artificial embolisms produce the appearances of red rather than of white softening; and that, in the great majority of cases recorded, embolism was not actually observed, but rather inferred as a link between the cerebral affection and disease of the heart or great vessels. The alteration of the cerebral capillaries, which M. Laborde has particularly studied, seem to him far more probable causes of this gradual disorganization of nervous substance.

The reader will probably find the hints scattered through the work as to the action of the French mineral waters very useful. The physicians at the baths in France and Germany are wont to say that we send our patients to this place or to that very much at hazard. There is, unfortunately, some truth in the complaint, and we therefore recommend any one who doubts which of the watering places to send a patient, to consult the work before us. He may be certain of finding in it the latest results of the great experience of the local authorities.

ART. XVII.—*The Bath Waters; their Uses and Effects in the Cure and Relief of various Chronic Diseases.* By JAMES TUNSTALL, M.D., M.R.C.P. Fourth and revised edition. London. 1868.

In what sense this edition is "revised" we must confess our inability to perceive, and but little assistance in this direction is to be obtained from the book itself. That there is still room for the hand of the judicious critic to alter and excise may be inferred from such statements as, that "natural heat" and "artificial heat" are very different from one another; that "hot water" baths and "thermal" baths produce very different effects upon the system; that *lithia* is a *newly* discovered alkali; and others of a similar kind. In fact, this book has not the slightest pretension to scientific value, and is a mere puff of Bath in general, and the Bath waters in particular.

ART. XVIII.—*Transactions of the St. Andrew's Medical Graduates' Association.* Vols. I and II, 1867-68.

THE objects of the St. Andrew's Medical Graduates' Association are stated in the laws of the association to be "the advancement of the science and art of medicine, and of general science and literature, the maintenance of the interests of the medical graduates of the university, and the cultivation of social intercourse and good fellowship." It is undeniable that the association has carried out the third of these objects with remarkable energy and success. On all hands it is admitted that the medical graduates of the university of St. Andrews owe to the officers of their association, especially to the president, Dr. Richardson, and the secretary, Dr. Leonard Sedgwick, the voice they now possess in the affairs of their own university, and their representation in the council of the nation. We have no doubt that the annual meetings of the association are sufficiently social and pleasant gatherings to realise the last object held in view. The efforts made by the association to promote "the advancement of the science and art of medicine, and of general science and literature," are represented by the two volumes before us.

The contents of these books are varied enough. In each we find an oration by the president; the first entitled, "On Research in Medicine;" the second, "The World of Physic and the World." In these addresses we have good specimens of Dr. Richardson's oratorical style, a style forcible, and by no means without dignity

and occasional sparkle, but liable to lapse now and then like that even of the "divine Williams" himself, into "King Cambyses' vein." The inaugural oration on research in medicine contains a number of wholesome truths especially necessary to be told in the present day. The specialism which is even now tending to degrade scientific medicine to a not over honest trade, is denounced with a hearty vigour and earnestness which evidently reflect the writer's deep convictions. Another subject on which he deserves to be listened to is that of quackery. He tells the profession of medicine that it is lost time to enter into controversy with or to try to put down quackery, whilst the condition of medical science renders quackery possible. He says with great truth, that if we could make medical science pure, there would be no quackery, while there will be quackery so long as the science is impure.

"We see that in astronomy there are no quacks, that in mathematical science there are no quacks, that amongst skilled artisans there are no quacks: and turning to our own world, we know that even with us some parts of our field are entirely free of quacks. Who can find me a quack anatomist? Mark! As surgery has become more precise, how in surgery the quack has slunk aside. Where now is the quack woman who would venture, as in the time of good old Daniel Turner—to plunge a needle into the eyeball to extract opaque bodies from its chambers. These things have passed away, and so shall all quackeries pass as the certain takes the place of the doubtful or obscure" (vol. i, p. 38).

The first volume contains an excellent report on ozone, by Dr. H. Day, of Stafford, wherein the history of our knowledge of ozone, the various theories as to its nature—including the O_3 theory of Odling—the mode of producing it, its tests, physical properties, and physiological action, and its relations to disease and action on organic compounds are reviewed and discussed. The conclusion as to the nature of ozone arrived at is, that it is "oxygen plus force, which force is probably used in condensation; in other words, the power or capability of oxygen to combine with itself." Amongst other noteworthy papers in the first volume, also, are a "Report on Disinfectants" by Dr. William Procter; one on "Diseases of the Nervous System, the result of Congenital Syphilis," by Dr. Hughlings Jackson; and one on "Tuberculous Affections in Man and the Lower Animals," containing much curious matter, by Dr. Edwards Crisp. Dr. Crisp describes a form of disease affecting reptiles in captivity, which he believes to be tuberculous, and which appears to be propagated by contagion. The majority of the serpents in the reptile house of the Zoological Gardens die of it, and many of the reptiles brought from abroad contract it during confinement on board ship. Occasionally Dr. Crisp says it is recovered from. Tuberculous cheesy matter is

found deposited in thin cysts, in the mouth, and in the intestinal canal, especially in the rectum, where tuberculous masses as large sometimes as walnuts may block up the tube. Tubercles are also found in the lungs, liver, spleen, and pancreas, and often under the integuments. Dr. Sedgwick, the editor of the volume, has a careful paper on the "Detection of the Alkaloïds." He suggests that the formation of iodo-sulphates of many of the alkaloïds may be useful as a means by which they may be recognised. The crystals of these salts are definite and distinct, and differ largely in shape, size, and colour, according to the alkaloïds from which they are formed.

The second volume contains a paper on the "Criminal Responsibility of the Insane," by Dr. Harrington Tuke, which is a fair exposition of the fallacy of the legal test of responsibility—the knowledge of the difference between right and wrong. Most madmen, as Dr. Tuke observes, are perfectly aware of the distinction between the lawful and the unlawful. But the fact is, as we think, that there is a degree of mental disorder in which the patient is still to a certain extent responsible for his actions. Every one would revolt from inflicting capital punishment on an insane person, but it does not follow that because a man ought not to be hanged he is in no sense amenable to the law. Dr. Sedgwick contributes a long report on the "Parasitic Theory of Disease," in which the recent Continental and American observations are collected and reviewed. Amongst the other papers is one by Dr. Crisp on the "Influence of a Moist Atmosphere in the Production of Pulmonary Consumption;" one contributed by Professor Eckhard, of Giessen, on the "Movements of the Iris;" and two short papers by the president, one on "Seasonal Changes in the Animal Body," and one on the "Use of "Nitrogen in Air." In the latter, Dr. Richardson assigns to nitrogen a new office. He believes it to be the grand equaliser of heat, as well as the mechanical diluent of oxygen.

On the whole, we think the two volumes before us are creditable to a young association. We do not believe that the standard of merit reached by some of the admitted papers is one with which the association will ultimately rest satisfied. But we heartily applaud the efforts made, and can honestly congratulate Dr. Sedgwick, the editor, on their success.

Art. XIX.—*Egypt and the Nile, considered as a Winter Resort for Pulmonary and other Invalids.* By John Patterson, M.D., L.R.C.S. London. 1867. Pp. 84.

The nature and advantages of the Egyptian climate are now so well known that it is scarcely possible to write anything new on the

subject, nor, indeed, does Dr. Patterson profess to have done so. His object appears to have been to publish for the benefit of friends and others desirous of obtaining information of a practical kind on the climate of Egypt, the results of his own experience, accompanied with such hints as might be useful to intending sojourners in it. That this modest aim has been fairly attained may be admitted; and to any one who requires the kind and amount of information which Dr. Patterson's work is intended to convey, we can with confidence recommend it.

ART. XX.—*Clinical Lectures on Diseases of the Urinary Organs* Delivered at University College Hospital. By Sir HENRY THOMPSON, Surgeon-Extraordinary to H.M. the King of the Belgians; Professor of Clinical Surgery, and Surgeon to University College Hospital. London, 1868, pp. 180.

THIS little volume consists of a course of clinical lectures on the diseases of the urinary organs, which were delivered at University College Hospital last year. At the time of their delivery they appeared in the columns of the *Lancet*, and now they are collected and published in a separate form. Though they make but a small volume, we venture to predict that they will be read by a large circle of medical men—that they will do much to diffuse a sound knowledge of the subject of which they treat, and that they will add to the high reputation which their author already enjoys.

There is no one who has earned a better right to speak with authority upon the diseases of the urinary system than Sir Henry Thompson; and when he puts forth his views, it behoves surgeons to consider attentively what he has to say: and they will find it well worth their while to peruse these lectures carefully, for they contain a great deal of instruction—instruction of the most useful kind, and conveyed in an agreeable way. Some suggestions which the author makes are new to us, and they are suggestions of no small value; for they have a directly practical import, and tend either to a more accurate diagnosis in obscure cases, or else to the alleviation and cure of the patient's malady. It would be difficult too to surpass the clearness and force with which the lecturer has arranged and developed his subject. He seems, as it were, to enter into the mind of his auditors, and to anticipate the doubts and questions which would be likely to occur to any one who had been trained in the older school of surgery, and who had imbibed the opinions which were in vogue in the last generation. This gives a peculiar interest and liveliness to the style, and makes the book one of the most readable

treatises in surgery that we have met with for a long time. In a course of twelve short lectures, the author discusses all the maladies to which the urinary organs are subject; and when we consider how complex is that system, which begins in the Malpighian tufts and ends at the external meatus, how many and how serious are the diseases to which it is liable, we shall be able to appreciate the importance of the subject which occupies Sir Henry Thompson's attention in these lectures. The slighter maladies which affect the urinary system; such, for example, as gonorrhœa and gleet, are passed over with hardly a mention, as they do not come within the proper scope of the work. And thus the whole space is devoted to such grave and important matters as stricture of the urethra, calculus, cystitis, and the diseases of the prostate gland. These are subjects in which the author long ago won his spurs, and upon which he has written separate treatises, which have exercised no small influence upon modern surgical practice; and when he gathers together, as he has here done, the very pith and marrow of his experience, we need hardly say that the result is a work which every medical man would do well to study.

Sir Henry Thompson is one of those men who has the courage to think for himself. He has cast off the trammels of routine, which are so apt to tie the hands of medical men. He inquires boldly what is the value of each remedy and each appliance, and adopts or rejects it according to the estimate which he is led to form of it. He rightly considers, that if a remedy is useless, it may very likely be mischievous; and that, if an appliance serves no good purpose, it has most probably an injurious effect upon the patient. Acting upon this principle, he has given much excellent advice with regard to the use of injections, catheters, lithotrites, &c. The introduction of instruments into the bladder is an evil, the injection of medicated fluids is an evil, and these proceedings can only be justified by the existence of a greater evil which they are intended to remedy. But then there is no need to magnify them; on the contrary, there is every reason to reduce them to a minimum, and this is the direction in which our author's advice, and the influence of his practice, all tends.

Thanks to the progress of chemistry, the introduction of lithotrity, the discovery of chloroform, and other circumstances, our knowledge of the diseases of the urinary organs, and our means of dealing with them, have made great progress. Of this fact the little volume before us supplies a sufficient proof. The diagnosis of diseases affecting the kidneys, the bladder, the prostate and the urethra, is made with the utmost accuracy, and in almost all cases we can do a great deal to mitigate the patient's sufferings, and in not a few cases we can promise a safe, painless, and speedy cure. When surgery can do as much for all the diseases which fall within its province, as

it can now do for those of the urinary system, it will have advanced far on its way towards being a perfect art.

These lectures are illustrated by a few woodcuts, which serve better than any verbal description to set before the reader the exact shape and situation of some of the diseases of which Sir Henry Thompson treats, and the form and size of the instruments which he is in the habit of using.

ART. XXI.—*Recherches sur l'état de la Médecine durant la période primitive de l'histoire des Indous.* Par le Docteur CH. DAREMBERG. Paris. 1867. Pp. 24.

Researches on the State of Medical Science in the Early Period of the History of the Hindoos. By Dr. CH. DAREMBERG.

IN this paper Dr. Daremberg uses the Rig.-Veda as he had used the Homeric poems; he attempts to determine by means of it the medical ideas and knowledge of the Aryan race in the first stage in which we can trace it. His essay is not an inquiry into Indian medicine in its more developed shape, like Dr. Webb's book, or into the relation between it and Greek medicine; but it is a complement to the essay previously noticed on the medical knowledge of Homer; and he follows up, as far back as he can, the thoughts of man on disease and on healing, in that primitive dawn of civilisation which preceded and prepared the way for the forms of social existence of which Greece, as painted by Homer, presented one type, and India another. The most ancient period of the history of Greek medicine he looks for in the oldest literature of India, the Vedic hymns. There is, of course, much less definite information in lyric poems than in highly picturesque and detailed narrative. "When a people only sings the gods, it is that men have none but the gods to look to for aid in all the things of this life;" and in the earlier hymns disease is only spoken of in the most general terms, and the only healers and preservers thought of are the divine powers invoked. There are special deities of health; the winds and the sacred *Soma* are addressed as its sources and guardian; but Dr. Daremberg observes that it is impossible to distinguish whether the health and healing prayed for mean general welfare or special immunity from bodily disease. The curing of wounds makes scarcely any appearance in the Rig-Veda; Dr. Daremberg has detected only one surgical allusion, and that a purely mythological one. The "physician" is named in the Vedas, but only in the later ones. Dr. Daremberg traces a change of feeling from the earlier hymns, where simple prayer is the only remedy thought of, to the more definite formulas and charms, ap-

proximating to magical spells, which appear in the more recent ones. Of definite diseases, he finds traces of leprosy and consumption; the external parts of the body are named; the physiological notions on life and reproduction are expressed very generally, and appear to be those common to all the early races with which we are acquainted. The 'Rig-Veda represents the earliest ideas, but its different portions represent the progress of the human mind.

"Aux premières lueurs de la civilisation la nature étonne, charme ou épouvante, mais on n'a pas même l'idée de la maîtriser, et on en divinise toutes les manifestations; un peu plus tard on commence à s'apercevoir que l'homme dispose des forces qui souvent peuvent contre—balancer avec avantage les forces du monde extérieur; mais presque aussitôt et presque en même temps l'homme se laisse à son tour maîtriser par les chefs—surtout par les ministres des dieux; il n'a pas assez de science pour observer avec sûreté et pour diriger ses instinct vers l'emploi naturel de sa puissance; il rencontre alors plus de sujets de terreur que d'admiration et de confiance; la théologie spontanée, naïve, devient une théologie calculée, reglementée, où la superstition pénètre de tout côté par l'influence des castes sacerdotales. L'action de ces castes, d'abord salutaire, nâit directement et spontanèment des sentiments religieux primitifs; mais, peu à peu, elles prennent une suprématie tyrannique en entretenant la pusillanimité de l'esprit, et en étouffant les efforts naturels de la pensée. Cette marche de l'esprit humain.....on peut la suivre pas à pas dans les Védas; et même d'une partie à l'autre dans le 'Rig. Veda,' on observe des nuances très sensibles et fort curieuses à étudier. Dans les hymnes qu'on tient pour les plus anciens, les Aryas ne paraissent avoir eu, en ce qui touche leurs maladies, aucun intermédiaire entre eux-mêmes et les dieux secourables;—tandis que dans les hymnes qui passent pour les plus récents on rencontre, en même temps que la mention expresse des médecins, un culte plus fortement organisé, mille détails de la vie publique ou privée, des essais de cosmogonie et de doctrines philosophiques qui trahissent un second degré de civilisation, des formes littéraires plus travaillées et parfois moins pures, enfin des passions plus ardentes et souvent plus mauvaises."

Dr. Daremberg finds in a still later collection, the 'Atharva Veda,' the representative, in chronology and civilisation, of the times of the Odyssey, the epoch of magic and theurgic rites; but he observes that, while among the Greeks magical ideas vainly tried to supplant natural medicine, they conquered in India and perpetuated themselves there for ages. At length, in the third period of the history of Indian medicine, represented in the 'Agur-Veda' of Susruta, while medicine is viewed as a matter of divine revelation, science regains some portion of its rights over the purely theurgic idea. Dr. Daremberg attributes this to foreign influences, for nothing short of such influences could have forced Brahmins to admit the scientific spirit into even a supplementary Veda, after having so

long maintained a monopoly of exorcisms and miraculous remedies. The work of Susruta, the most interesting document on Indian medicine, is reserved by Dr. Daremberg for future examination.

ART. XXII.—*Chemistry for Students.* By A. W. WILLIAMSON, F.R.S. 2nd Edition. Oxford, Clarendon Press, 1868. Pp. xxii, 479.

IN reviewing Prof. Williamson's work on its first appearance, we pointed out its merits, which are by no means inconsiderable. In this new issue the book is undoubtedly greatly improved, while the characteristic feature of the author's method, his exposition of principles *after* due description of facts, is seen in every chapter.

Prof. Williamson's nomenclature differs from that of most other teachers of the new school. For example, he calls *nitric pentoxide*, N_2O_5, by the name of *nitric acid;* thus returning to the custom of some of the older chemists; while the true nitric acid becomes *hydric nitrate.* We cannot think it desirable to use the term "acid" to designate substances which are really chemical rarities like sulphur trioxide and nitric pentoxide, and not possessed of the characters from which acids derived their name, and by which they are recognised. Our author, however, is supported by a majority of chemists in the use of such expressions as hydric sulphate, hydric nitrate, hydric oxalate, for the acids which they respectively designate; but then we are hardly prepared to accept the abbreviations of these terms into "sulphate," "nitrate," "oxalate," &c. The hydric or hydrogen salts may indeed be regarded as the typical salts, but it is somewhat puzzling to read in Dr. Williamson's book that formic and oxalic acids are not known, and at the same time to meet with the liquids which have usually been thus called under the remarkable designations of "formiate" and "oxalate."

It is not necessary to do more than allude to the admirable problems appended to each chapter of this 'Chemistry for Students.' These are arranged with care, and will be found of great use in the teaching of chemistry in schools. In fact, many examples drawn from this source might with great advantage be introduced into our school books of arithmetic.

The illustrations of this new edition are usually good. We object, however, to the dangerous amount of potassic chlorate which the draughtsman has put into the flask on page 5, and to the alarming height to which the "Bunsen" is turned up in the cut on page 68. A very good notion of a Sprengel's air-pump, in which the vacuum is produced by the fall of mercury, may be gathered from the cut on page 7.

We cannot understand why this book should still be disfigured,

in this second edition, by some of the very same inaccuracies which we pointed out in our review of the first. Why, for instance, (page 350) is phenylic hydrate said to be "*very slightly* soluble in water, but sufficiently so to impart to it the peculiar odour of creosote, and the property of arresting putrefaction"? In 1000 parts of cold water, no less than 43 parts of phenylic hydrate will readily dissolve, and the solution acquires some other properties besides the "odour of creosote." Let Dr. Williamson put a drop of this solution on his tongue, and he will become practically acquainted with another and most active property of this cold aqueous solution of carbolic acid or phenylic hydrate.

ART. XXIII.—*The alleged Increase of Insanity; being a Paper read at the second Quarterly Meeting of the Medico-Psychological Association.* By C. LOCKHART ROBERTSON, M.D. Pp. 23. (Reprinted from the 'Journal of Mental Science,' April, 1869.)

IN this brochure Dr. Robertson has attempted to reassure the public mind on the question of the increase of lunacy in this country. Reports of lunacy commissioners and lunatic asylums, and the perpetually recurrent demand for new asylums and for the enlargement of old ones, have deeply impressed people at large with the conviction that there is a rapidly progressive increase of lunacy.

Dr. Robertson proceeds to show, as the Lunacy Commissioners some years since undertook to do very fully, the principal causes that led to the largely augmented returns of the insane year by year, particularly during the period when the several counties were for the first time actively and earnestly occupied in making provision for their lunatic poor.

For the purpose of his argument he makes use of the statistics furnished by the English Lunacy Commission and by the Poor Law Board. These are, indeed, the only available data in such an inquiry; but it is to be regretted that they are not more complete and accurate than they are. However, they are made to show that, as other writers have also pointed out, the increasing lunatic population of the country is due to accumulation in asylums, and not to an actual augmentation in the number of persons attacked by lunacy yearly in the population. Indeed, the actual per-centage of increase in the admissions into asylums is fallen.

The like facts and conclusions also hold good with respect to the lunatic population of France.

The pamphlet concludes with an interesting "Note on the Relations of Pauper Lunatics to the Population," which, like the foregoing portion, is accompanied by many statistical tables in illustration of the deductions arrived at.

PART THIRD.

Original Communications.

Art. I.

On the Function of the Semicircular Canals of the Internal Ear. By Alex. Ogston, M.D., Aberdeen, Assistant Professor of Medical Jurisprudence in the University of Aberdeen; Joint Medical Officer of Health for Aberdeen; and Ophthalmic Surgeon to the Aberdeen Royal Infirmary.

That portion of the internal ear formed by the semicircular canals, although possessing a persistence of arrangement and a large number of marked peculiarities indicating it to be of no mean importance in the auditory system, has not as yet had any function assigned to it commensurate with its apparent position in the economy.

There are three semicircular canals in the human ear, and in the ears of the mammalia (Agassiz). "In birds the internal ear" is "constructed on the same plan as in mammals." "In reptiles the semicircular canals expand into ampullæ. In fishes the organ of hearing is reduced to a membranous sac, surmounted by semicircular canals, one to three in number. In osseous fishes" there exists "a simple vestibule or transparent sac, which receives the ampullæ of the arched canals," and is separated by a partition from the auditory sac, which represents the cochlear portion of the internal ear. The semicircular canals are more or less developed in the different genera. "In the cyclostome fishes" there are "two wide and depressed semicircular canals, entering the vestibule by one common ampulla;" while in the myxine there is a single arched canal blended with the vestibule. Below this in the scale of life, semicircular canals are not found.

From this we see that these bodies exist in all animals down to fishes, varying in number and appearance, but continuing after the

cochlea and other parts of the internal ear have disappeared, and presenting the remarkable peculiarity of having their directions, where more than one of them exists, in planes at right angles to each other.

Such organs have indubitably some important function to perform, and although strong statements as to their use are not warrantable in the present state of our knowledge, there is a certain number of facts which appear to point to the purpose they serve with more or less distinctness. The application of experiment to the solution of the difficulty is unfortunately attended with great uncertainty, and it is probable that pathological anatomy is the only means by which our knowledge of such a topic will be finally settled.

The persistence of this part of the essential organ of hearing (the internal ear), in classes of animals where the other part, or cochlea, no longer exists, seems to indicate that the functions of the two portions are separate and distinct, and the anatomy of the ear in the different genera from mammalia downwards, furnishes evidence of a similar character.

In mammalia the internal ear consists of three parts, viz. the semicircular canals, three in number, the vestibule, and the cochlea. The semicircular canals, placed behind the vestibule, are situated in the densest part of the petrous portion of the temporal bone; they run in three different directions, and the plane of each canal is at right angles to the planes of the others. The superior canal is vertical in its position, and it runs in a plane at right angles in every direction to a line drawn from the forehead to the occiput; that is to say, one end of it runs upwards, then it turns in a direction towards the opposite ear or across the head, and finally it turns downwards to rejoin the tympanum. The posterior semicircular canal is also vertical in position, but it runs in a plane at right angles in every direction to a line drawn from ear to ear, its direction being at first upwards, then backwards, then downwards to the vestibule. The external canal is horizontal in position, running in a plane at right angles in every direction to the long axis of the body, being directed at first outwards towards the external ear, then backwards, and, finally, inwards again towards the centre of the head, to end in the vestibule. Each canal thus communicates with the vestibule by both of its ends, one end being small and of the calibre of the middle of the canal, the other end opening out into a flask-shaped swelling or ampulla as it approaches the vestibule. The external canal, that running in the horizontal plane, has no connection with either of the others; while the narrow ends of the superior and posterior canals meet and join the vestibule by one common opening. These arched canals contain membranous tubes in their interior, the tubes being of about one third of the diameter

of the bony canals, and corresponding with them in shape and distribution, the membranous tubes dilating also at one end into ampullæ which nearly fill the cavities in which they lie, and on these ampullæ the branches of the auditory nerve are inserted, spread out, and terminate, not being continued along the tubes. The tubes float in an external fluid or perilymph, contain the endolymph in their interior, and communicate at both extremities with a sac lying in the vestibule, and which is denominated the utricle. Lying beside the utricle in the cavity of the vestibule is another sac called the saccule, communicating with the cochlea, and having a cavity distinct from that of the utricle.

The cochlea, the other portion of the internal ear, consists of a spiral tube divided into two passages of equal size by a partition running along its whole length, so as to separate the two passages from each other, except at the top of the spiral where they communicate, while the other ends of the tubes are attached, one to the foramen rotundum, being closed off by a membranous partition from the middle ear, and the other to the saccule, foramen ovale, and stapes, being thus in connection with the chain of bones in the middle ear and with the drum of the ear. These spiral passages are filled with fluid.

It will be perceived that the cochlear portion of this apparatus alone possesses a direct and obvious connection with the middle and external ears, and correspondingly it is found that as the external ear disappears in animals the cochlea disappears also.

The distribution of the auditory nerve corresponds more or less with this anatomical arrangement, the cochlea being supplied by one separate branch, and the contents of the vestibule and semicircular canals by another.

From the whole of this arrangement it would appear as if the cochlea were the organ destined chiefly to receive impressions communicated from the external auditory meatus through the drum and chain of bones, and as if the contents of the vestibule and semicircular canals had a function quite separate and distinct from this. But before leaving the anatomy of the ear, it is necessary to call attention to the fact that the size of the arched canals varies in different individuals, and that their amplitude and development differ much in different animals, even of the same genus, being, for example, according to Agassiz and Gould: "broad and elevated in rapacious and passerine birds, and thick and depressed in the grallæ, gallinæ, and palmipedes." Doubtless, the varying development bears an intimate relationship to the habits and requirements of the animal, and a careful study of this relationship could not fail to throw much light upon the function of the part.

In considering the different properties which sound possesses, with a view to arranging these properties into some sort of classifi-

cation, we find that the ear is capable of distinguishing the varying intensity or loudness of sound, distance of sound, direction of sound, pitch or tone as in the different musical notes, and other peculiar qualities of sound as exemplified in the peculiarity of the violin notes in contrast, say with those of the harp. Of these, the first two, intensity and distance, are probably one and the same thing; the ear judging of the distance by the intensity, and this reduces the properties of sound as appreciated by the ear to four heads: 1st, Intensity; 2nd, Direction; 3rd, Pitch; and 4th, Minor peculiarities. Of these four, the last two have been chiefly studied; and it is now generally accepted and believed that the pitch or tone depends on the number of vibrations taking place in a given time in the body producing the musical note, and that the minor peculiarities depend on secondary vibrations on the primary one. The function of perceiving these properties of sound is referred to the cochlear portion of the internal ear, the anatomical distribution of the nerves upon the central partition of this organ favouring such a view of its use. The first two heads, intensity and direction, have not received the same amount of attention, but it is believed that the intensity of sound is estimated by the tensor tympani muscle, which appreciates the strength of the vibrations of the drum of the ear, or by the nerves of the cochlea themselves, according to the force of the concussion they receive.

There remains then to be considered only the direction of sound, to which attention has not been sufficiently given.

If the attempt is made to ascertain what position in the appreciation of the direction of sound the external ear and external auditory passage occupy, it is found that no modification of the shape of the external ear has any sensible effect in preventing the just estimation of direction, that a common ear trumpet or ear speculum placed in one or both auditory passages, will not alter the exactness with which the locality of sound is perceived, although it must certainly alter the directions in which the waves of sound are conveyed into the meatus. Further, it will be found, and this is an experiment in the power of every one to verify, that closure of the external meatus on one side, and the consequent prevention of the entrance of any wave of sound, do not on that side of the skull modify the accuracy of the perception of the direction of a noise which is loud enough to be heard in spite of the closed meatus, and that the stoppage of entrance of waves of sound into either ear, by the firm closure of both the external passages, still permits all audible sounds to be unfailingly judged of as to direction. Since my attention was called to this subject, several opportunities of testing the correctness of this have occurred in individuals deaf from diseases of the middle ear, such as perforation or total destruction of the membrana tympani, with or without absence of the bones of the

middle ear. In all of these persons the perception of the direction sound showed itself to be entirely unimpaired, however severe the test to which it was subjected.

Facts like these lead to the inference that it is not from impressions communicated through the external and middle ear, or, at all events, not entirely from such, that direction of sound is estimated; and if this be granted, it is but a step further to admit that the cochlea is not the organ which takes cognisance of direction.

In proceeding further in this investigation, the question presents itself, how is direction of sound communicated if not through the medium of the external and middle ear? and, fortunately, the reply has not far to be sought for. It is a well-known fact that in persons who are born totally deaf, the perception of the direction of sounds is not deficient too. It is so well known as to be used as a test to those shamming deafness, that an individual entirely deprived of the power of hearing, should the wall of his chamber be struck, or a bunch of keys let fall behind him, will forthwith turn in direction of the sound to ascertain its cause. Such a person cannot hear the sound, he has lost the organ by which he might have perceived it, but he must still retain an organ capable of appreciating the direction of the sound, and to this organ the impression must be conveyed by vibration. It is not to the body and head merely that the vibration is communicated; such an agitation would probably be felt, but the direction whence it came could hardly be judged of, there must exist in addition an organ by which the direction can be estimated, and this organ, receiving the impression through the vibrations of the bones of the head, may perhaps be found in the semicircular canals.

There can be no doubt that the vibrations of sound *are* communicated to the ear through the medium of the bones of the skull, and communicated too with an intensity greater than when through the medium of the external auditory passage. In individuals in whom the external ear is closed by a tumour or plug of wax, or in whom the drum and bones of the middle ear being wanting, the fingers are placed in the external auditory meatus; should the internal ear be still intact, the sound of a tuning-fork with its handle placed on the vertex of the skull, is heard with a distinctness greatly exceeding that with which it is perceived when the handle of the fork is held close to the external ear. In individuals with perfect ears, the same thing holds true when the auditory passage is closed by the fingers or by a plug, and not only so, but when one ear alone is plugged, the sounds of the fork are more clearly audible in the closed than in the open ear, even should the fork be placed upon the temporal bone of the open side. This last fact is a most remarkable one, showing as it does that the vibrations conveyed by the bones of the skull are most distinctly perceived in the closed

ear, even when the vibrations pass through the opposite open organ. Further examination of the power possessed by the bones of the skull in conveying vibration, shows that the more solid and the more directly connected with the auditory organ the part on which the fork is placed is, the more intense are the sounds conveyed to the ear. With both ears stopped, a fork sounding in the middle line of the head is heard equally on both sides, and the more it is conveyed to one side, the more distinct are the impressions in that ear, sounds conveyed through the temporal bone being more distinct than when coming from most other directions. The upper jaw, for example, is a more integral part of the skull than the lower jaw, and sounds are better heard when the fork is placed on the teeth of the upper jaw, than when touching the teeth of the lower jaw, although false teeth in the upper jaw give a less clear impression than true teeth in the lower jaw. This is evidently owing to the ear being more solidly connected with the upper than with the lower maxilla.

These facts in connection with the greater clearness of sounds conveyed through the skull when the ears are closed than when they are open, have been attempted to be explained on the supposition that the plug, by its pressure, increased the density of the air contained in the middle ear, and so intensifies the vibration. But this explanation, indefinite as it is, is only partially if at all true, since a loose plug, incapable of exercising any influence on the air contained in the ear, such, for example, as a slight tuft of cotton wool gently laid into the external auditory passage, gives the same results as a tight plug. The true view of the case seems more likely to lie in the fact that the plug of wool or other substance cuts off the innumerable sounds continually passing into the external ear, and so permits the organ to form a more clear appreciation of the influences it may receive.

At the first glance this notion may seem much overdrawn, but the apparent exaggeration ceases when consideration is had of the immense multitude of sounds which, even in what we call silence, are constantly crowding in at our ears. Until attention is directed to it, the amount of sound about us, of which our senses take no note, is incredible; but very little observation will lead to the belief that we are seldom or never in the midst of silence. An approximate idea of the nature of our silence will be gained by those who, after prolonged residence in a quiet country district, have occasion to pass some time in a town. The din is most perceptible and annoying to such persons, although unheard or unheeded by the dwellers in the midst of it. And even in the country, the silence is only comparative. Most of us must have been struck with the feeling of quiet and stillness resting over such a place on a sabbath morning, and doubtless such quiet was not mere fancy, but caused

by the absence of the usual noises, wheels, human voices, and other sounds, which, though perhaps so faint as not to be recognisable as distinct sounds, were still conveyed to, and influenced, the ear. A few reflections of this nature convince us of the truth of the terror which travellers attribute to the dead silence of the deserts, and explain why individuals who have lived long in an uninhabited district, catch and recognise as strange and important warnings, sounds so faint as to be inaudible to the ordinary ear.

It may not be permissible to adopt this effect of the plug in the ear as a complete explanation of the phenomenon, but it seems more rational than the previous notion about compressed air, and doubtless has at least some influence. At all events, the fact remains, that when one ear is lightly closed, the sound of a fork is more audible on that side, even when the handle is placed upon the temporal bone of the open side.

Before adverting to the experiments with the fork, it was asserted that sounds transmitted through the skull to the ear, are more audible than those arriving through the external auditory meatus. In the preceding remarks, this has been proved only of closed ears, in which any channel might naturally be expected to conduct sounds more distinctly than the occluded passage. But in ears which are not closed, the transmission is better through the bones of the head than through the air contained in the meatus, and the reason why this is not generally perceived, is, that sounds, in the usual course of things, are prevented from reaching the bones of the skull with great force, the force being intercepted and broken by the skin and tissues which everywhere cover them. By the only parts of the skull which are normally bare, that is, the teeth, sound is conducted far better than by the external ear, a fact easily demonstrable by comparing the sound of a tuning-fork placed with its handle close to the external ear, with that perceptible where its shaft is placed on the teeth. The greater intensity of sound in the latter situation is a fact familiar to every musician.

In the skin and soft parts themselves, common sounds excite vibrations quite capable of being perceived by the ordinary sensitive nerves, and therefore, when transmitted to the bones, sufficient to impress an organ specially adapted for receiving them. This is proved by the following case, selected from a small series of such observations. A gentleman suffering from chronic inflammation of the iris, from total adhesion of the pupil to the lens behind, volunteered the remark, that the circum-orbital pain, affecting principally the branches of the trifacial nerve supplying the scalp (frontal and auriculo-temporal) was always aroused to a great extent, or recalled when temporarily absent, by the sound of his children's voices, and by my own voice, however quietly our remarks were made. Some other sounds, as the rustling of a newspaper, produced the same effect.

There seems little reason to doubt that the surface of the scalp and bones of the head is a not unimportant part of the organ of hearing in man, and that it aids materially in collecting impressions of sound, especially impressions of direction. The instinctive attitude of a man listening for a faint and doubtful sound is a corroboration of this view, the position such a person assumes being with the head thrown a little forwards, and the hat or covering of the head removed. In animals it is fonnd that among the higher classes, those species which lead the most active life, and are most dependent on the accuracy with which they can distinguish the direction of sounds, have the semicircular canals most largely developed, in confirmation of which the statement of Agassiz and Gould may again be quoted, that "the semicircular canals are broad and elevated in rapacious and passerine birds, and thick and depressed in the grallæ, gallinæ, and palmipedes."

In still lower orders of creation, for example, reptiles and fishes, where perception of direction of sound would seem to be of more importance than accuracy in discriminating quality, &c., the semicircular canals and utricle are found to persist, and the cochlea to have disappeared or become rudimentary. In many such animals, too, it is of importance to observe that along with these peculiarities in structure there coincides absence of the external ear, the skull and its coverings functionating as the only media for conducting impressions of sound.

The very shape and direction of the semicircular canals may be brought to confirm such a theory of their use. Their membranous tubes, filled with internal fluid (endolymph), and floating freely in external fluid (perilymph), are more suitable to taking up delicate sounds from the vibrating bones of the cranium than the cochlea, which contains only internal fluid. A vibration reaching those membranous tubes would affect markedly the fluid in their interior, and the vibration would naturally be conveyed by the wave of fluid along them to their larger extremities, where the ampullæ and utricle, the only parts provided with nervous filaments, are situated.

The position of the semicircular canals in the densest part of the temporal bone, and their invariable situation in planes at right angles to each other, have also been adverted to. The position of the external canal in the horizontal plane, and its more imperfect development, would agree with the fact that few impressions of direction require to be discriminated by the ear when they come from positions above or below the individual, and similarly, the two vertical canals, the superior and posterior, and their better development, would correspond with the necessity for frequent and accurate distinction of the direction of sound reaching the organ from all quarters more or less on a level with the individual; the superior canal, that running across the head, taking cognisance chiefly of

sounds coming from before or behind; the posterior, running from before backwards, perceiving those coming from either side. The union in mammalia of the narrow ends of these two latter canals, the superior and posterior, may be connected with their having, in their vertical position, so frequently to work together and assist each other. It appears likely that each canal would be most impressible to vibrations reaching it in a direction at right angles to its plane, striking it as it were on the flat, since such a vibration would act strongly on the whole length of the tube, while one coming from the direction of any part of the canal's plane, would act forcibly only on that portion of the circle placed at right angles to the direction whence it came.

From the considerations detailed above, it seems not improbable that the organ by which direction of sound is appreciated, consists of the utricle and semicircular canals, and that the bones of the skull and their coverings are important media for conducting sounds in such a manner that their direction may be known. By this it is, of course, not intended to be understood that the external ear and passage have no connection with such a function; they would, probably, also assist in conveying direction, and the semicircular canals and utricle may in addition be to a certain extent capable of appreciating quality of sound.

Such a view as has been advocated here, is, at all events, not completely untenable, while if confirmed by further observation it would add one other important item to our knowledge of the physiology of the internal ear.

ART. II.

Epidemiological Memoranda for the last Twelve Years. By GAVIN MILROY, M.D., F.R.C.P., Vice-President of the Epidemiological Society, &c.

IN the numbers of this Journal for April, 1864, July, 1864, and October, 1865, I gave a sketch of the geographical distribution of the Oriental plague, of yellow fever, and of epidemic cholera during the present century. The narrative in respect of the first of these pestilences was brought down to the period of the remarkable general subsidence and cessation of the disease, now about twenty-five years ago, in Egypt, Syria, and other regions of the Ottoman empire with which it had been long chiefly associated, and where from time to time it was liable to break out with epidemic force. In respect of yellow fever, the record was continued to the beginning of 1860; and, in respect of the cholera, to the end

of 1856. The present article endeavours to carry on the sketch to within the last year or two, and thus, in part, to fill up the gap, however imperfectly, from the scanty materials I have collected. The main object I have in view is to seek to interest the profession in a line of inquiry which, if it were systematically and more fully carried out, would infallibly advance epidemiological science, and eventually lead to some most useful results in public hygiene and State medicine. On this occasion, I shall arrange the diseases together under each successive year; and I purpose also, in addition to the three forms of pestilence above named, to notice a few other epidemic diseases, mainly with the view of suggesting that the wide field of chronological record in connection with geographical distribution might be most advantageously enlarged. My memoranda have been derived chiefly from passing notices in some of the best known daily and weekly journals, and are only to be regarded as scraps of information, picked up as they best might be, without the slightest claim to authentic accuracy or completeness. Of recent years, the annual reports of the Army and Navy have been found to afford many interesting facts; and here I would venture to remark that, if the medical officers of the two services were in future to give fuller details concerning the prevalent epidemics among the civil population in the stations they visited, the value of these annals would be not a little enhanced. The 'Reports showing the present state of Her Majesty's Colonial Possessions,' which are annually presented to Parliament, occasionally contain useful particulars respecting the public health of some of our colonies. It is certainly very much to be regretted that a country like ours, possessing such unrivalled opportunities for observation over the whole surface of the globe, should hitherto have done so little in the way of registering the most remarkable epidemiological phenomena or events, at home or abroad, from one year to another. British colonies are scattered over the world, and each governor is required to send an annual detailed account of the general and economic state of the one over which he presides to Downing Street. In the event of any extraordinary sickness among the inhabitants, the subject is, of course, alluded to in the report; and this is sometimes done at considerable length. But no systematic or regular record of the public health is made or kept; and such is sometimes the local ignorance of past events that no reliable information can be found in the government offices of the leading circumstances connected with the visitations of a destructive epidemic, to afford any help or guidance upon the recurrence of the very same pestilence. With respect to foreign countries, we have not only an ambassador, with several secretaries, at every civilised court throughout the world; but there is not a port of any consequence in either hemisphere where there is not a resident consular agent, who is in yearly communication, directly or indirectly, with

the Foreign Office. It would, of course, be a matter of the greatest ease for the Government to obtain, from year to year, replies to a few simple and suitable queries relating to the public health of every country, district, or place, where a British official was located. This is all that is primarily needed. These returns, colonial and foreign, when analysed and arranged, and taken in connection with the yearly records of the health of our army and navy, would be a storehouse of intelligence of the highest interest and value. Nor could such intelligence fail eventually to produce important practical results. Our distant dependencies would be in an especial manner benefited by the information which it might be in the power of the mother country to communicate to them. Hitherto, each colony when threatened or visited by a pestilential scourge has been left to grope its way, in regard of the prophylactic or counteractive measures to be adopted, under innumerable difficulties, and often amid the most perplexing and conflicting advice. The desolating diseases which have of late afflicted the once prosperous island of Mauritius afford a strong case in point; and the recent history of many other colonies, as Bermuda, Jamaica, and Hongkong, all serves to tell the same tale. The local authorities were in themselves incompetent to deal with the difficulties, and the imperial government was from lack of information equally at sea what to advise.

With respect to our general ignorance or uncertainty as to the course and career of epidemics through foreign lands, even in regard to such a wide-spread pestilence as the cholera, nothing can show this more conclusively than the circumstance that in the two International Conferences, which within the last eighteen years have been convened by the leading governments of Europe for the express purpose of determining the main characteristics and attributes of the pestilence, no small discordance of opinion often took place as to facts and dates of alleged outbreaks and prevalences of the disease, and this, too, in the very countries whose medical delegates were actually present at the meetings. Such an occurrence served by itself to shake the confidence of the public alike in the statements and in the conclusions of these gentlemen; and the result has been that both Conferences signally failed to effect the objects for which, at great cost and labour, they were convened. Nothing more need surely be added to prove the importance and value of the desiderated sort of information which the following scanty data are meant rather to indicate than to supply. I shall begin with the cholera, briefly noticing the geographical extent of its diffusion in 1856, before I trace its subsequent history in connection with other wide-spread diseases.

Over the whole of Northern India, there was in that year a wide-spread and very fatal epidemic. The cantonment of Mean-Meer was ravaged; Lahore itself was but slightly affected. Mauritius was again attacked, after an interval this time of only two years, although

previously it had remained exempt for more than thirty years. The pestilence was diffused along the whole of the North African coast from Alexandria to the western shores of Morocco; and it was this year that the island of Madeira was first invaded. The Cape de Verde group suffered at the same time. Several points in the Mediterranean were more or less severely affected. In Malta numerous cases occurred; and Messina and other places in Sicily were the seats of sharp outbreaks. Spain and Portugal to the west, and Turkey to the east, were the regions of Southern Europe where the disease was most prevalent; and Russia and Sweden to the north were those which were infected. After the termination of the Crimean war, the Russian troops, whenever they were collected together in large masses, continued to suffer more or less severely. In the New World, several of the West India islands, the greater part of Central America from the isthmus on to California, and the whole coast line (nothing is known of the island districts) of South America from Venezuela to Brazil were more or less affected.

1857. 1. *Cholera.*—Northern India was again the scene of a severe epidemic invasion. At Hurdwar, the seat of the great annual pilgrimage and fair, there was a sharp outbreak. One of our East Indian squadron experienced an attack at sea, two days after leaving Singapore. In Europe, the disease seems to have been chiefly confined to some districts of Norway and Sweden (where it had been in 1856), as in Bergen, Stockholm, Upsal, Konigsburg, and Christiansand, which suffered in the autumn. Elsinore and some other places in Denmark, and also Hamburg, were affected. Nantes, at the mouth of the Loire, is the only place in France mentioned in my notes where the disease existed. At Lisbon, too, it appeared; but there it was, ere long, replaced by another pestilence, viz. yellow fever. In the New World, British Guiana, which had begun to be affected towards the close of 1856, suffered during the spring. Later in the year, the disease prevailed in Central America, in Nicaragua; it spread over the country and extended to the Pacific coast, where the port of Livertad was attacked. In Porto Rico, which suffered severely last year, it ceased about the beginning of the present.

2. *Yellow fever.*—This, like the preceding year, was a sickly one in the West Indies; in both years, our ships of war suffered disastrously from the pestilence. From Brazil, in several seaports of which it raged, it seems to have spread to the southward and reached Monte Video at the mouth of La Plata, where, it has been imagined on very imperfect information, it had never been known before. But, as with the case of Brazil some time previously, the mere absence of the fever for a number of years was hastily assumed as a proof that

the supposed "nova pestis" could not have been of indigenous development. On the western coast of South America, the "spotted hæmorrhagic yellow fever," described by Dr. Archibald Smith, which had been prevailing in different parts of Peru since 1853, seems to have subsided in the spring of the present year. The severe epidemic in Lisbon, during the summer and autumn, makes it memorable in the annals of the pestilence.

3. (*a*) *Epidemic influenza* prevailed, during the spring, along the entire extent of the western coast of the American continent from Vancouver's Island to Valparaiso, between 50° of north and 33° of south latitude. The navy report of the year notices the prevalence of the epidemic also on the shores of China, and in the Caribbean Gulf. In the report for 1863, there is an interesting account of an outbreak of well-marked influenza that year on board a ship of war at sea, when she was more than a hundred miles from the Pacific coast of Central America.

(*b*) *Diphtheria*, which had appeared in several counties of England in 1856, became much more widely spread over Great Britian this year. The history of the upspringing of this formidable disease during the previous seven or eight years in many countries of Europe, where it had been scarcely, if at all, recognised before during the present century, and subsequently of its rapid manifestation, sometimes about nearly the same time, in the most remote and distant regions of the world—as California, Peru, Australia, Cape of Good Hope, West Indies, and Nova Scotia—is replete with instructive interest to the epidemiological student.

1858. 1. *Cholera.*—Various places in Japan and China suffered severely in the summer and autumn. Now for the first time, it has been said, was Hong Kong visited by the disease. It existed in the Philippine Islands also, and raged during the spring at Singapore. During the summer it prevailed with great violence in the extreme north of India, in Cashmere, at Muttree (7000 feet above the sea level), Rawal Pindee, &c. At the same time, the Arabian shores of the Red Sea, at Djeddah, Loheia, Hodeiha, Mocha, &c. were infected; and in September, Aden was (for the first time, according to one account) visited, the disease spreading subsequently to several places inland from it.

Again, the chief, or indeed the only, part of Europe affected was some of the Baltic provinces and Norway, as at Helsingfors, Stockholm, Christiansand, Riga, Memel, Stettin, and Bergen.

Guiana continued to be infected.

2. *Yellow fever.*—It existed at Panama, on the Pacific coast of Central America. New Orleans suffered disastrously from June to

October. Other cities in the southern states, as Charleston, Savannah, &c., were also visited by the pestilence. It broke out among our troops in Trinidad in September; and Antigua was partially affected in the last quarter of the year. At Rio Janeiro, it existed in the spring; and one of our mail steamers, the 'Tyne,' had a good many cases during the voyage between Rio and Teneriffe. Gambia and Goree were very sickly.

3. It was in this year that the development of bubomic plague occurred near Benghazi, on the north African coast between Tunis and Alexandria. The antecedent and concomitant circumstances of this outbreak were these:—In 1857, the poor Arab population of the district had suffered terribly from famine, consequent on a long drought. An epizootic had also destroyed most of the cattle. Notwithstanding repeated supplies of food sent by the Turkish Government, the people were reduced to the greatest misery throughout the winter and early part of the following year. About the middle of April, a malignant fever broke out in an Arab encampment, several miles distant from the town. In the course of a month or two, it spread in different directions, and proved very fatal. At first it was considered to be typhus; but the medical commissioners, who were sent from Constantinople to investigate the facts, decided that it was of the nature of true plague. They were also of opinion that it must have sprung spontaneously in the Arab encampment under the favouring circumstances of prolonged destitution and misery (as seemed to have been the case in the great plague of Erzeroum in 1841, and on various other occasions); it being deemed wholly out of the question to suppose that germs of the pestilence could have remained dormant in the district for fifteen years and more, since the date of its last known existence in Egypt or elsewhere. It deserves to be noticed that in the summer of 1858 there was a notable outbreak of typhus among the negro soldiers of the Egyptian army.[1]

1859. 1. *Cholera.*—Among the numerous places in the different Indian presidencies where it prevailed with greater or less force, Kurnaul, Hurryghur, Dum Dum, Dharwar, Baroda, Bombay, Poonah, Arcot, Hyderabad, and Secunderabad are cited in the Indian report. There was another outbreak of the disease in Mauritius; the adjacent island of Reunion was also affected.

In Europe it was more diffused than in the previous two years. Besides still showing itself at Helsingfors, and in some places in Sweden, and visiting Hamburg with severity in the summer, there was an epidemic outbreak in Mecklenburg Schwerin. The towns of Lubeck, Goldberg, and Rostock are enumerated as places that were

[1] Papers relating to Quarantine, presented to the House of Commons, August, 1860.

attacked. Rotterdam, Antwerp, and Bruges were also infected; and in Great Britain, isolated and partial manifestations occurred at Southamptom, at Glass Houghton, and in Wick, at the extreme north of Scotland.[1]

While the Spanish army in Morocco was suffering from the disease (it existed not only in Tetuan but also in Algeria), the towns of Algesiras, Malaga, Alicante, and Murcia were also, more or less, decidedly affected.

2. *Yellow fever.*—Panama and Brazil continued to be infected. The shipping at Rio Janeiro suffered much; the attacks of the fever were generally preceded by severe alvine flux, as has often been observed in epidemics of the disease elsewhere. At Trinidad, the troops continued to suffer till March or April. In St. Thomas, which of recent years has seldom been quite free from the fever, it existed with considerable malignancy during the autumn; and two of the royal mail steamers had a good many cases on the voyage to Southampton. The disease raged in Goree, Bathurst, and Sierra Leone; and some ships of our African squadron suffered disastrously during the year.

1860. 1. *Cholera.*—It appeared among our soldiers and sailors on shore at the Peiho, on their advance upon Pekin in September. There was much virulent cholera in lower Bengal, in various districts lying between Calcutta and Patna, and also at Agra, Jhansi, Marwar, Belgaum, and Kirkee. In the Bombay presidency, Poonah, Deesa, and Kurrachee were infected. In many parts of Ceylon the natives suffered very severely. The pestilence seems to have advanced into Persia in a north-west direction; as the towns of Yezd, Kashan, and Koom were visited before Teheran, where it was

[1] The six or seven cases at Southampton occurred in the coast-guard station, on the Itchen river, between the 18th and 30th of July. Diarrhœa had been prevalent among the inmates of the station for a fortnight before the first attack; and nearly all of them suffered from it during the outbreak. Two of the cholera cases were fatal. "The localised character of the disease," remarks Dr. Parkes, "looks very like a case of water poisoning, although the water is stated to have been good," ('Eighth Report of Medical Officer of Privy Council'). At Glass Houghton, a village near Pontefract, the number attacked during the first three weeks in October was nearly thirty, out of a population which little exceeded sixty persons. Twelve of the attacks were fatal. "Dr. Simpson ascribed the outbreak to the use of water from a well polluted with fæcal and other noxious water."

The outbreak at Wick began in the second week of September, and continued to the end of October. No other place in the north of Scotland was attacked. Neither at Wick, nor at Southampton, nor at Glass Houghton could the disease be traced to importation. In several instances, however, in the port of London, and also at North Shields and Hull, cholera patients were landed from Hamburg steamers, and died on shore. On one or two of these occasions, some of the immediate attendants upon the sick were subsequently affected. But the disease showed no tendency anywhere to spreading, although diarrhœa was unusually prevalent over the country generally.—'Transactions of the Epidemiological Society,' vol. i.

associated with an intensely algide form of ague, having many of the features of malignant cholera, and which was described by the late Dr. Bell as "fainting fever."[1] The epidemic of last year in Mauritius continued till the end of February.

In Europe, with the exception of a few cases in St. Petersburg and in some places in Finland, the disease seems to have been confined to Spain, where, besides Algesiras and Malaga, the towns of Valencia and Toledo were partially infected. The troops, recently returned from Morocco, appear to have chiefly suffered. In August it appeared in Gibraltar, and continued there for two months, causing eighty deaths among the civilians, military, and convicts. Tangiers, Ceuta, Tetuan, and other places in Morocco, suffered severely during the Spanish war.

2. *Yellow fever.*—It was more widely diffused over the Caribbean Gulf than last year. Colon, Honduras, and Belize, with many places in Central America, were infected; also Cuba, Jamaica (where several ships of war were severely smitten), St. Domingo, and Martinique. In Brazil, Rio, Pernambuco, and Para suffered more or less sharply. An outbreak occurred at Macarthy's Island, in the Gambia, where no fewer than three army assistant-surgeons perished among other victims. A few cases occurred at Sierra Leone in the early part of the year; and Loando and Angora also were partially affected.

3. In connection with the great increase of *smallpox* in England generally in part of 1859 and in 1860, it may be noticed that the disease prevailed epidemically, during most of the time, in several remote and distant countries. It raged with great fatality in the Cape Colony in both years. The Canary Islands were ravaged in 1859; and during the same year there was a partial outbreak at Gibraltar. In the New World, it was extensively diffused and fatal in our colony of Guiana, and probably in the adjoining provinces of South America. In what other regions of the world it may have prevailed, I have not the means of ascertaining. It would obviously be a matter of no small interest to determine whether epidemic seasons of the disease in this country were coincident with, or were shortly preceded or followed by, like seasons in other regions, whether of Europe or of other continents. We know that during 1863 and 1864, when the disease so largely increased in England, and the deaths from it were unusually numerous over the kingdom, there was not only an epidemic prevalence of it in several remote countries, as in Brazil, in China, in Japan, and also in Jamaica, but there was also a far greater number of cases of it in the Navy generally. In the home fleet, there was a large increase in the number

[1] Eastwick, 'Three Years' Residence in Persia,' 1864.

of attacks; but the excess in this respect was not confined to this station. In 1864 "the death rate from smallpox in the navy was three times that of the previous year." Although the majority of the cases occurred on the Home and on the China stations, attacks of the disease were decidedly more numerous than usual on several other foreign stations.

1861. 1. *Cholera.*—The most destructive epidemic since 1846 occurred in upper and north-west India. It had been preceded by a terrible famine in many districts. Commencing apparently about May in and around Allahabad, Bhurtpore, and Cawnpore, it seems to have extended in a westerly direction to Gwalior, Rajpootana and Cutch, and in a northerly direction to Delhi, Meerut, Umballa, &c., and thence to the Punjaub. It raged at Lahore in August, and it was then that the garrison of Mean Meer suffered so terribly. At the same time, Candahar and other places in Caubul were severely smitten. The disease prevailed also extensively in Persia, from Teheran and other places in the north of the kingdom to the pachalic of Bagdad, and to Bassorah at the head of the Persian Gulf. An isolated outbreak is said to have occurred at Djeddah on the Red Sea.

"In spite," says the governor of Mauritius, "of the most vigilant application of the elaborate and costly machinery of quarantine to which the majority of the colonists unfortunately persist in trusting, as the only means by which the ravages of pestilence and all its heart-rending consequences can be averted from their hearths and homes," a sudden outbreak commenced in Port St. Louis in December.

Europe and the New World appear to have been nearly, if not altogether, exempt from the pestilence.

2. *Yellow fever.*—It existed in Demerara, where our troops chiefly suffered. Carthagena was also infected; and sporadic cases occurred in Rio Janeiro, Havana, and other places in Cuba;[1] Nassau in the Bahamas, Martinique, and St. Thomas, were likewise seats of the fever. Several ships of our West India squadron suffered very severely. The Cape de Verde islands and Loando were suspected of the disease towards the end of the year.

3. It was in the spring of this year that the remarkable instance of the importation of *typhus fever* into Liverpool by a foul and sickly Egyptian frigate from Alexandria occurred. The crew them-

[1] In the summer a partial outbreak occurred at St. Nazaire, at the mouth of the Loire, subsequently to the arrival of an infected sugar-ship from Havana. The particulars are given in the Eighth Report of the Medical Officer of the Privy Council.

selves had suffered chiefly from dysentery, and several deaths had taken place during the voyage from this disease and from bronchitis. There was a large sick list on arrival, and the worst cases were sent to hospital on shore. The cases of fever, thirty-one in number, and of which eight were fatal, occurred exclusively among the attendants, &c., in the hospital, and in persons who had come in contact with the crew elsewhere, or who had gone on board the infected ship. The important question whether the same morbific agency which will produce dysentery in one set of individuals will give rise to typhus in another set is discussed by Dr. Duncan, the then Medical Officer of Health of Liverpool, in his description of the fever in vol. I of the 'Epidemiological Transactions.' In the same volume there is an account of a very fatal epidemic of typhus and typhoid fevers in Iceland, which lasted with varying intensity from 1858 to 1861, and which was associated with not only a bad form of dysentery, but also with a good many cases of "malignant cholera," in the last two years of its prevalence.

1862. 1. *Cholera.*—Japan and China were infected. There was great mortality at Nagasaki, and the disease raged at Shanghae. Pekin was subsequently attacked; and also Hongkong and Macao. The French forces in Cochin China suffered severely during the summer months. Various parts of the Bombay Presidency were attacked during the year, especially the malarial province of Guzerat. Hyderabad, Secunderabad, and other places in the Deccan, also suffered. Nor was the extreme north-west of the peninsula spared; for Peshawur, Kobat, &c., were again the seat of a sharp visitation. In Ceylon, the deaths from the disease amounted to nearly 1500. In Mauritius, the pestilence continued to prevail till the middle of the year; it spread over most of the country, and slew more than 4000 of the inhabitants. This was the fourth epidemic invasion in this island in the course of eight years. The only places in Europe or in the New World, of which I have seen any notice as to their being infected with or suspected of the existence of cholera during the year, are the province of Cearia (in Portugal or in Brazil?) and the ports of Pernambuco and Rio Janeiro.

2. *Yellow fever.*—Bahia, Pernambuco, and Maranham were infected in the early part of the year; also Vera Cruz (where some French ships of war, as well as the troops of the expeditionary force which had been landed, suffered greatly), and many places in Louisiana and South Carolina, as Key West, Pensacola, and Wilmington, during the civil war in America. Among the West India islands, the Tortugas, Cuba, New Providence, St. Lucia, and Barbadoes, were infected. Our squadron on that station was much less sickly on the whole than last year, although some ships had a good

many deaths from the fever, which appears to have been contracted chiefly at Nassau, where the merchant shipping also experienced much sickness. The West African coast was seriously affected. The fever existed at Loando, Angora, and Benguela; also at Fernando Po, where it was very fatal in March; and at many places in the Bights of Benin and Biafra, including the mouths of the Bonny and Calabar rivers, where it had not appeared, it is said, for at least forty years before. The Cape de Verde islands, and later in the season, Teneriffe and Palmas islands of the Canary group were likewise infected. The Spanish authorities there, as usual, at first denied that it was the genuine *vomito*, but were ere long obliged to admit the development of the pestilence, notwithstanding their vigorous quarantine precautions.

1863. 1. *Cholera.*—Shanghae again suffered, but less severely than in the previous year; also some of the ports in Japan. In Bombay, the disease was very fatal; and Benares, Oude, and Meerut were more or less deeply affected. Whether it existed in other regions of the world, I am without means of determining.

2. *Yellow fever.*—Vera Cruz (which suffered severely from small-pox also) and Nassau were still infected. The Lisbon Board declared Rio, Pernambuco, and Havana to be suspected. Our West India fleet was all but exempt; but the American fleet at the mouth of the Mississippi suffered slightly. At Teneriffe and Palmas the fever subsided in February, after three or four months' continuance.

3.—*a.* In Mauritius a malignant *bilious remittent* fever prevailed; one third of the cases proved fatal. The public health of the island had been becoming worse and worse for several years past. This was shown by the increased death-rate, especially in the principal town, Port Louis, and by the repeated invasions of cholera, notwithstanding the most stringent external precautions to prevent its introduction. And now a malignant fever made its appearance, which seems never from this time to have entirely ceased. In 1865, it was wide-spread and very fatal; there was also an excessive prevalence of alvine flux. The sanitary condition of the town and surrounding districts was then, and had been for a long time, wretchedly bad; and repeated warnings had been given to the authorities of the dangers that might ensue. The dreadful epidemic which soon befel the island was thus anything but sudden, as many at first alleged.

b. Reported outbreak of the *plague* at Komerd (?) on the Persian frontier ('Times' 16th November.) In connection with this rumour it may be stated that "in the country of Jessore, on the confines of which the Ganges loses itself in the Sunderbund marshes, a pesti-

lence like the plague of Egypt, generally preceded by cholera, has, during the last three years (since June, 1860), spread all round Calcutta, and along the line of the East Indian railway to Burdwar. It has slain more than 40,000 persons, or, at least, 60 per cent. of the populations attacked. The fever was fatal in from five hours to fifteen days."—*Epidem. Trans.*, vol. ii, p. 151.

c. Prevalence of *carbuncular disease* (pustule maligne) in man and among cattle in northern France. A detailed account of the development and diffusion of the disease has been given by Dr. Guipon in his work 'De la Maladie Charbonneuse de l'Homme,' 1867. At the meeting of the British Medical Association in 1862, Dr. Budd of Bristol drew their attention to the occurrence of 'malignant pustule' in man, and showed that it was not so uncommon in England as is generally imagined. Of nine cases recorded by him, all proved fatal in from four to eight days. He had obtained particulars of fourteen other cases.

1864. 1. *Cholera.*—This was the third year that Shanghae was the seat of a severe outbreak, in the midsummer quarter. Java and Singapore were also the seats of the disease. In Ceylon, cholera and smallpox prevailed extensively, and especially in the northern province; altogether, the year was notedly unhealthy throughout the island. These few items comprise all the information I have respecting the diffusion of the disease during this year. The only station on which any cases occurred in our ships of war was the China station, and most of them took place at Shanghae. Throughout the navy generally, intestinal diseases were less frequent and fatal everywhere than usual, except in China and Japan, and especially in the latter country where an epidemic of unusual severity prevailed among the marine brigade on shore.

2. *Yellow fever.*—It existed at Demerara where the shipping suffered much, and in George Town during the summer. Vera Cruz and the neighbourhood of that town were still infected. Cases occurred at Barbadoes; but the chief seat of the fever seems to have been at Nassau,[1] which was then a great *entrepot* of trade with the Southern States of the Union during the civil war, and especially with Wilmington, where the disease is believed to have been long existing. A severe outbreak occurred in Bermuda in the autumn, and caused great mortality in the military and naval services, as well as among the civil population. The "dengue" or "breakbone fever" had been prevalent in 1863. An official report has been

[1] From the report of the Governor, it appears that the year was more than ordinarily sickly from other diseases as well as from yellow fever. The common endemic fever was unusually fatal; and there was a great mortality from scarlatina.

published on the yellow fever epidemic. As on former occasions (1853 and 1856), the origin of the disease was obscure, and the exact history of its early development is imperfect. The outbreak occurred about midsummer, and went on increasing for several weeks. The town was reeking with foul abominations, and was excessively crowded at the time with an influx of dissipated strangers from the West Indies and the United States. On the West African coast, yellow fever prevailed at Lagos Lagoon, chiefly among the shipping, but also on shore.

3. *Epidemic cerebro-meningitis* appeared in several parts of Germany. As in the case of diphtheria, to which reference has been made under 1857, this outbreak was but a recurrence of the disease after an absence of several years. It had been twice, if not three times, epidemic in the United States as well as in Europe during the present century. From 1805 to 1816, it was more or less extensively prevalent in both hemispheres, and again between 1837 and 1850. For three or four years subsequently, it was little heard of; but in 1854 it broke out in Sweden, where it lasted till 1860. Holland also was attacked that year, and Portugal in 1861. In the United States, there was a fresh appearance, after a subsidence of six years or so, of the disorder; and it has continued in that country, with varying degrees of diffusion and intensity, for the last ten or eleven years.

1865. 1. *Cholera.*—I beg to refer the reader for ample details respecting the geographical history of the pestilence during this year to the number of this Journal for January, 1868.

2. *Yellow fever.*—The shipping at Demerara continued to suffer, and Vera Cruz was still infected; also Havanna during the summer. According to a report from the governor of Barbadoes, the French island of Guadaloupe suffered from yellow fever as well as from epidemic cholera. The earliest cases of the latter pestilence were at first declared to be attacks of "a malignant fever." Sierra Leone and also Loando were infected; two or three of the West African squadron suffered severely. It was in the autumn of this year that the memorable small outbreak occurred at Swansea, in connection with the arrival of an infected vessel from Cuba, recorded in the report of the medical officer of the Privy Council for 1865.

3. *Epidemic meningitis* continued to prevail in various parts of Germany and the United States. The disease appeared in several parts of Ireland. "It was thought by many," remarks a writer in the number of this Journal for January last, "during its recent prevalence in Ireland to hold some relation to cholera. The sudden and over-

whelming nature of its onset, and its often rapidly fatal ending, the shivering and vomiting, abdominal pain and sudden prostration, its high rate of mortality, and the fact that it appeared in Ireland just before the last outbreak of epidemic cholera, and upon the cessation of that disease, in both cases in the colder months of the year—these circumstances tend towards the idea that some sort of relationship exists between the two diseases."

4. The *plague* or *pestilential typhus* existed in Upper Egypt during the early part of the year. "It was raging at Khartoum," says Sir S. Baker, "and had killed 15,000 people; many of the boats' crews had died on the passage from Khartoum to Gondokoro, where the disease had also broken out." It had been preceded by drought and famine, and was attended with a destructive epizootic among cattle and camels. The fever seems to have been akin to the Pali plague of India. Epistaxis was a frequent, and generally a fatal, symptom.

1866. 1. *Cholera.*—The only addenda I have to make to my paper in the number of this Journal for July, 1868, are these:—The disease seems to have been only feebly and partially epidemic during the year among the European troops throughout India. Except one or two limited outbreaks in isolated localities, it was everywhere merely sporadic. The case of the province of Orissa was special. From the dreadful famine there, an enormous loss of life had ensued; but the mortality from the dysentery and cholera which followed are said to have been still greater. In the last quarter of the year, the pestilence appears to have been impending at several points in the upper provinces. In some parts of Rajpootana it was then threatening to become epidemic; and the durbar held by the Viceroy at Agra, in November, was broken up in consequence. At Delhi it was prevalent a month later, and cases occurred in several places between that city and the neighbourhood of Hurdwar. Cholera and smallpox were wide spread and very fatal in Ceylon.

The following particulars respecting the course, in recent years, of epidemic cholera in Persia are from a letter of Dr. Dickson, Physician to the British Embassy at Constantinople, communicated by the Foreign Office to the College of Physicians:[1]

"Cholera penetrated into Persia by way of Bagdad and Sulimaniah late in the spring of 1866, following two directions, the one eastward by Khanikin, and the other northward by Sulimaniah to Oromiah, Tabriz, the Caspian provinces, Teheran, and Meshed.

[1] More detailed particulars respecting the course and progress of the pestilence throughout Persia during 1866, 1867 and 1868 have been communicated by Dr. Dickson to the Epidemiological Society in a paper, which was read before the meeting of the Society in April of the present year.

During 1866 it was more or less diffused throughout Koordistan, especially along the Turco-Persian frontier. In 1867 it prevailed in various parts of Persia, particularly in the province of Mazendaran (immediately south of the Caspian Sea), and visited Teheran, Kaskan, and Ispahan. In 1868 it still lingered in Mazendaran, and was brought back from Meshed to Teheran in August, on the return of the pilgrims who visited that shrine. Yezd and other cities also suffered. At the end of the year, it was in Hamadan and Kermanshah, on the western frontiers of the kingdom. It was still in these districts in January of 1869, and also at Coom, a sacred city about eighty miles south of Teheran."

During 1866, the island of St. Thomas is the only place in the West Indies known to me as the seat of epidemic cholera; smallpox was prevailing there at the same time.

2. *Yellow fever.*—Demerara was still infected; besides the shipping, the European troops (recently arrived from Nova Scotia) suffered so much in September and October that they were removed *en masse* to Barbadoes.[1] The adjacent French colony of Cayenne was also affected. The disease existed at Colon on the Atlantic coast of the Panama straits; and cases occurred among the shipping at Kingston, Jamaica. In the Bahamas yellow fever had ceased; but typhoid fever had broken out in several places, and caused many deaths. A similar fever appeared, about the end of the year, in Trinidad.[2] The island of St. Thomas, besides suffering from a disastrous hurricane and earthquake, was extremely sickly; and several of the royal mail steamers had attacks of yellow fever on the voyage to Southampton, in the last quarter of the year. Sierra Leone, Goree, and Gambia suffered severely about the same period. It was at the beginning of this year that the memorable outbreak occurred in Her Majesty's Ship "Bristol," contracted from communication with the "Isis" at Sierra Leone, and described in the "Report of the Navy for 1866," and in the number of this Journal for last April. Loando also seems to have been infected.

1867. 1. *Cholera.*—In addition to the few memoranda respecting the prevalence of the pestilence in India in my former paper, must now be noted the outbreak at the great pilgrimage and fair at Hurdwar in the early part of the year, and the subsequent wide extension of the disease in a west and north-west direction. Since 1857 there had not been so severe an invasion, although this pil-

[1] "Yellow fever had been present in the colony, particularly among the shipping, since 1861, but had not prevailed among the troops." Army Reports, for 1866.

[2] See an interesting article on this outbreak by Dr. Stone in the number of this Journal for July, 1868.

grimage was of annual recurrence. In 1867 the number of pilgrims far exceeded any former gathering, being estimated at not less than three millions. The earliest attacks occurred about the beginning of April; but the pestilence had appeared weeks previously to the south-east of Hurdwar, and also in other directions; and the probability of an epidemic outbreak in the spring had been predicted by Dr. Bryden, the Statistical Medical Officer of the Bengal Government, judging from the parallel history of the disease on previous similar occasions in 1783, 1852, 1857, and 1862. Full details will be found in the fourth report of the Sanitary Commissioner of Bengal, and also in the "Army Report," 1868.[1]

The fatal epidemic of last year in Ceylon seems to have lasted till the beginning of the present one.

2. *Yellow fever.*—The coast of Panama on the Pacific side, and the towns of Colon and Vera Cruz on the Atlantic side of Mexico, were infected. The disease was very fatal at Galveston and other places in Texas, and in New Orleans during the summer. Mobile, Key West, and Pensacola, also suffered severely, and the fever spread inland to a great extent. The towns of Memphis and Vicksburg were invaded in the autumn. Altogether, this was an extremely sickly season from yellow fever in the Southern states. A few cases are said to have occurred in New York, and also among our troops in Bermuda. Many of the West India islands were more or less deeply infected, as Cuba, Jamaica, Barbadoes, and St. Thomas.[2] In Jamaica cases occurred in the spring at Port Royal, Kingston, and Up Park; as the season advanced the fever increased on shore and among the shipping, and spread to Montego Bay; a few deaths occurred at Newcastle barracks.

3. The *fever in Mauritius* which, as it has been previously shown, had begun to manifest itself several years ago, acquired greater prevalence and severity in 1866. In the present year it became still more general and fatal, so as to rage as a deadly pestilence over the island, and especially in the town of Port Louis. By the middle of the year, the mortality had amounted to nearly 30,000 out of a population of 340,000. In Port Louis alone, with a population of about 80,000, 17,000 had died; and the disease continued to prevail. Most of the troops were removed to the Cape, and some were sent home. The fever was of a malignant malarial type, terribly

[1] The pilgrimage at Mecca passed over, this year, without any cases of cholera. In 1866 there had been only a few sporadic cases. The irregular, and only occasional, epidemic outbreak of the pestilence at these great assemblages of persons from so many distant lands is a curious and significant fact.

[2] The foul condition of the harbour in St. Thomas, always bad, was now worse than ever since the late dreadful hurricane. The exhalations are described as being intolerable. Cholera and smallpox, as well as yellow fever, existed on shore.

aggravated by unfavorable local and meteorological conditions, as well as by destitution and misery among the poorer classes, and by the insufficient supply of quinine in the island.

About the same time, there was a widespread prevalence of fatal *typhoid fever* in the Cape Colony.

A *pestilential fever* appeared, in the early part of the year, in the neighbourhood of Kerbela in the Valley of the Euphrates, not far from the site of the ancient Babylon. The district is marshy, and the inhabitants had suffered from great privations. The fever was at first considered to be a malignant remittent, but it was afterwards declared by medical men sent from Bagdad to be the *genuine plague*. In Bagdad, bubos had been very prevalent for some time previously among the population. The same occurrence is said to have been observed there prior to the last outbreak of plague in the district, more than thirty years ago.

1868. 1. *Cholera.*—The suspicion expressed in my former paper that it had appeared in Morocco was confirmed. Tangiers and Ceuta were infected in the early part of the year, and Mogadore and other districts in Morocco subsequently. Besides the island of St. Thomas, Cuba continued to be the seat of the pestilence; and it is said to have reappeared in Guadaloupe towards the end of the year. It has been already stated that several districts in Persia were still infected. Where, and to what extent, it prevailed in India, or elsewhere in the East, I am unable to say.

2. *Yellow fever.*—It appeared in Callao and Lima in the spring, and both towns suffered disastrously in the summer.[1] The port of Islay, and the shipping at the Chincha islands, were sickly. About the same time, a bad form of typhoid fever prevailed in the northern inland districts of Peru and Truxillo on the coast, and also in the provinces of Ecuador and Venezuela. Nicaragua, and other regions of Central America, are said to have been infected with a similar disease. In Cuba yellow fever continued to appear; in this island, indeed, it seems to be persistent from year to year, and to be seldom, if ever, quite absent for any length of time. Towards the end of the year, or the beginning of 1869, Martinique was attacked. In the islands of St. Jago and Brava, of the Cape de Verde group, yellow fever existed from July to November.

In closing these brief epidemiological notes, it may not be without use to annex a few memoranda about some epizootic phenomena during the period embraced. That there are inter-relations, direct and indirect, between spreading diseases in man and in the lower animals can scarcely be questioned, although as yet very little has

[1] A terrific and very extensive earthquake along the coast of Peru occurred in August of this year The destruction of life and property was very great.

been done in the way of exact inquiry to establish the connection. Hitherto, as far as I am aware, no systematic record of murrains from year to year, in any country or region of the world, has been attempted; neither does any trustworthy history of the chronological development and course of any notable epizootic, over a wide extent of the earth's surface, exist. For several years before the recent occurrence of the "rinderpest" in Great Britain, it had been prevailing, with varying severity, in many parts of Eastern and Central Europe. As far back as 1857, the subject had excited the attention of the Privy Council, and Mr. Simonds had been sent over to the Continent to study the disease. But, notwithstanding the great and increasing importation of foreign cattle, no traces of the distemper in our midst occurred till 1865, about the same time that the cholera cloud in Egypt began to awaken suspicion of another widespread invasion of that remarkable pestilence. During the previous two years, there had been an excessive prevalence of destructive murrains, not only throughout the whole of Egypt as well as in Syria and Asia Minor, and in many countries in the south of Europe, as Spain, Italy, Dalmatia, &c., but also in Southern Africa, and in different parts of Australia, where the losses were very great in 1864. From the imperfect data that have been published, it is impossible to determine the exact nature of the disease or diseases in these widely remote regions of the world. In the southern hemisphere, it seems to have been chiefly the "pulmonary murrain" which prevailed; while in Egypt and in southern Europe the "carbuncular murrain" appears to have been associated with it, and also with the "rinderpest." But there is much uncertainty about the whole matter. The last-named disease (to which the special name of "cattle-plague" has been rather unwisely restricted) has so absorbed attention that comparatively but little regard has been paid to the others. The history of the "pulmonary or lung murrain" is full of interest. Unknown, it is said, in the United Kingdom during the present century till about thirty years ago, it has not entirely ceased ever since, although subject to occasional subsidences and recrudescences.[1] For several successive years, ending 1861, so severe were its ravages among our herds in Great Britain, that the annual money loss has been officially stated to be not less than two millions sterling. Ireland, too, although she escaped the rinderpest, has

[1] Dr. Greenhow remarks, in reference to the occasional increase of prevalence of the disease: "One of these periods began in 1857, and still continues. What renders these cattle epidemics (the 'foot and mouth disease' and the 'pulmonary murrain,' or 'exudative pleuropneumonia,') peculiarly interesting in connection with the present subject is the fact that, although at the time of their appearance 20 years ago they were new to our dairymen, farmers, and conductors, pulmonary murrain, preceded by an eruptive murrain, prevailed about the middle of last century just before the outbreak of diphtheria which then occurred." Treatise on Diphtheria, 1860.

suffered most heavily from the lung disease. Professor Fergusson, of Dublin, says that the losses from it during the last two or three years have exceeded those from the cattle-plague in England; and that, although unknown there till 1839, it has now become endemic.

If the views of this gentleman, that the invasion of many epidemic diseases is generally preceded by the occurrence of maladies of a similar type among the lower animals, be confirmed by subsequent observations, a fact of no small importance would be gained to science. Such was the case, according to him, in respect of the outbreak of maculated fever (cerebro-myelitis) in Dublin and other parts of the country three years ago; and he has remarked that the prevalence of puerperal fever in lying-in-hospitals has very often followed immediately upon seasons in which there has been an unusual amount of sickness among parturient cattle.

However ignorant we may be respecting the natural history of epizoötic maladies in respect of their origin, and varying prevalence and spread, of this one point we have been certified by recent observation and experience, viz. that their frequency and extent, as well as their severity and fatality, may be materially controlled and diminished by the adoption of simple precautionary measures; by maintaining thorough cleanliness in cattle-sheds and stables, by the free circulation at all times of pure air through them, by preventing over-crowding, by separating the sick from the healthy, and by the diligent use of appropriate disinfectants.

Art. III.

Typhoïd Fever in the West Indies. By William H. Stone, F.R.C.P., &c., late Secretary to the Board of Health in the Island of Trinidad.

In my previous communication an attempt was made to give a general sketch of the circumstances, climatic and others, under which this epidemic made its appearance. Fever so called was far from unknown to the inhabitants; indeed, there was an obvious inclination to apply the term to all and every form of indisposition. By their own accounts the whole population was suffering from "fever." This wholesale error in nomenclature, which is common in the West Indies, seems partly due to the indolent and prevaricating character of the negro race: any convenient excuse for neglecting duty when it clashes with inclination is habitually clutched at, and none answers better than the plea of illness. The misnomer is also in part an inheritance of old medical theories

and doctrines long exploded among advanced students, but enshrined in the memory of the public. For instance, walking in the heat of the day, the bite of a centipede, the sudden waking of a child from sleep, are said to be infallible causes of "fever." Every illness of whatever nature was similarly described. In my own case, a syncopic attack due to overwork and anxiety was explained to me as the usual onset of "fever," though I am happy to say that the result entirely negatived the diagnosis. A severe and fatal case of scorbutic dysentery, in which I was able by post-mortem examination to confirm my expressed opinion, had been considered, and I believe treated as fever. But the most singular instance of this prevalent misconception occurred in a case of acute meningitis consequent on abscess of the middle ear, where, although the autopsy showed all the pathognomonic signs of an affection, the symptoms of which were perfectly clear during the illness; the relations, persons of high standing and liberal education, persisted in considering the death as due to tropical fever.

Ague, in its more violent forms, is far from uncommon; indeed, considering the circumstances narrated in the previous paper, it is very remarkable that it does not prevail with greater severity. Remittent fever proper is common. From time to time severe cases, frequently fatal in their results, accompanied by jaundice and bilious symptoms were brought under my notice. One of these, in a young man of colour, afforded me the opportunity of testing the alternate rise and fall of the temperature by means of the thermometer. When I first saw him, on the fifth day of the attack, he was collapsed and cold, very restless, but only semiconscious. The hepatic dulness was greatly extended, and there was oozing of sanguinolent serum from the mouth. On the next day he was sensible, but great subsultus tendinum persisted, jaundice had appeared, the temperature was 96°·8 in the axilla, the pulse 96, the respirations 22 in the minute. On the following day, the seventh of the attack, the temperature had risen to 102°·4, the pulse to 120, the respirations were 18, the restlessness and subsultus were much increased. The next day the temperature had sunk again to 95°·9, the pulse to 92, slight delirium and twitching continuing. After one or two more alternations, the case terminated fatally. The symptoms here named come close to those of yellow fever, instances of which from time to time occurred during my stay in the island, and have done so since, though never in an epidemic form. Those that I saw were however very unlike any form of remittent fever, especially in the perfect continuity of the symptoms and the comparative absence of delirium. In connexion with this subject my attention has been drawn since my return by my friend Dr. Milroy to some remarks in an excellent paper contributed to this Journal in 1862 by Dr. Robert

Lawson. In concluding an able account of yellow fever as seen in Jamaica, he remarks:

"Fevers in tropical climates are by no means so simple or well-defined in their forms on all occasions as many suppose; on the contrary, they are often very complicated. I have known cases commence as remittent, and continue as such from the sixth to the tenth day, having an intermission on the morning of these days, yet the same afternoon fever recurred, which soon took on the character of yellow fever, and proved fatal on the fourth or fifth day of that form, with black vomit, and other unmistakable symptoms of this disease. I have seen in other cases, which commenced as intermittent, diarrhœa ensue; after three or more tertian periods, the fever became continual, assumed the character of typhoïd fever, and ultimately presented the affection of the kidneys and urine seen in yellow fever, and then terminated in death. On examining the bodies, the intermixture of the morbid appearances peculiar to yellow and typhoïd fevers were detected in variable proportions as already detailed."

It is to be wished that Dr. Lawson would extend the incidental remarks here quoted into a separate communication, which could hardly fail to be of great interest; to me they are particularly valuable, because they corroborate and, indeed, to a certain extent, anticipate the observations which I had made independently in another of the West Indian islands.

The access of typhoïd fever was from the causes above suggested more than ordinarily stealthy: in the majority of cases there was a period of four or five days, during which actual remission occurred. Two cases, one of them unfortunately fatal, which took place in the family of the Hon. Dr. Mitchell, exhibited this peculiarity in a high degree. In my notes of the former and fatal case I find as follows: "Patient has been ill four days, at first suffering from intermittent attacks, with gradual diminution of the intermission, until the illness has become almost continuous for the last two days; total loss of appetite and prostration, slight purgation after a dose of calomel." On the same evening the pulse was 120, full; the skin hot, with commencing perspiration, just as in the latter stage of an ague fit. But some gurgling in the right iliac fossa was detected. She had by this time taken 120 grains of quinine, twenty grains very recently, without effect. There was then no delirium, and the expression was favorable. On the following day, however, the disorder was fully established. The face was heavy and dull, the pulse 96, she had had a restless night, six evacuations of the bowels; there was slight abdominal tenderness, and distinct cæcal gurgling. This case, which I shall have to mention again in reference to the temperature, got steadily worse till the 13th day, when death took place from insomnia and obstinate delirium. About three weeks

later, the sister of this patient was attacked with the same complaint, and although we were fully alive to the probable cause of illness, I find my friend Dr. Mitchell notes that "in this case the real nature of the disease escaped attention till the evening of the fourth day, but might, perhaps, have been detected twenty-four hours earlier." During the first three days, the remissions were apparently complete, and the disorder seemed to yield to quinine. She was convalescent on the twenty-seventh day.

The Hon. Dr. De Verteuil also, in an excellent analysis of cases under his care, says: "The fever began with all the characteristics of remittent fever—cold hands and feet, regular exacerbations, with local or partial sweats. Generally, the exacerbations took place in the evening, the patient being more or less free from fever in the morning. In one case, for nearly a week the fever appeared to be intermittent, quinine having failed."

Diarrhœa was comparatively rare even in well-marked cases. The evacuations presented, indeed, the usual characters of the disease, but appeared as a rule to be less frequent than in the European variety. How far this was due to the great cutaneous transudation which the high temperature causes, it is difficult to ascertain precisely. The presence of abdominal disease was often first indicated by gurgling on pressure in the right iliac fossa, sometimes, but not invariably, accompanied by tenderness.

Hæmorrhage from the bowels was of frequent occurrence, and epistaxis at the outset of the attack was several times noticed. Dr. De Verteuil says, "Intestinal hæmorrhage was rather common; it generally occurred from the eighteenth to the thirty-seventh day; it was at times so profuse as to cause death." On the whole, however, this symptom did not appear to be so grave in its import as in the epidemics of colder climates. In one case which I saw with my friend Mr. Knaggs, the Rev. Mr. H—, it appeared to be critical, and its onset coincided with the cessation of violent and protracted delirium, which had for some days seriously threatened life.

Taking the frequency of abdominal hæmorrhage in relation to the obvious congestion of the liver so often present, I was led to consider it rather as one of the modifications due to the remittent element of the disease than to the primary typhoïd. This view is strengthened by the fact that some fatal cases actually ran on to black vomit and suppression of urine. Two such were reported by Mr. Dasent, the patients being fourteen and nine years old. The illness in both cases "began with violent bilious vomiting, followed by symptoms of pure typhoïd, with muttering delirium and purging, and the sequel was suppression of urine and black vomit. One case went off very suddenly with tetanic symptoms, and rigidity of the muscles of the jaw and back."

The Hon. Dr. De Verteuil draws my attention specially to the symptom in question, and his remarks are so pertinent as to deserve quotation in full. He narrates a case where the symptoms of typhoïd, though recognised, were so slight as not to require confinement to bed, and to permit of removal from town. On arriving at her country abode, "the only bad symptom was sleeplessness for at least seven or eight days. She had the hæmorrhage during the night, and on that very night not only did she not sleep one single moment, but tossed about, and at times would shriek for a quarter of an hour. When asked by her father why she shrieked so, and whether it was from pain, she answered in the negative, but stated that she could not refrain from it, and that she felt relieved thereby. This intestinal hæmorrhage I consider a very remarkable feature of the prevailing epidemic. I have seen nothing like it before. The proportion of cases is very large compared to the fever cases I have attended. I believe that in some cases we can prognosticate whether there will be hæmorrhage, but only when it is to be severe. From the very second day I saw Miss L. G—, a young girl of about ten years, I declared to her friends that probably she would have hæmorrhage. The symptoms indicative of such an accident are, as far as my observations go, the following: strong febrile action; I mean hot skin, quick and strong pulse, great tenderness of abdomen and pain in the iliac region, sleeplessness, jactitation, and excessive irritability. When after such symptoms the patient begins to shriek, and is dissatisfied with everything, be prepared for hæmorrhage." This evidence is of great value, not only from its precision but from the long experience and high character as an observer which the narrator possesses. It goes far to confirm the statement which I made in the previous number, that typhoïd fever on this occasion made its first acknowledged inroad in the island of Trinidad.

In marked contrast to the usual mildness of the gastro-intestinal symptoms was the great severity of the cerebral disturbance. Protracted insomnia, subsultus tendinum, and delirium, at times almost maniacal, were very common. In the case of the Rev. Mr. H—, already cited, the latter symptom was so urgent, that I recommended a subcutaneous injection of morphia. A grain, however, of the drug given in a single dose by the mouth, and the access of intestinal hæmorrhage determined a recovery, which at one time seemed hopeless. In the case of Miss M—, one of the earliest and most severe which I saw, the fatal result was preceded by such obstinate head symptoms, that I was led to the opinion that tubercular meningitis had supervened on pure typhoïd fever in a member of a family admitted to be subject to tuberculosis. In the light of subsequent cases, however, I feel inclined to modify this opinion, although, unfortunately, the crucial test of a post-mortem examination was refused me. Perhaps the most striking case which I

saw of predominant head symptoms was that of a Portuguese shopkeeper, whom Mr. Knaggs was attending. Violent cerebral disturbance followed by complete coma, in which condition I visited him when moribund, perfectly simulated cerebral inflammation; a diagnosis which we should probably have made had we not both been warned by previous experience, that the remark shrewdly made by Thucydides of the plague at Athens was true of the prevalent fever, namely, that all illnesses either were fever, or ended in it. The autopsy showed extensive and characteristic ulceration of Peyer's patches, and nothing else.

My friend and successor in office, Dr. Bakewell, called me to a case which bore the same interpretation, though in a different direction. It terminated somewhat suddenly, and thus I was unable to visit the patient, a young healthy negro girl of about ten years old during life. The violent and persistent pain in the lower thoracic and upper abdominal regions had led to a provisional diagnosis of acute pleurisy, but on examination the pleuræ were found perfectly healthy, and the old enemy unmasked himself in the familiar form of abdominal typhoid.

Throughout the epidemic it occurred forcibly to me that the predominance of head-symptoms, far exceeding those usually observed in typhoïd fever, both in frequency and severity, might be another of the local modifications superinduced on the original type by the remittent element, and in some sort akin to the peculiar cunning delirium, bordering on insanity, so often noticed in cases of yellow fever.

Perhaps the most distinct and characteristic symptom was the increase of temperature. To this element I paid minute attention, inasmuch as it not only furnished interesting observations, but served as a trustworthy guide for prognosis. Indeed, the onset of purely typhoïd symptoms, when coming on the top of remittent attacks, could hardly be determined by any other method. In severe cases the degree of heat recorded was singularly high; in one, observed by the greatest care, the degree, shortly before the fatal termination, was 107°·7; in another, 104°·6 on the tenth day of the fever; in a third, 104°. Both these cases ultimately recovered.

To secure correct readings at these high temperatures, it was necessary to use considerable care, and to leave the instrument for nearly ten minutes in the axilla. At times this was accomplished with difficulty from the delirium and restless movements of the patient. In every case the frequency of the pulse was also noted; in only one case did this rise to 126, coincidently with a temperature of 103°·8. The common maximum was 120, corresponding in the fatal case mentioned above with the temperature of 107°·7. In another member of the same family the heat of 103° was twice attained with a pulse of 90 and 92. I have prepared

diagrams of temperature and frequency of pulse for some of the most marked cases, and have to thank the Hon. Dr. Mitchell for several valuable contributions in this department, although space prevents their being given in detail. There was no evidence to show that the warmth of the climate in any way modified the indications of the thermometer, which agreed fairly with observations made in colder countries.

It has already been stated that the onset of the fever was marked by distinct periodicity. It has to be added that this peculiarity, which disappeared entirely during the severity of the disease, was apt to reappear towards convalescence. A marked case of this kind was shown to me by Dr. Espinet, the able physician of the Leper Hospital. It was in the person of a fine young coloured woman, who had gone safely through the first three weeks of the malady in the usual form. But about the setting in of convalescence, improvement seemed to stop suddenly, she lay in a collapsed and semiconscious state, getting neither better nor worse. After some days of this, a very slight trace of increased heat and moisture of the skin towards evening led us to suspect intermittency, and the rapid success of quinine in restoring her to health confirmed the diagnosis.

This is the last point to which I need draw attention. Directly the continued form of fever was declared, this drug, usually so efficacious in aguish regions, lost its power completely, and even appeared at times to increase the febrile symptoms. Dr. De Verteuil, and all the other practitioners, admitted this important fact. Quinine, as well as calomel, enjoys in the West Indies an exaggerated reputation, partly traditional, but consequent in great measure on the constant complaints of fever mentioned above. On this occasion it failed in the hands of its warmest advocates; and it must be admitted that there was hardly anything which could be advantageously substituted for it. My own impression was that wine and stimulants generally were less needed, and not so well borne as they are in England. A very popular stimulant in the island is musk, which was, in several cases which I saw, administered in considerable doses. I cannot say that I observed either here or elsewhere any result whatever from its exhibition, except an oppressive addition to the smell of the sick room, and at times troublesome eructations on the part of the patient.

The disorder ran its course with a singular indifference to treatment, which was in the end pretty generally limited to the mitigation of dangerous symptoms, and to the support of the strength by concentrated nourishment. In a few cases Dr. Mitchell tried the hyposulphites, and I think that the results were such as to call for a further trial if it should unfortunately be needed; but the observations are too few to enable me to speak decidedly on the subject.

In conclusion, I have to excuse myself to the readers of the 'British and Foreign Review' for the long interval which has elapsed between my former communication and the present. Shortly after the appearance of the first paper, I was requested by the authorities of St. Thomas's Hospital to edit and arrange a statistical report, for which materials had already been five years accumulating. This work, which necessarily took precedence of all other, has only just come to an end, thus enabling me to fulfil somewhat tardily my private literary engagements.

PART FOURTH.

Chronicle of Medical Science

(CHIEFLY FOREIGN AND CONTEMPORARY.)

REPORT ON MIDWIFERY.

By ROBERT BARNES, M.D. LOND., F.R.C.P.,

Obstetric Physician to St. Thomas's Hospital, &c. &c.

I.—THE NON-PREGNANT STATE.

1. *On the Etiology of Vaginismus.* By Dr. NEFTEL.
2. *On the Scar-like Streaks on the Skin of the Thighs.* By B. SCHULTZE.
3. *A Pelvis with Abnormal Mobility of the Synchondroses.* By Dr. AWATER.
4. *Extirpation of an Uterine Myoma by Gastrotomy.* By Prof. MARTIN.
5. *Contribution to Hysterotomy.* By OPPEL.

1. Neftel observed in three young women severe vaginismus, and at the same time distinct lead-poisoning, the result of using a strong lead-cosmetic. When cured of the lead-paralysis the vaginismus yielded.—*Centralbl. f. die Med. Wissensch.*, 1868.

2. B. Schultze disputes the correctness of attributing the scar-streaks on the front of the thigh to pregnancy. In 222 females between fifteen and 35 who had perfectly smooth scarless bellies, and who he was satisfied had never had children, he found the streaks on the thighs in 80 per cent. Similar streaks are sometimes found in men, but much more rarely. Schultze is inclined to attribute them in women to the great transverse growth in the region of the hips at puberty.—*Jenaisch. Ztsch. f. Med., &c.*, 1868.

3. Dr. Awater exhibited to the Berlin Obstetrical Society the pelvis of a girl, æt. 18, who had died of typhus. The sacro-iliac synchondroses could be separated 2‴. Professor Martin thought the change was of an inflammatory character.—*Mon. f. Geb.*, 1869.

4. Professor Martin relates a case in which he extirpated a myoma of the uterus by gastrotomy. The tumour was large, had grown quickly, and was causing dysuria, and œdema of the feet. The patient insisted upon having relief. Her circumference measured forty-four inches. The uterine sound ran about three inches. The body of the

uterus was movable in relation to the tumour, which was the size of a man's head. An incision was made along the linea alba. Adhesions to the tumour were cut through. The tumour was attached by a stalk the size of a thumb to the fundus uteri. A clamp was applied to it, and it was cut close to the tumour. In the evening the patient complained suddenly of vertigo and sickness. The abdomen swelled; the pulse became hard to feel. She died under symptoms of internal hæmorrhage. The tumour weighed twelve pounds and three-quarters. Autopsy revealed hyperplasia and neoplasmata of the uterus, chronic peritonitis, chronic perimetritis, dropsy of the Fallopian tubes, and lymphectasia. More than three quarts of black recent blood, mixed with coagula, was found in the abdominal cavity.—*Monats. f. Geburtsk*, 1869.

5. Dr. Oppel reports forty-two operations for hysterotomy performed by Gustav Braun. Braun uses scissors and lancet-knife. The wound is plugged with cotton-wool steeped in perchloride of iron. It commonly heals in twelve to seventeen days. Of forty-two women operated upon on account of sterility or dysmenorrhœa, thirty-five were cured; in seven, pregnancy followed. In seven cases the benefit was small or not ascertained.—*Wien. Med. Presse*, 1868.

II.—Pregnancy.

1. *The Villi of the Human Amnios.* By Winckler.
2. *Persisting Vasa Omphalo-mesaraica in the Placentas of Mature Children.* By Dr. G. Hartmann.

1. The villi of the amnios of ruminants have been mentioned by older authors. H. Müller, Kehrer, Dohrn, found them on the human amnios. Winckler in 200 afterbirths has never missed them. Their original site is the amniotic fold, on which they cover a tongue-shaped space, close to the insertion of the umbilical cord. Like Birnbaum, Kehrer, and others, Winckler found these growths mostly in the shape of granules, sometimes resembling the papillæ circumvallatæ; their size was that of a pin's head or bigger. Winckler associates them with the development of the navel-skin.—*Jenaische Ztschr. f. Med., &c.*, 1868.

2. Dr. Hartmann quotes Hecker as stating that a case in which the vasa-omphalo-mesaraica were found persisting in a mature placenta was unique; he further quotes Schultze as stating that this condition is constant. He then relates several cases, and figures the vessels found. (Twenty-five years ago the umbilical vesicle and the omphalo-mesaraic vessels were shown to me in mature placentas by the late Dr. Bloxam, who described their presence as constant.—R. B.)—*Monats. f. Geburtsk.*, 1869.

III.—Labour.

1. *On the Induction of Premature Labour.* By J. Brunton.
2. *Artificial Induction of Labour on account of threatening Asphyxia from Complicating Ovarian Tumour.* By G. Hartmann.
3. *The Formation of Projecting Lips or Folds on the Posterior*

Surface of the Symphysis Pubis in its relation to Labour. By Dr. Hennig.

4. *On Face Presentations.* By Dr. Spöndly.
5. *Labour obstructed by the spontaneous Entry of the two Heads into the Pelvis in a Twin-birth.* By Dr. Rintel.
6. *A Case of Cæsarian Section for Osteomalacic Pelvis.* By Dr. Fasbender.
7. *On the Complication of Childbed in the Fibrous Polypi of the Uterus.* By Dr. Horwitz.
8. *Strychnia in defective Uterine Contraction.* By C. Handfield Jones.
9. *Abortion caused by Variola Hæmorrhagica.* By Dr. Paulicki.
10. *On Rupture of the Vagina in Labour.* By Dr. Braxton Hicks.
11. *Notes of a Case of Separation of the Uterus from the Body by Laceration during Labour.* By T. Paget and E. R. C. Denton.
12. *Observations on a Case of Sudden Death after Delivery from Embolism of the Pulmonary Artery.* By Dr. W. S. Playfair.
13. *Subcutaneous Injection of Morphia and Aconite in Convulsions after Labour.* By R. M. Bowstead, M.D.
14. *Two Cases of Cephalotripsy to the after-following Head in Rupture of the Uterus.* By Dr. Grenser.
15. *Uterine Abscess in Childbed (Thrombosis—Embolism), unavailing Transfusion.* By Dr. Hennig.
16. *Spondylolisthesis.* By Dr. Ender.
17. *Head Presentations and Pelvic Presentations in a flat, contracted Pelvis.* By Dr. Hoening.

1. Dr. Brunton relates six cases, and states arguments in favour of Lazarewitch's plan of injecting water at the fundus of the uterus. In some cases labour set in immediately, in some as late as twenty-five hours after the injection.—*Glasgow Med. Journ.*, Feb., 1869.

2. In a woman pregnant, and afflicted with an ovarian tumour, the genitals became excessively œdematous, rendering scarifications necessary. Dyspnœa became extensive through the double pressure. It was determined to induce labour. A sponge was placed in the os uteri, then a catheter, and the labour took place. A child, weighing $5\frac{3}{4}$ lbs., alive, was born. The placenta was cast. The cyst grew rapidly after the labour, and the œdema also increased, so that, at the end of the ninth week, it was necessary to puncture the cyst. The patient recovered.—*Mon. f. Geburtsk.*, 1869.

3. Dr. Hennig calls attention to the not infrequent projection formed behind the symphysis pubis by the eversion of the ossa pubis at the line of junction. This mostly happens in rachitic subjects, and may lead to dystocia. Hennig relates three examples. In one case Hennig says the excrescence disappeared during childbed.—*Ibid.*

4. Dr. Spöndly discusses the history of face-labours by analysis of 56 cases, of which 28 occurred in hospital and 28 in private practice;

27 were first labours, 29 in pluriparæ. Of the children, 29 were boys, 24 girls. In hospital 23 cases ended spontaneously, 4 by forceps, and by Cæsarian section after death caused by internal hæmorrhage. In private only 7 cases ended spontaneously, 18 by forceps, 1 by turning, 2 by cephalotripsy. The contrast between hospital and private practice is explained by the fact that in private the practitioner is almost exclusively called in to difficult cases. Five mothers died of the spontaneous labours, 2 resulted in loss of the child. Of the artificial labours, in 19 the child was lost. There is nothing definite as to the production of the malposition, or as to rules of treatment.—*Ibid.*

5. Dr. Rintel's case is as follows:—A midwife found a breech presentation. Extraction was effected as far as the shoulders. The head resisted. Rintel called in, found a second child in utero. He applied forceps, and to his astonishment delivered this second child first. The first then followed. The child delivered by forceps and mother did well.

6. The subject of Dr. Fasbender's operation was a woman, æt. 31, pregnant for the fifth time. Osteomalacia had probably begun in her third pregnancy. Her dwelling was damp; her food chiefly potatoes, coffee, and bread; her condition generally one of distress. Being in labour, an endeavour was first made to open up the pelvis by the hand: this succeeded to a certain extent, but the Cæsarian section became necessary. It was done in the ordinary manner. A living child was extracted, which with the mother did well.—*Ibid.*

Dr. Fasbender gives reference to other cases, in which the pelvis was expanded by the hand. In discussion upon the case it was stated, on the authority of Dr. Levy, of Copenhagen, that osteomalacia was frequently observed in a prison in that town, where the women were fed on horseflesh; but it was admitted that other causes might have influence.

7. Horwitz discusses at length the history of the complication of polypi with pregnancy. In relation to childbed, he says, the complication is dangerous to life, less through hæmorrhage than through metamorphosis of the tissues of the polypus. Expulsion following gangrene is very rare; inversion of the uterus, also, is rare. With advancing involution the polypus commonly shrinks, at times quite disappears. The most important condition of all has been little noticed. All the conditions for inflammation and thrombotic processes in the polypi are present; the inflammation spreads to the uterus, is developed in a richly-vascular seat, and leads to suppuration and its consequences—septic infection. To avoid these Horwitz urges prompt excision of the polypus. He relates four cases which distinctly confirm the foregoing conclusions.—*St. Petersburgh Med. Ztschr.*, 1868.

8. Dr. C. H. Jones believes that strychnia has a valuable power of inducing contraction of the uterus after labour. He cites one case. The dose he recommends is one thirtieth to one twentieth of a grain two or three times a day. This dose, given to the mother, he thinks, is not dangerous to the suckling infant.—*The Practitioner*, 1869.

9. Dr. Paulicki observed, in the hospital at Hamburg, three cases of variola hæmorrhagica in pregnant women. Abortion set in with violent symptoms, fever increased, and death followed. In one case the woman was four months gone. Flooding followed the expulsion of the ovum. *Autopsy*—A small show of petechiæ on the breast and legs; under the pulmonary pleuræ numerous punctate ecchymoses. Hæmorrhagic spots were found in the mucous membrane of the trachea and bronchi, and in many other tissues throughout the body. —*Mon. f. Geburtsk.*, 1869.

10. Dr. Hicks discusses the mode in which laceration of the vagina is produced in illustration of a case of alleged malapraxis, in which the uterus was entirely separated, and came away with the placenta attached. He shows that the transverse or circular rent of the vagina is effected by the uterus itself.—*Lancet*, 1869.

11. Messrs. Paget and Denton narrate a case in confirmation of the explanation given of the case referred to by Dr. Hicks. S. F— was delivered after a labour of ordinary severity by a midwife. The placenta was removed with little traction twenty minutes after the birth. To this was attached the whole uterus, Fallopian tubes, and ovaries. The woman died in forty-five minutes. It seemed clear that the rupture was not caused by any violence on the part of the midwife. It is observed, with perfect truth, that no force can be applied to lacerate the uterus from its pelvic attachments until it is inverted, and wholly outside the vulva. Neither in this case, nor in the preceding, was the uterus inverted.—*Brit. Med. Journ.*, 1869.

12. Dr. Playfair relates a case of death from embolism, rendered especially valuable by the post-mortem history. J. W—, æt. 21, six months pregnant, went into King's College Hospital, and was operated upon for fissure in the rectum on the 5th December. On the 13th pulse and temperature rose, and respirations rose to 40. Labour pains set in, and the child was expelled next day. "Extreme dyspnœa, countenance excessively pale, face expressing extreme anxiety. No pulse at wrist, nor at the posterior tibial artery. Sounds of heart almost *nil*." She called incessantly for air, said she was being suffocated. She died at 7.45 a.m., and during the last few seconds the face was convulsed. *Autopsy*—Lungs quite healthy; heart healthy. The right side was extremely distended, also the large veins of the neck and the two cavæ; left ventricle small, pulmonary veins nearly empty. The right side was filled with a soft black coagulum; it appeared to be a recent post-mortem clot. At the bifurcation of the pulmonary artery plugs of firm fibrine were found obstructing the passage of the blood. In the centre of these plugs was a piece of fibrine the size of an almond, at the base of which was an irregular surface, which fitted closely to a corresponding rough surface in a clot in the iliac vein. This was the origin of the embolus.—*Ibid.*

13. Dr. Bowstead relates two cases in which the subcutaneous injection of two minims of Fleming's tincture of aconite and one third of a grain of morphia seemed remarkably successful.

14. Dr. Grenser relates in his "Report of the Events in the

Dresden Lying-in Hospital," two cases of rupture of the uterus in which cephalotripsy was resorted to after turning. In one the patient had previously undergone two hard labours. The true conjugate was 2″ 8‴. The head presented. After forty-eight hours labour severe pain was felt in the belly, and the head was no longer felt above the brim. A rent, 3″ long was felt in the posterior wall of the uterus. The child was brought down by turning, and the cephalotryptor applied. The placenta, which had escaped into the abdominal cavity, was removed. Hæmorrhage great. Patient died two days afterwards with severe peritonitis. The uterine walls near junction of body and cervix were extremely thin. The rent ran longitudinally. *Second case.*—A rachitic woman had previously been delivered by perforation and forceps. The conjugate measured 2″ 6‴. Labour very slow; head movable on brim. In the midst of considerable pain the uterine contractions ceased, and the head was higher above the brim. A rent was felt to the right posteriorly, running from the body of the uterus through the neck to the vagina. Turning, extraction, and cephalotripsy were resorted to. Hæmorrhage great. Peritonitis set in immediately, and destroyed the patient on the second day. Here, also, on section, a remarkable thinning of the womb at the site of laceration was found.—*Monats. f. Geburts.*, 1869.

15. Dr. Hennig reports a case of abscess of the uterus, an organ little disposed to this affection. A woman recovered very slowly after her second labour; and after the third and last, had a severe hæmorrhage. This was followed by secondary hæmorrhage. Injection of vinegar or perchloride of iron always stopped it, but it returned. The uterus was low in the pelvis and fixed. Syncope repeatedly occurred, so that transfusion was resorted to. Blood, whipped and filtered, was used, but very little could be thrown into the veins. The patient died three hours later. A fibrinous clot was found in the vena cava, filling the right auricle, in which was also a loose thrombus, probably an embolus from the uterine vein. The fibrinous clot extended into the pulmonary arteries. In the right median vein, close to the point of puncture, and nearly filling the calibre, was a firm clot, extending to the basilien. This head no doubt hindered the transfusion. The lungs were œdematous. The uterus was fixed at the left to the pelvic wall. A little above the os uteri were two openings; the larger was the uterine cavity, the smaller led to the left into the cavity of an abscessus gangrenosus parametriticus. A bit of decomposing matter, resembling placenta adhered. In a branch of the much distended left uterine vein, which ran close to the cavity of the abscess, was an old decomposing thrombus, from which a portion had become detached, and become arrested in the right auricle, and had given rise to the sense of oppression felt during life. The author traced the cause of the process to the penultimate labour.—*Ibid.*

16. Dr. Ender relates a case of spondylolisthesis. A woman, æt. 31, was admitted pregnant at the Maternity at Frier. She looked well formed, exciting no suspicion that she had pelvic contraction. She

had, however, over-hanging belly in an extreme degree. The promontory could be reached by two fingers. The external conjugate measured $7\frac{1}{2}''$; and in taking this the peculiar abnormality was discovered, for the sacrum projected strongly backwards, whilst immediately over it, the lumbar vertebræ were pushed forwards. The woman said that two years before she had, whilst lifting a heavy basket, suddenly felt severe pain in the sacrum, which gradually subsided in fourteen days. The basket is the "hotte," or, in German, "tragkorb." In using it the person stoops as much as possible, so as to get the shoulder-straps over the shoulders, and then has to rise with the burden. During this act probably the vertebra slipped forward at a spot previously diseased. Labour at term was waited for. The cervix dilated slowly. The head was felt with difficulty. After fifty hours the forceps was applied with great difficulty; strong traction was used, but no advance followed. The head was then perforated. The child was then extracted. Fever set in after a few days. On the twenty-third day, on making an examination, suddenly a stream of pus escaped from the vagina. The patient died of irritative fever on the thirtieth day.

There was complete spondylolisthesis. The last lumbar vertebra had slipped down from the upper sacral vertebra about three inches forwards; the lumbar spinal column was a little rotated, so that the right portion of the projecting anterior edge of the fifth lumbar vertebra was lower than the left. The lumbar vertebræ projected strongly into the pelvic cavity. No intervertebral cartilage could be discovered. The cause had obviously been a caries of the surfaces of the bones.—*Ibid.*

17. Dr. Hoening, of Bonn, relates a very interesting case in illustration of the practice of delivering by the feet in contracted pelvis. A woman who had been delivered at term of six dead children, came under observation at the obstetric clinique in four subsequent pregnancies. In each of these labour was induced at about seven months. In two the child presented by the head, and was born dead; in two it presented by the breech or feet, and was born alive. He says the adaptation of the first-coming head to the deformed pelvis is small, and that the fear of compression of the cord when the head comes last is also small.—*Ibid.*

IV.—The New-born Child.

1. *Simple Mode of Performing Artificial Respiration in Asphyxiated Children.* By C. Handfield Jones, M.D.
2. *The Catheterisation of the Air-passages of New-born Children in Asphyxia.* By Dr. Haake.
3. *Case of Spina Bifida and Hydrocephalus, with Bursting of the Head.* By T. E. Amyot.
4. *Spina Bifida; Injection with Iodine; Recovery.* By M. Roux.

5. *On the Possibility of an Infant being Poisoned by Strychnine through the medium of its Mother's Milk.* By Dr. G. Harley.
6. *Vaccination direct from the Heifer.* By H. Blanc, M.D.

1. Dr. C. H. Jones records a successful case of asphyxia in a newborn child, treated as follows:—The child was laid on its back; pressure was made on the abdomen; then the child was raised upright on its seat; and so on alternately. This alternate pushing of the diaphragm upwards and its sinking compresses and expands the space for the lungs.—*The Practitioner*, 1869.

2. Dr. Haake, referring to the experiments made in Bonn by Schroeder, gives three cases in which he sucked out inspired fluids from the air-tubes. In two the child recovered; in the one that died section showed much meconium in the fine bronchi. A solid catheter was used.—*Mon. f. Geb.*, vol. i, 1869.

3. Mr. Amyot says he has vainly searched for a case of hydrocephalus with a similar termination.—*Med. Times and Gaz.*, 1869.
Dr. F. J. Brown, Rochester, subsequently relates a case which occurred under his observation.—*Ibid.*

4. M. Roux records a case of cure of very large spina bifida sac by injection of iodine. Having made an exploratory puncture, and drawn off about an ounce of the fluid, he had the tumour so held as to occlude the opening into the spinal cord; the following solution was then injected:—Distilled water 11 drachms, tincture of iodine 3 drachms, iodide of potassium 180 grains. The liquid was left in the sac five minutes, the sac being kneaded by the operator's hand. The solution was then withdrawn to the last drop by the exhausting action of the syringe. In a fortnight there was only a hard nucleus left, no larger than a walnut. M. Roux contends that his success was due to the precautions adopted.—*Bull. de Thérapeutique*, 1869.

5. Dr. G. Harley communicates an important observation on the transit of poisonous matters through the mother's milk to the infant. A child, whose mother was taking strychnine in medicinal doses, had peculiar facial twitchings and convulsive movements in other parts of the body. These ceased when the mother discontinued the medicine. The mother manifested no physiological effects.—*Lancet*, 1869.

6. Dr. H. Blanc is pursuing in London the practice of vaccinating direct from the heifer. He founds his procedure on the acknowledged deterioration of the primal human lymph. Dr. Seaton contests this deterioration. But Dr. Blanc's conclusion appears to have the balance of authority. He calls to mind the fact that Jenner originally was content with one puncture, and that the protection it afforded was good, whilst now Dr. Marson finds protection is not good unless at least four vesicles are produced. In other countries it has been found desirable to start afresh, and there seems to be good reason why we should do the same.—*Lancet*, 1869.

The following memoirs, on account of want of space, are referred to by title only:

A Tubal Gestation. By C. HENNIG. *Mon. f. Geburtsk.*, 1869.

Swelling and Jamming of the Anterior Lip of the Os Uteri as an Obstacle to Labour. By Dr. HUBER.—*Ibid.*

Artificial Premature Labour on account of Hydramnios. By Dr. HUBER.—*Ibid.* The case ended fatally.

Retrospect of the Health-relations of the Puerperal Women in the Lying-in Clinique of the Josefs Academy in Vienna from 1st Oct., 1856, *to 30th June*, 1867.—*Ibid.*

On the Infantile Uterus. By Dr. FÜRST.—*Ibid.*

Historical and Physiological Studies on Transfusion of Blood. By Dr. ORÉ. Paris, 1868.

Studies on Lacerations of the Vulva and Perinæum. By Dr. L. C. MONTFORT. Paris, 1869.

Critical Study on Membranous Dysmenorrhœa. By Dr. JULES TROQUE. Paris, 1869.

Twenty-two Cases of Vesico-Vaginal Fistula. Treated by Dr. C. L. HEPPNER, of St. Petersburg.—*Mon. f. Geburtsk.*, 1869.

Prolapsus of the Uterus containing a Child, between the Seventh and Eighth Months. By W. ALLINSON.—*Brit. Med. Journ.*, 1869.

Observations on Vaginal Cystocele and its Treatment. By M. DEMARQUAY.—*Bull. Gén. de Thérap.*, 1869.

Contributions to the Pathology of the Ovum; Hæmorrhages through Premature Detachment of the Placenta. By Prof. HEGAR and Prof. RUD. MAIER.—*Arch. f. Heilkunde*, 1869.

The Causes of Retention of Urine after Labour. By MATTEI.—*Journ. de Méd. et de Ch. Prat.* Mattei thinks it often due to the shortening and consequent folding or bending of the urethra that takes place after labour.

Eight Cases of Placenta Prævia. By T. G. THOMAS.—*Amer. Journ. of Obstetrics*, 1868.

The Rectum in its Relations to Uterine Disease. By H. R. STORER.—*Ibid.*

Case of Rupture of the Vagina during Labour—Child partly within Abdominal Cavity for several hours. By T. B. STIRLING.—*Amer. Journ. of Obstetrics*, 1868. Recovery.

Abstract of Cases in which the Inverted Uterus was removed.—*Ibid.*, Aug., 1868.

On the Pathological Labours of Animals. By Dr. HENNIG.—*Monats. f. Geburtsk.*, vol. i, 1869.

Also, *On the Milk and Lactation in Animals.*—*Ibid.*

A Case of Acardiacus. By Dr. CREDE.

CHRONICLE OF PHYSIOLOGY.

By Henry Power, F.R.C.S., M.B. Lond.,
Ophthalmic Surgeon to St. George's Hospital.

Digestion.

1. E. Pflüger. *On the Gases of the Saliva.* ('Archiv. f. d. Gesammte Physiologie,' Band i, 1868, p. 688.)
2. D. C. Heitzmann. *On the Villi of the Small Intestine.* ('Sitzungsberichte der Kais. Akad. d. Wiss. zu Wien,' 1868, Bd. lviii, p. 253.)
3. MM. Legros and Onimus. *Experimental Investigations on the Movements of the Intestine.* 'Robin's Journal de l'Anatomie,' 6me Année, 1869, p. 163.)
4. J. Bauer. *On the Absorption of Albuminous Substances in the Large Intestine.* ('Sitzungsberichte der König. Bayer Akad. der Wissenschaft,' 1868, Bd. ii, p. 511.)

1. The animals employed in Pflüger's experiments were dogs. In the first animal, which had probably been fed on vegetable diet, 100 cc. of saliva contained—

Oxygen	0·4 per cent.
Uncombined carbonic acid	19·3 „
Carbonic acid eliminated after addition of PO_5	29·9 „
Total carbonic acid	49·2 „
Nitrogen	0·7 „

The saliva of a second animal, to which animal diet had been freely given, yielded—

Oxygen	0 6 per cent.
Uncombined carbonic acid	22·5 „
CO_2 eliminated after addition of phosphoric acid	42·2 „
Total carbonic acid	64·7 „
Nitrogen	0 8 „

The large proportion of carbonic acid in the saliva, exceeding that of any other animal fluid, is very remarkable.

2. Dr. Heitzmann observes that if a piece of the small intestine of an animal that has just been slaughtered be placed in a light yellow solution of chromic acid, lively contractions occur; and whilst certain segments are strongly contracted, others are extended, and they remain so in death. On examination of the projecting portion of the mucous membrane near the surface of section the villi will be seen of large size, forming flattened cones, more thinly scattered than those situated more within the lumen of the tube, in the contracted portion of which the villi appear as cylindrical, thread-like bodies, projecting strongly from the surface. From these and other appear-

ances he considers himself justified in stating, first, that the form of the villi of the small intestine is not fixed, but is dependent on the contraction of the intestinal tube, and varies between a cylinder and a cone, and that continuous changes of form are effected in them through the peristaltic movements of the intestine; and, secondly, that the external muscular layers of the small intestine, including both the transverse and longitudinal layers, are antagonistic in their action to the muscular layer, consisting also of both transverse and longitudinal bundles, found in and under the mucous membrane. Dr. Heitzmann goes on to remark that if the villi of an adult rabbit be examined under the microscope the epithelial cells will be found, in almost all instances, detached from the stroma of the villus, and this even when the greatest care has been taken in manipulating the preparation, the chink between the two being larger, the flatter the form of the villus. This separation is due to the strong contractions of the muscular fibre cells of the villi, and is less apparent or altogether absent in perfectly fresh specimens from very young animals. Moreover, at the apex, in all but about 10 per cent. of the villi, large numbers of peculiar cells are present, the protoplasm of which contains many corpuscles of a pale or deep green tint. A few particles of similar colour lie loose in the stroma of the villi. These corpuscles, which are, in truth, chlorophyll granules, are not found in fœtal rabbits, but they appear immediately after food has been taken, whether consisting of straw, oats, or green food; only with the former kinds of food they were yellowish or yellowish green, and with the latter more or less deep green; and also with starchy food, as with meal, bread, and potatoes. The question arises at once, how do these chlorophyll particles penetrate into the protoplasmic cell-like masses found in the villi. In some experiments previous to those now recorded, Dr. Heitzmann observed the presence of an opening at the apex of the villi, bounded by the thickened walls of the adjoining epithelial cells. It was of a crater form at the orifice directed from the interior of the villus, that is, towards the lumen of the intestine, then became constricted, again enlarge, and finally became continuous with the cavity of the central lacteal. On each side this lacteal canal is limited by a muscular band, which can be followed into close proximity with the epithelial cells. The canal is filled with granules (fat?). In some instances two canals may be seen. Further and more recent observations confirmed those just described. Yet he has not been able to convince himself that the green particles enter into the interior of the villi through the route indicated, that is through an opening at the apex of the villi. M. Heitzmann regards the beaker- or goblet-cells found on the villi, and respecting which there has been so much recent controversy, as empty epithelial cells, the protoplasm of which has escaped, and the sheath of which is alone left. In this he is in accordance with Donders.

3. In the current number of Robin's 'Journal de l'Anatomie,' MM. Legros and Onimus completes a serie of investigations on the movements of the intestines undertaken by them in the laboratories of histology and of physiology of the Faculty of Medicine, and they

thus sum up the results they have obtained. The acts of respiration and expiration induce changes of tension in the intestine which vary with the mode of respiration. The movements peculiar and proper to the intestine are of three kinds: 1. The peristaltic movement, which is the normal movement. 2. The antiperistaltic; and 3. Constriction. Every peristaltic action is characterised by a brisk retraction (resserrement) followed by a detention which persists for some space of time. Peristaltic movements can propagate themselves independently along a limited portion of the canal; after a series of contractions there is usually a prolonged period of repose. The contractions are most frequent in the upper part of the intes- in their extent, duration, and form. The tracing obtained from the tinal canal, but they do not appear to exceed eighteen in the minute. The contractions of the large differ from those of the small intestine intestine during the act of defecation is peculiar, and is analogous to that obtained after poisoning by strychnia. The movements of the stomach are not so regular and orderly as those of the intestine, and they present two forms according to whether they are observed at the cardiac or at the pyloric extremity. Antiperistaltic movements do not combine or become continuous with peristaltic movements. A peristaltic movement is due to the action of the nerve-cells of the intestinal walls, or the smooth muscular fibres contained in them. These cells themselves are subject to the influence of the cœliac plexus and of the cerebro-spinal centres. Arrest of the arterial circulation augments or induces peristaltic movements, but no analogous effect is produced by stopping the flow of blood through the veins. This pathological condition will not serve to explain the movements observed in a state of health.

Induction—*i. e.* interrupted—currents applied directly to the intestines occasion contraction at the poles, but the portion lying between the poles is relaxed. Continuous currents, on the other hand, abolish peristaltic movements, and occasion a diminution of tension if the current pursue the normal direction of the contraction, or an increase if the direction of the current is opposed to it. Galvanism of the spinal cord (continuous current) notably increases the peristaltic contractions at the moment at which it is applied. Induction currents applied to the splanchnics occasion progressive increase of the tension without determining peristaltic movements. Continuous currents applied to the splanchnics or to the mesenteric nerves or plexus, occasion peristaltic contractions. Interrupted currents applied to the pneumogastrics cause dilatation of the intestine, in which condition it remains. This phenomenon takes place by reflex action. The stomach, on the other hand, undergoes immediate contraction. Continuous currents of moderate power applied to the pneumogastrics act but slightly on the intestines, but arrest both the normal and pathological contractions of the stomach. Direct excitation of the small intestine by pricking or otherwise produces in the first instance a temporary arrest of movement, which is immediately followed by energetic contraction. Ice-cold water arrests the peristaltic movements, at the same time producing contraction; warm water renders the movements more

active. Water charged with chloride of sodium augments the energy of the movements; and croton oil and ipecacuanha also induce contractions, which augment the ordinary peristaltic movements. Saline purgatives do not augment the energy of the contractions. Small doses of atropine augment the ordinary peristaltic movements, whilst a large dose abolishes them. Morphia renders the contractions slower without altogether arresting them. Poisonous doses of strychnine cause contraction increasing during the paroxysms of general convulsion. The paper is a very interesting one, and is illustrated by numerous tracings.

4. That absorption of substances in a state of solution takes place in the large intestine, is sufficiently proved by the inspissation of the chyme that occurs in this part of the alimentary canal, and by the effects of the injection of remedial and poisonous agents. But nothing is certainly known in regard to the absorption of albumen, since even the experiments of Steinhaüser, who introduced fragments of albumen through a fistulous opening into the ascending colon of a woman, admit of doubt. In fact, the solution of albumen in the small intestine, as maintained by Zander and Busch, is opposed by the observations of Thiry, who found the pure intestinal fluid to have no solvent power on albuminous compounds, with the exception of fibrin. According to modern physiological doctrines, albumen, on account of its colloidal properties, is not capable of being absorbed in the intestine, unless it has been subjected to the action of gastric or pancreatic juice, and thus has undergone conversion into peptone; but there is no evidence that such conversion can occur in the large intestine, when raw or cooked albuminous compounds are introduced into them. Now, a means of determining whether absorption of albumen has taken place in an animal, is afforded by the examination of the urine of the dog. In this animal the variation in the amount of nitrogen daily discharged when the animal is in equilibrium, does not vary much more than one gramme, which is equal to about two grammes of urea. A preliminary experiment was first made on the absorption which occurs in the large intestine in the animal used in M. Bauer's experiments, which consisted in injecting a solution of common salt into the rectum, and then, if no diarrhœa followed, it was found that the amount of this salt in the urine was doubled. The result, therefore, was entirely satisfactory, and gave promise that the amount of albumen absorbed from the same cavity could be ascertained in the same way. In further experiments it was found that solutions of peptones were absorbed with facility, an excess of eight grammes of urea appearing in the urine. On injecting a considerable quantity of raw albumen that had been well whipped, *no* increase of nitrogen in the urinary excretion was observed; but if with the albuminous solution a solution of common salt were injected, absorption of both into the blood took place; for besides the increase of the chloride of sodium, amounting to about 7·2 grammes in the urine, there was also an augmentation of the urea, amounting to about six grammes. This increase is so considerable, that it cannot be referred to the increased

metamorphosis and disintegration of the body constituents occasioned by the common salt. Moreover, previous experiments had shown that an augmentation of the common salt amounting to ten grammes, in the urine, was only accompanied by an increase of 1·5 gramme of urea. The absorption of undigested albumen in the large intestine, effected by the addition of common salt, is very remarkable, since it shows that albumen is not absorbed even in the stomach in the form of peptone exclusively; for if the secretion of the large intestine possessed the power of converting ordinary albumen into the more easily diffusible peptone, this would also have occurred without the addition of the salt. Results of an equally striking character were obtained with an acid albumen, namely, muscle-juice extracted with hydrochloric acid. Here, also, absorption was proved to take place readily, almost as readily, indeed, as peptone, especially in an extract of meat that M. Bauer obtained by hydraulic pressure, and which contained about 15 per cent. of albuminous compounds. In cats it was found that solutions of peptone were quickly absorbed from the small intestine when introduced into loops to which a ligature had been applied in two places; but neither ordinary nor acid albumen were thus taken up, except in small quantities, and much water exosmosed from the blood. As regards the absorption of fat and starch from the large intestine of the dog, it was found impossible to preserve life for any length of time by these substances.

Nervous System.

1. H. Hertz. *On Degeneration and Regeneration of divided Nerves.* ('Virchow's Archiv,' Bd. xlvi, Heft iii, p. 257.)
2. A. Vulpian. *Remarks on the Anatomical Distribution of the Chorda Tympani.* ('Archives de Physiologie' of Brown-Séquard, Charcot, and Vulpian, T. ii, p. 209.)
3. P. Bert. *On the Effect of Irritation of the Pneumogastric Nerve, the Superior Laryngeal Nerve, and the Nasal Nerve on Respiration.* (Ibid., t. ii, p. 179 and 322.)
4. Prof. Oehl. *On the Physiology of the Spleen.* ('Gaz. Lombard.' 1868, Nos. 9 and 10.)
5. Prof. Oehl. *On the Physiological Relations existing between the Pneumogastric Nerve and the Urinary Bladder.* (Ibid., Nos. 10 and 12.)
6. MM. Hering and Hoyer. *On the Movements of the Stellate Pigment Cells of the Skin of the Frog.* ('Centralblatt,' 1869, p. 49.)

1. Dr. Hertz gives the following as the results of his observations on divided nerves:—(1) That union by first intention is only possible in those cases where the destruction of the axis cylinders occasioned by inflammation is supplied by the growth and multiplication of the nuclei contained in the nerve sheaths. And this must take place before paralytic degeneration of the peripheric segment of the nerve has set in.

(2) That in those cases where the cut extremities of the nerve are separated from one another, reparation only occurs where migrating colourless blood-corpuscles constitute the intermediary or connecting material.

(3) If, however, the conversion of these migrating corpuscles into nerve-fibres is partially prevented, they retain their pristine form and become pus corpuscles, or undergo a conversion into connective-tissue cells, and thus outgrowths proceeding from the central extremity do not attain to the peripheric cut surface, but cross each other irregularly, and form isolated tumours of large or smaller size, on which account the cells or fibres originating in the nuclei of the sheaths of the peripheric segment of nerve again subsequently disappear.

2. M. Vulpian, in correcting a misapprehension into which M. Lussana has fallen respecting his views, states that his observations clearly demonstrate—1. That the nerve-fibres of the chorda tympani are destined for the submaxillary gland; and 2ndly, that the chorda tympani supplies no nerve twig to the tongue, and that, consequently, it cannot in any way minister to the sense of taste.

3. We have only space to give the conclusions arrived at by M. Paul Bert, on the influence of various nerves on the respiratory function, though they are supported by many interesting experiments and illustrated by numerous tracings. He states—(1) That respiration can be arrested by irritation of the pneumogastic nerve (Traube), by irritation of the larynx (Cl. Bernard), of the nostrils (M. Schiff), and of the great majority of the sensory nerves (M. Schiff), which last assertion M. Bert has, however, not himself been able to substantiate. (2) The arrest of the movements may occur either in inspiration or in expiration, on excitation of any of the nerves mentioned, without its being possible to refer the influence to a derived action through some other nerve. (3) Feeble excitation accelerates the respiration; a stronger one retards it; one still more powerful arrests it. The words "feeble" and "strong," however, have, as M. Bert observes, only a relative bearing, and must be understood in connection with the animal operated on, and the state of the nerve, so that what is feeble in one instance may be strong in another. Contrary to the opinion of Rosenthal, M. Bert believes that the section of the pneumogastrics does not augment the difficulty of stopping the respiration; indeed death by arrest, on excitation, occurs more easily in these cases. (4) When the respiratory movements are completely stopped, the same is also observed in regard to the general movements of the animal, which remains absolutely motionless. (5) Respiration may recommence, even during the period of excitation, and when this is no longer persevered in, the respiratory movements are almost always accelerated. (6) The stoppage in expiration is more easy to produce than in inspiration. In some animals it is impossible to effect arrest in inspiration. (7) If a sufficiently powerful stimulus be employed to stop the respiration, or inspiration, the respiratory movements can be made to stop instantly on the application of the stimulus (in inspiration,

demi-inspiration, or expiration), whether the pneumogastric, or the laryngeal be acted on.

4. Oehl observed that a granulated appearance was induced on the surface of the spleen in dogs, rabbits, and especially in cats, when a galvanic current was applied to the peripheric extremity of the divided pneumogastric nerves. The aspect presented was exactly similar to that produced by the direct application of a current to the substance of the spleen itself. The larger, as well as the finer trabeculæ subjacent to Glisson's capsule contracted, and became retracted towards the centre of the organ, whilst the spleen pulp contained in their meshes protruded in the form of granular elevations of deep colour. This granulated aspect occurs in old hounds, in fasting animals, and in the spleen which has been exposed to the air, doubtless, in all instances, from contraction of the muscular fibres contained in the trabeculæ. The question at once arises in respect to the granular appearance occasioned in the spleen by irritation of the vagus,—is this consequent upon contraction of the fibrous contractile elements contained in the trabeculæ, or is it the result of a retarding influence exerted upon the circulation by the pneumogastric leading to congestion of the vessels of the spleen-pulp? In dogs, the splenic veins of which had been isolated, Oehl saw as a result of excitation of the vagus a retardation of the circulation indicated by the blood becoming darker and thicker. From other and various experiments, Oehl draws the conclusion that the granular character of the surface of the spleen, after irritation of the pneumogastric, is due to the double cause of contraction of the splenic trabeculæ, and also of the vessels, and he is inclined to think that the enlargements of the spleen observed in the inhabitants of marshy districts, is due to paralysis of the muscular tissue of the organ consequent on protracted deficient innervation. Lastly, Oehl presents in a tabulated form the relation which obtains under different circumstances between the spleen and body weight. In seven large and small dogs, which were killed during digestion, it varied between 1 : 160 and 1 : 576; whilst in sixteen fasting dogs of various size it varied from 1 : 228 to 1 : 621. The variation in both categories was, therefore, as 1 : 3.

The absolute weight of the body exerted no influence on the relative weight of the spleen. The results of the observations of Schönfield, which were made on rabbits, are, therefore, not applicable to dogs. Schönfeld's numbers are thus given by Theile, the reporter of Schmidt's 'Jahrbuch.'

1 : 2100	immediately after the ingestion of food.			
1 : 1137	2 hours	„	„	„
1 : 738	5 „	„	„	„
1 : 996	8 „	„	„	„
1 : 1062	12 „	„	„	„
1 : 2140	24 „	„	„	„

5. In his second paper the chief result obtained by Professor Oehl is, that the walls of the bladder exercise an increased pressure on

their contents, if an induction current of moderate power is made to pass through the uninjured vagus, or through the centric extremity of the divided vagus. The influence exerted is therefore reflectorial, and is probably conveyed to the intra-medullary ganglion of the pneumogastric nerves, and from thence down the cord to the spinal ganglion, which gives off motor fibres to the bladder, shown to exist by the experiments of Giannuzzi and Budge.

6. Although the paper of Hering has no reference to human anatomy and physiology, yet the extensive distribution of pigment in the skin, eye, and other parts of man, renders the relation of the cells in which it is contained a subject of interest. The researches were undertaken with a view of corroborating or otherwise the statements made by previous observers in regard to the nature of the movements observed in pigment cells. The author convinced himself in the first place that the green coloration of the skin in Rana esculenta and Hyla arborea was essentially dependent on the presence of two kinds of pigment cells in the skin. In the green portions there were found immediately beneath the skin, and closely aggregated together, irregularly polygonal yellow cells, beneath which were stellate cells, containing dark brown pigment, in some parts with very long processes, chiefly occupying the middle epidermic layer. The dark persistent spots are caused by the presence of pigment granules in the polygonal cells of the epidermis. The contents of the yellow cells consist of a yellow fat, soluble in alcohol and ether, and of minute particles of prismatic form, which strongly refract light. On removing the former by solution, the prismatic granules remain, communicating a greyish appearance to the cells similar to that of the stellate cells of the uncoloured part of the epidermis, which also contain highly refractile contents. Similar stellate cells are also found in the pure yellow portions of the skin, with similar granules and yellow fat. In those parts of the body which possess a metallic tint, as the lateral stria of Hyla, the prismatic granules found in the polygonal yellow cells, exhibit lively interference colours. By the action of weak alkaline solutions, the granules are dissolved, whilst the yellow colouring material remains behind in the form of one or more globules. The solubility of this in alcohol is the cause of the change of colour in frogs preserved in alcohol. After long abstinence the fat disappears, producing the pathological "colour change" of authors. The physiological causes of change of colour in frogs of the above-mentioned species, and even in the common frog, though less strongly marked, are dependent on changes of form in the dark pigment cells contained both in the cutis and in the epidermis. The brightening or increased clearness of colour is due to the shrinking of the broad branched processes, the darkening on their expansion, so that a less proportion of the incident light is absorbed. The pigment cells can in this way either roll themselves up into balls, or can so dilate as to advance as far as the epidermis, and envelope the yellow cells like a calyx. The change of colour to dark brown occurs in frogs long retained in darkness, but they become lighter on exposure to diffused daylight,

nd in ten to fifteen minutes after exposure to direct sunlight frogs held in the hand for a little while also become brighter coloured. Local excitation whether mechanical or by means of the induced current, causes the skin at the part irritated to become brighter coloured, but, subsequently, it assumes a darker tint. Severe pain causes the whole skin to become brighter, and the same effect is produced by electrical excitation of the spinal cord, and poisoning with a very small quantity of strychnia, but here, again, darkening succeeds. Irritation of the sciatic nerve, usually but not always induces brightening of the skin of the limb. Local alterations of colour by electrical excitation of nerves distributed to particular portions of skin was rarely noticed, but such were sometimes observed after subcutaneous section. Portions of skin detached and kept in a moist chamber became constantly clearer, though after some days a darkening was frequently observed. Mechanical pressure, so long as it was applied but no longer, caused a brightening. So far, these observations show the operation of the nervous system on the movements of the pigment cells, and agree well with the results of previous inquirers. But it was further shown that the circulation plays an important rôle in effecting changes of colour, and that the operation of the nervous system probably takes place in an indirect manner through the vessels. The observations were found to be most satisfactory when made on the web of the foot of dark-coloured frogs, in which the pigment cells are large and easily observable, and in their evanescent condition are fully expanded, with their processes filled with the dark pigment. The frogs operated on were kept in the dark in order to exclude the influence of light. On tying the femoral artery, a brightening of the colour was invariably perceived after the lapse of a quarter to half an hour, providing the circulation through the numerous cutaneous vessels was intercepted by a circular incision round the thigh. Ligature of the femoral vein was usually followed by the same effect, and constantly, if the whole limb was surrounded by a firm ligature so as to produce general œdema. On releasing the ligature, the contracted pigment cells again assumed the stellate form. If the limbs were completely amputated and ligatures applied to prevent loss of blood, both the frog and the limb became bright, but after a few hours the animal resumed its dark colour, whilst the leg remained bright; sudden ablation of the heart caused rapid and permanent brightening. As a general rule, however, when the animal is killed, it becomes bright, and a similar result follows the injection of distilled water or weak solution of common salt. Woorara in the first stage causes brightening, but with continued administration of small doses the skin assumed quite a dark colour. The action of woorara did not appear to be dependent upon excitation of the vaso-motor nerves unless in consequence of respiratory trouble, since when the spinal cord was divided near the medulla oblongata, the same effects were observed. In order to determine whether excitation of the vaso-motor centres caused a change of colour, the spinal cord was divided in a number of frogs below the respiratory centre, and the animals placed

in company with healthy, dark-coloured frogs, in boiled cool water, so that the respiration was checked, and it was found that whilst the sound frogs became bright after from a quarter to half an hour, the majority of the mutilated frogs remained dark. But if in the latter one of the femoral arteries was ligatured, the skin of that limb became bright. On section of the spinal cord below the giving off of the nerves of the upper extremity, the skin of these parts in some frogs became bright, whilst that of the hinder extremities remained dark. On the whole, the author considers it to be clearly proved that the movements of the pigment cells are essentially dependent on disturbances of the circulation. Other experiments showed that the contractility of the protoplasm of the pigment cells is exalted by moderate elevation of temperature, and is diminished by depression. The voluntary change of colour observed in frogs kept at a high temperature, is probably the result of disturbance of the circulation determined, as Cyon has shown, by the diminished energy of the heart at such temperature.

Anatomical and Physiological Observations made on the Bodies of Decapitated Criminals. By M. Robin. ('Journal de l'Anatomie,' 1869, p. 69.

This paper, which for the most part is interesting in a medico-legal point of view, contains, nevertheless, some physiological points which are worthy of notice, and which will here be curtly given. The section usually occurs at the level of the fourth cervical vertebra, and is clean, the veins showing on the surface and being collapsed, the arteries retracted. The cavity of the cephalic portion of the internal jugular vein is filled with air, which has replaced the first rush of blood that has escaped, and air is found in the lateral and longitudinal sinuses, and even in the veins of the pia mater, as well as in other parts where the anatomical disposition of the parts is such that no collapse of the veins can take place. M. Robin has also found air in the cerebral and cerebellar arteries, as far as to the small branches distributed to the pia mater; air was also found in the carotid and subclavian arteries, in the right auricle and ventricle, and in the lower portion of the internal jugular, axillary, subclavian, brachio cephalic, and superior cava veins. There was no air in the vena portæ. A small quantity of clotted blood was found in the left ventricle, which M. Robin considers as furnishing conclusive evidence that the ventricles in their systole do not discharge the whole of the blood they contain, which, however, has been already fairly proved by the observations of Hiffelsheim and Robin, who have shown that the capacity of the ventricles is a fourth or fifth more than that of the auricles. In one instance the execution occurred at 5.45 a.m. At 7 a.m. the chest was opened and the heart exposed; it was contracted and hard, the left auricle, quite empty, was flaccid; the right ventricle, containing a little foamy blood, formed a mass of less volume than the left. The right auricle contained also frothy blood. The whole organ was fixed and immovable; even when touched lightly

with the finger they were quite warm. After examining the heart in this state for some minutes air was injected by a catheter introduced through one of the brachiocephalic veins, whilst the inferior vena cava was obliterated by compression. As soon as the right auricle and appendix began to project they entered spontaneously with perfectly rhythmical contraction, repeated about from sixty to sixty-four times per minute. The contractions commenced at the summit of the auricle, and then propagated themselves towards its base in a vermiform manner; the ventricle then contracted from its summit to its base. The ventricular contractions were feeble, and scarcely caused any sensible diminution of the organ; but those of the auricle were much more energetic; but as on account of the mechanical condition the air contained in its cavity could not readily escape, it would appear that the diastole was occasioned by the elasticity of the air. At the expiration of eight minutes, the air having gradually escaped, the auricular contractions became convulsive or jerking and more frequent, though still proceeding in the same direction as above—that is from the upper part of the auricle to the base of the ventricle. A second injection of air caused the contractions to resume their regularity, and was again followed by slow evacuation of the air and alteration in the character of the movements. This experiment was repeated several times; then all the air was allowed to escape suddenly from the cardiac cavities, and immediately the heart's contractions ceased; nor could any be excited, even by direct pricking with the point of the scalpel. As regards the left heart, distension of the auricle did not induce contraction, this only occurring when direct mechanical irritation was applied, and then only to a very limited extent. No indications of contractility were obtained from the left ventricle. Two and a half hours after the execution a repetition of the inflation of the right auricle was only followed by negative results. In reference to other muscles, it was found that pricking the skin or the irritation of a blow alike caused the subjacent muscles to contract immediately, the former by reflex, the latter by direct action. In one instance, the arm lying somewhat obliquely from the side, the skin was scraped lightly with the point of the scalpel for an inch or two, near the nipple. Immediately the pectoralis major contracted, followed by the biceps, and probably the brachialis anticus, and the muscles covering the epitrochlear eminence, collectively effecting a true movement of defence, causing the hand to approximate and protect the pit of the stomach, and showing the truth of the views of those who hold the theory of habitual, consensual, and associated actions. Three hours and a half after the execution rhythmical contraction of parts of the diaphragm were observed.

CHRONICLE OF MICROLOGY.

By J. F. Streatfeild, F.R.C.S.,

Part I.—Physiological Micrology.

Appearances produced by electrical shocks in the colourless elementary forms of the blood.—According to A. Golubew, the best subject for investigation is the serum of the recently coagulated blood of the frog, containing, together with the red, always an abundant supply of colourless corpuscles, which blood, kept cool, gives good preparations even after three or four days.

The appearances are manifested quite differently according to the kind of the colourless elements, according to the force and duration of the current and the number of the shocks. For the amœboïd cells we can only distinguish, that whilst weaker shocks interfere much with the movements, stronger ones transform the cells into little globular masses, which throughout show peculiar and somewhat complicated phenomena of motion, that after many shocks following each other quickly more nuclei appear in the cells, the individual granules of the substance exhibit molecular motion, and at last the whole substance dissolves, so that the nuclei alone remain. As for the rest we must refer to the very full statement of the original. The author observed quite similar appearances in the so-called granule cells, between which and the amœboïd cells there exist also transitions in the blood of the frog as in human beings—M. Schultze has described them. The spindle-shaped cells discovered by von Recklinghausen, which the author could make out directly in the capillaries, were in February and March in the blood of newly caught winter frogs the most abundant colourless elements, whereas later they only very seldom occurred. As regards their relation on the one hand to the amœboïd corpuscles, and on the other to the coloured blood-cells, the author confirms in almost all points the statements of von Recklinghausen. In their behaviour towards electric shocks, they resemble much the proximate forms of the amœboid cells, but that the contractions follow more slowly, and the effect of the shock is not so lasting. The spindle-shaped cells morphologically more nearly related to the red blood-cells, resemble them likewise in their behaviour towards induction currents, which to them produce quite similar appearances, as Rollet has for the red blood corpuscles described them.—*Centralblatt für die Medicinischen Wissenschaften*, January, 1869, page 65.

The Lymphatics of the Kidney.—In a preliminary way, Rindowsky gives the results of a series of injection experiments as to the distribution of the lymphatics of the kidney, as follows:

1. The lymphatics of the kidney accompany the blood-vessels, whilst they course in their adventitia, and form at the same time minor trunks of varying diameters:

a. The larger arterial trunks are accompanied by two lymphatics, which enclose the blood-vessel in a network of their anastomosing ramifications. The stouter the arteries are, the stouter are also the lymphatics accompanying them, and so much the more do they also intercommmunicate by anastomosis.

b. The afferent vessel is also enclosed by a lymphatic network, which passes over in part on to the capsule *Schumlauskii* (Bowman), and enters partly with the afferent vessel *into the interior of the capsule, and as individual branches proceed into the vascular coil* (*Glomerulus*) *itself.*

c. The efferent vessel, after leaving the interior of the capsule, is similarly enclosed by eventual lymphatic twigs, which ramify and thus *form a fine capillary net* placed parallel to the blood-vessels.

d. The finer arterial twigs of the cortex are always accompanied by a lymphatic, as are the arteries of the medullary substance.

e. In the adventitia of the veins there also exists a lymphatic net.

2. The lymphatics, which pass from the afferent vessel on to the capsule, surround the latter with a network of lymphatic capillaries.

3. Around the winding urinary canaliculi the lymphatic capillaries also form a net, which answers to the blood capillaries and exhibits meshes of a cubical form.

4. The straight urinary canaliculi of the medullary rays are likewise surrounded by a lymphatic net, which displays wider meshes.

5. The lymphatics are dispersed in the medullary substance between the urinary canaliculi, subdividing dichotomously, without forming a net. In this neighbourhood the lymphatics, as in the cortical substance, become of greater diameter.

6. *The lymphatics of the kidney, even in their finest ramifications, possess the nature, have the character of the vessel; that is to say, they everywhere exhibit a special walling and an epithelial coating.*

7. The lymphatic spaces described by Ludwig and Zawarykin get no support by silver injection; on the contrary, this method does not disclose the least trace of epithelium on the outer surface of the urinary canaliculi, although the nitrate of silver in the author's preparations of the epithelium clearly displayed not only the lymphatics, but also the blood-vessels and the epithelium of the urinary canaliculi themselves.—*Centralblatt für die Medicinischen Wissenschaften,* 20th February, 1869, p. 145.

Lymphatics of the Liver.—Concerning these vessels a similar communication is made by Joh. Kisselew, who has determined that—

1. The liver does not only possess the well-known superficial and deep (interlobular) lymphatics, but every hepatic lobule has also a much developed system of lymphatic distribution (Mac-Gillavry).

2. The lymphatic distribution of the liver altogether possesses an independent walling, which presents various structure, according to the stoutness in diameter of the vessel itself.

A. The walls of the interlobular and yet stouter vessels of the serous membrane consist of—
  a. A finely-fibrillated thin cover, and of
  b. Epithelium.

B. The lymphatic capillaries collectively are formed of epithelial cells only, as do these the serous membrane, and so the hepatic lobules.

3. The interlobular lymphatic capillaries show the blood-vessels to be really sheath-like enveloping tubes, as they have been originally by Mac-Gillavry described.

4. The lymphatics of the liver may be filled with indigo-carmine in the life of the animal by the physiological injection method.

5. In the lymphatic system of the pig's liver there are inserted stellate lymph follicles situated deeply in the interior of the parenchyma.

These investigations were carried out in dogs and in pigs. The author made use of the following methods of injection to carry out his design. *a.* With red and blue glue and cold fluid manner. *b.* With glue solution of nitrate of silver; and *c.* Physiological injection with indigo-sulphate of soda passed into the blood of the living animal.—*Ibid.*, p. 147.

A Lymphatic Gland in the Mucous Membrane of the Cavity of the Tympanum.—Dr. Nassiloff, of St. Petersburg, says, that by a lengthened investigation of this mucous membrane, after death, in the bodies of adults and children, he has discovered a body which, as far as he knows, has not been hitherto recorded in the literature of the subject, and he, therefore, feels called upon to publish a brief account of it. The body is found in the tympanic mucous membrane, where it passes into the upper side of the tympanic coat. This body can be well prepared by itself, if, by cautious separation of the skin and mucous membrane from the bones beneath it, to where it passes into the upper side of the membrana tympani, and by separation of the membrana from the annulus tympanicus, then the upper side of this membrane as far as the processus brevis one cuts across in the axis of the handle of the malleus, and, after hardening in alcohol, one makes sections through the thickness of the tympanic coat. We then find in the connective tissue of the mucous membrane, near the membrana tympani, a body, of microscopic size, of oval outline, surrounded by a coating of connective tissue, traversed by capillaries, from which excrescences spread inwards, which form a kind of network, of which the interspaces are filled with lymph corpuscles in great abundance.

The striking resemblance of the conformation of this structure to that of the lymphatic glands induced the author to accept this as the lymphatic gland of the tympanum.—*Centralblatt für die Medicinischen Wissenschaften*, 10 April, 1869, p. 259.

Cup-nuclei.—Dr. Basch, of Vienna, says, if one investigates the cylinder-epithelium of the skin of the frog, which has been twenty-four hours in boracic-acid solution, one finds in the nuclei of the cells referred to a peculiar, and, for aught he knows, hitherto undescribed behaviour. Both in such nuclei, which are yet found within the cells, and also in those that are set free, one observes isolated round openings, which are clearly such by reason of their abrupt circular outline, through which, by the somewhat lateral position of these openings, is seen the exposed hinder wall of the nucleus. That this circular contour does not proceed, perhaps, from an impression of the wall of the nucleus, but corresponds, in fact, to an open aperture, is especially shown by this, that one very frequently sees issue from them drops of a hyaline appearance, as if from the cells themselves. These openings, which invest the nuclei with a cupped appearance, are observed mostly at the end turned to the free side of the cell. But one observes also very numerous nuclei, which seemed open at both ends; not unfrequently, indeed, nuclei are to be seen which show lateral openings near those mentioned. That those bowl-shaped excavations which now and then one observes in the nuclei, also correspond to such openings, one is by this certainly convinced that one can, by little movements of the covering-glass, out of such nuclear forms produce an appearance of cup-nuclei; and again, that one sees set up in these bowls the drops above-mentioned. He had, after he had convinced himself of the existence of such open nuclei in the epithelial cells of the skin of the frog, examined also the nuclei of other cells of similar behaviour, and found the same in the nuclei of the ciliated cells of the frog's palate, and of the trachea of the tortoise, as well as in the nuclei of the cells of the pavement epithelium of the tongue of the frog. As before mentioned, the exhibition of cup-nuclei succeeded most markedly by treatment with boracic acid, but, also, he has not unfrequently observed such cup-nuclei after washing the tissue in question with simple water and very dilute chromic acid.—*Ibid.*, 1 May, 1869, p. 321.

Appearances of the Choroïdal Pigment.—A. Frisch says that, examined (Hartnack XV, immersion) with a very high magnifying power, crystalloïd bodies with sharp angles and edges, for the most part rather prolonged, appear in the familiar hexagonal pigment-cells of the retina, which have been hitherto generally taken in connection with the choroid, like the pigment-granules situated in the pigment-layer around the most diverse classes of the mammalia. After the death of the animal the longer time one lets elapse, the more do rounded and spheroïdal forms take the place of the sharply margined ones. These corpuscles are within the hexagonal cells, with their

greater diameter always placed perpendicularly to the retinal surface, and showing an unmistakeably symmetrical disposition. In the pigment-layer of the bird, the pigment-granules, as of this class, are of almost rod-like forms, in direct order of succession, with their points connected. The author recognised no double estimation by employment of the microscopic polariscope.—*Ibid.*, April 3, 1869, p. 254.

The Movements of the Stellate Pigment-Cells, and the Changes thereby produced in the Skin of the Frog.—By this the recent investigations concerning the phenomena of motion and the changes of form of the cellular elements in connective tissue, especially during inflammation, as well as the movements yet earlier observed of Brücke, Wittich, Busch, &c., the analogous pigment—containing elements of the connective tissue have gained a renewed interest; so the author (Professor Hoyer) undertakes, first of all, an examination of the older observations of this matter, and as he convinced himself of their accuracy, and had learned to recognise the movements of the pigment-cells as a vital phenomenon, he tried various experiments, in order to gain a better insight of the causal relationship of the appearances. In this he has so far succeeded as to have ascertained some certainties, which more extensive pursuit promised to make of greater extent for the prosecution of the vital phenomena of the tissues.

The author first of all convinced himself that the green colouring of the skin of the *Rana esculenta* and *Hyla arborea* is essentially dependent on the presence of two different sorts of pigment-cells in the skin, and, indeed, he found in the green patches of skin, almost directly beneath the epidermis, irregular polygonal, closely arranged, yellow cells, and under them stellate cells filled with dark brown pigment; moreover one also observed in the most coloured spots of the skin, between the cells of the middle epidermis layer, a deposition of stellate pigment-cells, often with very long thin branched processes. The dark patches of the skin were essentially the effect of the presence of pigment-granules in the polygonal cells of the epidermis. The contents of the yellow cells consisted of a yellow fat soluble in alcohol and ether, and of strongly refracting, prismatic, colourless granules. If the fat were taken from the yellow cells, the granules were left, the cells assumed a greyish-white appearance, and then appear similar to the stellate cells, which appear in the colourless parts of the skin, which even in the fresh condition show an equal colourless granular strongly light refracting contents. Similar stellate cells are found also in the bright yellow patches of the skin, but these contain besides the just mentioned granules, also some yellow colouring matter that may be extracted by ether and alcohol. At the metallic glittering parts of the body (*e. g.* at the yellow streak at the side of the body of Hyla) the prismatic granules in the polygonal yellow cells show under the microscope lively interference colours. With weak liq. potassæ the prismatic granules in the yellow cells are lost, whilst the yellow colouring matter

is left in the form of drops. The solubility of the latter in alcohol is the reason of the change of colour of the frog kept in alcohol. The deprivation of food diminishes the fat also partially, and it thereby becomes the producing cause of the so-called "pathological" change of colour, &c.—*Ibid.*, Jan., 1869, p. 49.

Cortical Matter of the Human Cerebrum.—R. Arndt has undertaken a very extensive investigation of the hitherto current accounts of the disposition of the cerebral cortex, and gives, in the first part, a description of its structure. Prompted by the already published works of Th. Meynert, on the same subject, the author has then, in the course of a year later, undertaken a thorough revision once more of the matter, which has led to one modification, mainly, however, immaterial. The confirmed results of the author are the following:

The cortical matter of the brain always, and very distinctly in the newly born, exhibits seven layers, which, reckoned from the periphery to the centre, are thus characterised:—The uppermost layer (1), which under various circumstances is very easily removed, corresponds with the thin stratum of white substance which covers the exterior of the convolutions, is generally of a dirty colour, and is made up of a compact texture of parallel fibres of the outer surface of the brain, which are partly nervous and in part of a connective-tissue nature. One division of the fibres curves downwards into the next pale, reddish-grey layer (2), which, for the most part, consists of very fine, few-nucleated neuroglia, with imbedded stellate connective-tissue cells and connective-tissue- and nerve-fibres. Beneath it is situated the clearly defined layer (3), which, like that which follows (4), appears of a grey colour; it consists essentially of ganglion-cells imbedded in neuroglia. Their shape is in the whole cortical brain-matter roundly elliptical, almost always more or less triangular with several processes, of which one in particular shows a bow-like convexity, the course directed towards the periphery. Besides the ganglion-cells there are also found free nuclei, connective tissue, and very many nerve-fibres, which are distinguished from those of the first two layers by their great diameter in their breadth. It is noteworthy, also, that these frequent bows have their convexity directed to the periphery. This layer almost imperceptibly passes over into the layers (4) which, in the newly born particularly, is well marked, which, besides very sparse nuclei, shows a great abundance of ganglion-cells and nerve-fibres. Separated from it by a horizontal white nerve-fibre disposition, which by greater development may appear as a proper layer, follow the three last layers, which are distinguished by a common yellowish red colouring, so that they were comprehended by Kölliker, and also by Arndt in his first part, as a single layer, the yellowish red layer of Kölliker. A disposition of horizontal nerve-fibres, which lies at the limit of the second and under the third of this yellowish red complex layer may, by greater development, as of the disposition of the fibres between the layers (4 and 5), even with the unaided eye, be perceived as a white streak.

The three layers (5, 6, 7) into which the intimate microscopic investigation dissects the yellowish red layer, are in general characterised by an abundance of larger ganglion-cells according to the situation, that in them the abundance of broad nerve-fibres is constantly increased according to the approach that is made to the layer of brain-substance, from which they almost perpendicularly ascend as bundles, so as to continue irregularly interlacing, either curving back or in the layers (4, 3) continuing their original direction. In the layer (5) are found, certainly, some few ganglion-cells, as in the layer (4), but in it the largest in the whole cortical matter of the brain. The layer (6), on the other hand, consists of little, closely compressed, nucleus-like ganglion-corpuscles, whilst the layer (7) immediately in apposition with the brain-substance is again of larger but irregularly received forms.—*Ibid.*, 30th Jan., 1869, p. 101.

On the same.—Th. Meynert has estimated the number of nerve-corpuscles in the cortical matter of the brain as 612,112,000. By the greater extent of the cortical matter of the cerebrum shows a subdivision of five concentric layers, which, counted from the outermost, are the following:

1. The layer of the dispersed little cortical corpuscles. Its foundation substance is connective tissue; and in proportion as the organization of the brain is higher, and as its bulk stands relatively in the mammalian kingdom, so much wider do they appear, so that the brain-structure of man, without regard to the bulk, is structurally of the first class, whilst it relatively contains the smallest quantity of connective substance in combination with the nerve elements.
2. The layer of the small, crowded, pyramidal nerve-corpuscles.
3. The layer of the large pyramidal nerve-corpuscles.
4. The layer of the granule-like, little, irregular nerve-corpuscles.
5. The layer of the spindle-like nerve-corpuscles.

The author sums up thus:—Where the pyramids as the motor elements preponderate a connection with motor disturbance is indicated (cornu Ammonis); where the granules of the sensory elements preponderate, a connection with superficial sensation (olfactory lobes); where the spindles are found amassed (island), a connection with functions which includes the most extensive course of association (speech). In the mammalian kingdom, finally, may be demonstrated a direct relation of the evolution of the mass to the definite functions of the cortical matter.—*The warrant for the assumption of localised functions within the cortical matter of the cerebrum is well guaranteed to him by this.—Ibid.*, 27th Feb., 1869, pp. 172-4.

Flat Muscular Fibre.—G. Schwalbe has been making use of the muscular structure of the dog's urinary bladder as most suitable to his investigations. A weak solution of chromic acid was with much success employed. Very frequently in one muscular fibre was to be seen the occurrence of two nuclei, the rod-like form of which is not

prearranged as in life. In the recent urinary bladder of the frog they appear as clear ellipsoidal structures without granular contents, and in the weak chromic acid solution they preserved the original form of the nuclei very well. In the frog's urinary bladder the nuclei are homogeneous; in that of the dog they show one or two strongly refracting nucleoli. Investigations of the quite fresh muscular coat of the intestine of the lizard showed also a similar structure, so that the preformation of it cannot well be questioned. The fibrillæ described by Frankenhäuser, and explained as nervous fine offshoots of the nucleoli, the author has never seen. Circumjacent to the nucleus, in the dog at least, is found more or less in quantity of a finely granular protoplasm, which is sometimes prolonged as a granular axis cord to both sides of the nucleus in the longitudinal direction of the muscular fibre. These remains of the embryonal formation material of the muscular fibres are in the muscle of the frog's bladder wholly wanting; nevertheless, the author infers from the various micro-chemical reactions investigated in the original, that in these muscular fibres, also, round about the nucleus, there is present some of the various contractile substance, which chemically appears for the most part analogous to mucine. The structure of the contractile substance is, as the author, in frozen sections particularly, convinced himself, homogeneous throughout, and certainly non-fibrillated. As regards the form of the contractile fibre-cells, they are represented as round or irregularly polygonal spindles. The fibres represented as flat and ribbon-like, especially noticeable by isolation in potash lye, the author considers to be caused by foldings. The author always found the nucleus within the muscular fibre, never superficially.—*Ibid.*, Jan., 1869, p. 5.

Marrow of Bones.—Professor Dr. H. Hoyer says, "the brief communications of Neumann and Bizzozero have made probable a precedent change in the bone-marrow in great degree of the marrow-cells, quite similar to lymphoid elements, into red blood-corpuscles. Up to the present time no subsequent work of any inquirer relating to this subject has come to my notice, and, in particular, I do not know whether these have already shown where that change takes place from within or without the vessels, and how, in the latter case, the new-formed blood-corpuscles arrive in the vessels. This prompted me to the publication of the following preliminary communication concerning investigations which I, together with the studious Messrs. Maizel and Rode, in the physiological laboratory of the high school of Warsaw (of the bones of rabbits for the most part), have entered upon.

"When, for the purpose of investigations on inflammation, we had injected into the jugular vein of rabbits finely divided cinnabar, or aniline, and they in the course of several days, or even weeks, were killed, we found the granular colouring matter always deposited in greater proportion in the liver and spleen, so that the latter organs, therefore, appeared altogether reddened or blued. At the examination of the bones I found their marrow also much pigmented

and I convinced myself, with the microscope, that the marrow-cells, which so much resemble the white blood corpuscles, were filled in a very great degree with numerous granules of colouring matter. The cells enclosing colouring matter were only to be perceived in very small number within actual vessels; the greater part I found freely distributed in the loose tissue of the marrow. Therewith, immediately, the question came to my mind in what way the granules of colouring matter, in relation to the same lodged cells, got out of the vessels in so great number, and how they had again penetrated the vessels in case they had been changed into red blood corpuscles," &c. —*Ibid.*, 3 April, 1869, p. 244.

Changes in the Marrow of Bones.—Professor E. Neumann, of Königsberg, says that since his investigations of the marrow of bones had led him to describe them as a place of formation of the red blood corpuscles, a statement which had been directly examined and corroborated by M. Bizzozero, he directed his attention to the changes which are induced in the marrow by pathological influences, and he here communicates some results of this course of investigation so as to induce further investigation of this matter:

1. In chronic complaints, which bring about general marasmus, a transformation of the yellow marrow fat of the shin bones into lymphoid marrow takes place, in which are now to be found in greater number the developmental forms of the red blood-corpuscles which he has previously described; here, then, appears to take place a compensating elevation of the blood-cells formation,

2. The formation of cells containing blood-corpuscles in the bone marrow is (contrary to Bizzozero's interpretation) no physiological event, but depends on a pathological change of the marrow vessels. In fifty-four of his post-mortem examinations they were only found nine times; all these nine cases were of individuals who had died of exanthematous or enteric typhus. The vascular change consists in this, that the capillaries lost their shut parietes, so that the blood flowed freely out of the arterial transition vessels into the marrow tissue.

3. The change which the yellow fat marrow suffers by inflammation is essentially different from the change into lymphoid marrow, and is especially distinguished by the want of developmental forms of the red blood-cells.

4. In bodies in which heart-disease or other causes have superinduced venous congestion he found in the marrow red, strongly reflecting, circular bodies of at the most 0·02 millemètres in diameter. These consisted of blood-corpuscles rolled up into balls, whose outlines are yet in part indicated by narrow fissures, and in part were altogether invisible. Addition of acetic acid separated them from one another under the well-known transformations.

5. The spindle-shaped crystal needles formerly described by him, as he now finds, separate themselves in almost all dead bodies some days after death. There appears then to be in the marrow proper

products of the beginning cadaveric decomposition.—*Ibid.*, 17th April, 1869, pp. 292, 293.

Part II.—Pathological Micrology.

Vegetable Organisms in Human Blood.—Dr. J. G. Richardson has frequently met with Professor Salisbury's "Zymotosis translucens." But, in addition to them, he says, the blood contained, in almost every field, numerous minute, rounded particles, much more distinct than those above mentioned, nor, like them, fading rapidly from view, having an active rotary or erratic motion, and strongly resembling the primary stage of certain infusoria, as seen in solutions of decomposing animal matter. They appeared in cases where the pulse was feeble and intermittent, the blood anæmic, and the powers of life at a low ebb; and diminished in number under tonic treatment, especially the administration of tincture of chloride of iron. The author then relates investigations undertaken to prove if by these independent movements the existence of independent organisms within the blood might be demonstrated, and thus strengthen the professor's novel theories concerning the vegetable origin of disease. And this, in the end, is the conclusion to which he comes. —*American Journal of the Medical Sciences*, July, 1868, p. 291.

Dr. H. C. Wood says it is conceivable how an honest observer might think he saw plugs of spores exhisting in rheumatic blood. For if rouleaux of very adhesive corpuscles be watched whilst drying, they will be seen to undergo the following changes:—First, the well-known crenations appear, then by-and-bye the individual corpuscles lose their outlines, becoming, as it were, fused together into one. In this way elongated masses are formed, and the crenations still persisting, under an inferior objective, or under a good objective not carefully adjusted, or of too low power, these masses appear granular, each granule being in fact the point of a crenation. That certain vegetable organisms, vibrios and their allies, are found in the blood in some cases of disease, seems, however, to be well established, but that they are present as a consequence, not as a cause of the morbid processes, seems equally certain.—*Ibid.*, October, 1868, p. 333.

New Algoïd Vegetations specific in (1) *Syphilis and* (2) *Gonorrhœa.* —Dr. Salisbury says—"The specific cause of syphilis attacks especially those histological elements, the characteristic, proximate, organic principle of which is either gelatine, osteine, or chondrin. These are connective tissue proper, bone, and cartilage. It first attacks the connective tissue at the points of inoculation, and next the connective tissue of the lymphatic glands, in the vicinity of the primary lesion." The pus of syphilitic sores "seems to have been an almost barren field. The only thing found that seemed to be

foreign to pus from other sores was a small, highly refractive sporoid body, which subsequent discoveries demonstrated to be the spore of *Crypta syphilitica*. In studying this minute form I was led to dissect out the bed of chancres, and subject them to careful microscopical examination, when I soon discovered a peculiar filament, running in all directions, singly and in bundles, through and among the diseased connective tissue elements. This organism was soon determined to be algoid. . . . This same vegetation shows itself in the blood so soon as the disease becomes constitutional."

Of the *Crypta gonorrhœa* the author says, "The spores are very minute and well defined. They are often discovered in twos and sometimes in fours, undergoing the process of duplication and augmentation. They occur and develope rapidly in gonorrhœa, in and among the parent cells of the mucous surfaces affected, producing great irritation and inflammation, and a rapid formation of *muco-pus* cells, which often form around the spores, and then become vehicles for eliminating the virus from the parent-cells. . . . In and among the epithelial cells this plant is frequently met with in its filamentous stage of development. The filaments are found in all stages of growth, from a length double the diameter of a spore to several inches, when magnified four or five hundred diameters. In their embryonic stages frequently a moniliform arrangement may be noticed. In later and more advanced stages of development they are usually more homogeneous throughout their entire length, no transverse markings being visible. The outlines of the filaments are generally well defined. They occur either singly or in little knots, running a more or less tortuous course. . . . This plant is limited in its invasion to the epithelial tissue, while the *Crypta syphilitica* confines itself mainly to the connective, cartilaginous, and osseous tissues.—*American Journal of the Medical Sciences*, January, 1868, p. 17.

REPORT ON SURGERY.

By John Chatto, M.R.C.S.E.

Spontaneous Popliteal Aneurysm.—An interesting case of this occurred in Professor Dumreicher's clinic. The patient, a weaver by trade, æt. 33, had observed a swelling of the left leg for some months, which he attributed to his having to especially employ that limb in his occupation. Four months before admission he had also remarked a pulsating tumour in the popliteal space. This was easily diagnosed as a popliteal aneurysm, and digital compression was tried during seventy hours, carried over ten days. As this was left to the patient it was probably ineffectually performed, and at all events no

good result ensuing, Hunter's operation was resorted to. Immediately after the operation the temperature began to rise, and continued to do so, reaching to between 39° and 40° C. In a few days profuse sub-fascial suppuration, requiring a long incision for its discharge, was set up; and in three or four weeks the aneurismal tumour became gangrenous. Incisions made into this for the discharge of the coagula were followed by profuse hæmorrhage, for which the popliteal was tied. At a still later period an incision had to be made into the knee-joint for the discharge of pus. The patient sank anæmic on the 26th September, the first operation having been performed on the 18th June. The whole limb was infiltrated with stinking pus, the femoral artery being completely obliterated at the seat of ligature. Numerous bony plates were observed near the bifurcation of the aorta.—*Allg. Wien Med. Zeit.*, 3rd Nov.

On Subcutaneous Injection of Bubo.—Dr. Wertheim, attached to the syphilitic and skin department of the Rudolf Hospital, Vienna, states that he has given up all attempts at dispersing bubos by causing their absorption, and now treats them by a very simple and efficacious procedure, subcutaneous injection. A solution of various substances, as morphia, camphor, sulphate of copper, &c., may be used as circumstances require, that of muriate of morphia (gr. iv ad aquæ ʒij) being that which is usually preferable. The ripe abscess is punctured by means of a thick needle, or the tube of a strong Pravaz syringe, and after most of the pus has been gently pressed out, the injection of eight or ten drops of the solution is practised, the patient being taught himself to empty every three hours the fluid that may have collected. The injection is at first repeated daily, and afterwards at longer intervals. Although not essential it is better for the patient to keep in bed. The advantages of the method are that the pain in the abscess almost immediately ceases, and the other inflammatory symptoms steadily diminish; the thickened pus is gradually transformed into a thinner and thinner exudation, gradually decreasing in quantity, so that in three or four weeks it ceases entirely, and no cicatrix remains. The secretion of pus is confined to the spot and the surrounding induration gradually diminishes.—*Wien Med. Wochenschrift*, 21st October.

Wounds from the Chassepot Rifle.—M. Legouest, reviewing some papers upon this subject by MM. Sonrier and Deslongchamps in the 'Recueil de Med. Militaire,' and availing himself also of other sources of information upon the subject, arrives at the following conclusions:—1. The accidents to which the soldier is exposed by this mode of loading this rifle are very few, and they will doubtless disappear with improvements in the procedure, and when the riflemen have become more careful and more expert in handling the new weapon. 2. The experiments and observations which have been made in France as to the wounds produced by the Chassepot are not sufficiently numerous to allow of its being affirmed that these effects are more serious and more extensive than those ensuing from the old

rifled musket. That they should be so is on the one hand contradictory to theory, and on the other to the results observed at Vienna on the wounded Austrians and Saxons after the battle of Sadowa—the ball of the Chassepot being of the same description as that of the Prussian needle-gun. 3. The Chassepot is one of the most redoubtable of weapons, because it produces, militarily speaking, a highly *useful* effect, *i. e.* putting a great number of men *hors de combat* in a very short time. It is to be expected that in future the discharges will be far more numerous on the field of battle in a given time, but happily the wounds will be less serious than when the troops were armed with carbines and the former rifled muskets.—*Gazette Hebdom.*, March 5th.

On Absorption by Wounds.—M. Demarquay terminates an account of his investigations on this subject with the following conclusions: "1. It results from my researches that a substance soluble in water, as iodide of potassium, is very rapidly carried into the torrent of the circulation, and eliminated by the saliva when it is applied to a large surface of denuded dermis. In such cases elimination takes place in from four to six or eight minutes. 2. This same substance placed in the serosity of a blister penetrates into the economy far less readily, by reason of the albuminous layer which covers the dermis, absorption not taking place then until nine, ten, fifteen, or twenty-six minutes. 3. A solution of the iodide injected into the cellular tissue is absorbed and eliminated by the saliva in a period of time varying from ten to twenty minutes. 4. The same solution applied to a recent wound is exhibited in the saliva in from one hour and a half to nineteen and fifteen minutes. 5. When the wound has become "perfectly organized" it possesses great power of absorption. At the end of ten, eight, six, four minutes, or even less, evident traces of iodine are found in the saliva. In the face of such a power of absorption, we may ask whether the septic element which gives rise to erysipelas and puerperal fever may not have been absorbed by the wound itself? 6. In that serious complication of wounds known under the name of "purulent infection," ought we not to inquire whether this power of absorption, so little established up to the present time, does not play a considerable part, and explain some of the phenomena generally referred to phlebitis? 7. Iodine injections thrown into abscesses active or passive, or into encysted cavities, whether inflamed or not, are rapidly absorbed. I have proved that elimination by the saliva takes place in a period of time varying from forty-five to three minutes. 8. When such injections are employed in too large quantity, or are too often repeated, the iodine thus constantly introduced into the economy may often induce injurious effects. 9. Iodine and iodide of potassium, introduced into the economy by the various means mentioned, is generally eliminated by the saliva and the urine in four or five days."—*Union Med.*, February 2nd.

On the Contagious Origin of Catarrhal Conjunctivitis.—M. Gosselin observes that besides purulent ophthalmia, which is admitted by all

to be contagious, there are forms of conjunctivitis in which only a small quantity of pus is secreted, which becomes mixed with a notable amount of mucus and tears. This, which he terms semi-purulent conjunctivitis, in which the pus is only recognised by the microscope, is, however, also transmissible by contagion; and the same may be stated of conjunctivitis, which at an earlier stage has been purulent, and at a later one only furnishes a minute portion of pus mingled with mucus. Many writers admit that granular conjunctivitis is contagious, but it is not clearly stated whether this admission is confined to what are called true or neoplastic granulations, which are very rare, or to the false or papillary granulations resulting from hypertrophy of the conjunctival papillæ, which are usually met with.

Having paid much attention to this subject, M. Gosselin lays down the following positions, illustrating them by some cases:— 1. *Non-purulent conjunctivitis is sometimes acquired by contagion from a similar form of conjunctivitis.* This is not unfrequently met with in parents who have acquired it from their children, who themselves may have acquired it in schools, &c. Catarrhal ophthalmia so contracted is usually of little importance, but the possibility of its being so produced enables us to guard against it by insisting on the separation of the patient from the contact or vicinity of those we wish to preserve from it. In some cases where this precaution has been neglected, the acquired disease may not be so simple in its course, but may become chronic, or involve the cornea. 2. *A simple catarrhal conjunctivitis may originate from a purulent conjunctivitis.* M. Gosselin has never witnessed this as yet in the case of adults, although he believes it possible; but he has often seen nurses and others attending on infants suffering from purulent ophthalmia become themselves the subjects of simple catarrhal ophthalmia, which has promptly disappeared under prophylactics. He also gives a case at length in which an adult acquired catarrhal ophthalmia from a child four years and a half old, having purulent ophthalmia, and which also exhibits the liability to relapse while exposed to the same influence. 3. *Catarrhal ophthalmia may be due to more or less chronic granular conjunctivitis.* Papillary granulations may result from catarrhal and semi-purulent conjunctivitis, and these, even when only in the form of blepharitis, may induce a catarrhal conjunctivitis, which itself is susceptible of becoming, but does not necessarily become granular. At the Hôpital des Enfants Assistés, where are temporarily placed the children of patients who are obliged for various complaints themselves to enter hospitals, catarrhal conjunctivitis is often acquired, and usually from subjects having granular conjunctivitis; and the children, when restored to their parents, frequently convey to them either simple or granular conjunctivitis.

As a general conclusion, M. Gosselin says that he feels quite authorised to state that simple catarrhal conjunctivitis, muco-purulent, or semi-purulent conjunctivitis, and granular conjunc-

tivitis, are, as well as the purulent form, susceptible of being communicated by contagion, both by contact and miasmata; and that in consequence in such cases we should employ the following precautions:—1. Separate wherever possible the subjects of this affection. 2. When isolation is not possible, recommend the greatest care in the exclusive use of handkerchiefs, napkins, objects of dress, &c. 3. Avoid all contact with the faces of the patients. 4. Examine carefully the eyes of persons obliged to remain near those cases, so that any conjunctivitis that may arise may be summarily arrested. 5. Insist on these recommendations being especially observed in small rooms, schools, asylums, and children's hospitals, as accumulation of many subjects in the same atmosphere strongly predisposes to contagion.—*Archives Générales*, April.

On the Employment of Ice in Affections of the Testis.—M. Diday believes that sufficient importance is not attached to this procedure, which is one from which he has derived very great advantage in his own practice on the treatment of blenorrhagic orchitis in irritable testis, and in certain ill-defined affections of the organs of which pain is the characteristic feature.

1. *Blenorrhagic Orchitis.*—It is only quite exceptionally even in cases of epididymitis that the testis itself is involved; but when this is the case, the suffering becomes terribly severe. The relief of this is often very difficult; and one of the means which sometimes effects it, incision of the tunica albuginea, M. Diday regards with disapprobation as it is not unfrequently followed by atrophy of the organ. But of the benefit of the methodical application of cold he has had the most striking proof, some of the examples of which he refers to in this essay. To obtain this, however, the mode of application must be closely observed. Two pigs' bladders are to be soaked for a few minutes so as to render them supple, and their apertures having been enlarged by scissors, four or five pieces of ice the size of a goose's egg are to be introduced. Before tying the neck with packthread, care must be taken by compressing the bladder above the ice, to free it completely of air, otherwise it will not properly envelope the parts. For the same reason it should be tied as near its aperture as possible. One of these bladders is placed under the testes, guarding the thighs and perineum from cold by napkins. The other is placed over the testes, and so that it may reach if necessary as far as the inguinal ring. It is kept *in sitû* by means of a handkerchief or small napkin rolled into a circle. At first, the application sometimes causes some pain from the weight of the ice, but in a few minutes the patient gets accustomed to this, and in less than a quarter of an hour relief from the previous torture is already marked, while as a general rule at the end of an hour all pain has ceased, and the testis has slightly diminished in size. Nor as a rule will the pain return unless the application be too soon suspended. The ice should remain permanently applied for at least eighteen hours, but forty-eight consecutive hours is the mean time that experience teaches may be required. In order to ascertain whether it may be safely discontinued,

we must remove the ice and press with the end of the finger the portions of the testes which were at first the chief seats of pain. If this gives pain and the patient flinches, the ice must be reapplied or a relapse will certainly occur. In some cases it has to be continued for two, three, or even five, consecutive days. It is remarkable that this prolongation does not weary the patients, who alarmed by what they have suffered, and by some lurking sensations, are usually averse to leaving off the ice too soon. It is essential that the necessity should be impressed upon them of the application being quite continuous. The bladder must be replaced by others as soon as the ice has nearly melted, and care must be taken to have a good provision always at hand. In general, when they have been properly filled, the bladders only want renewing every two hours. When the application is tentatively or definitively discontinued, the testicle should be covered for an hour or so with cloths dipped in cold water so as to facilitate the transition to the ordinary temperature.

2. *Irritable Testis.*—This M. Diday regards as a very well marked form of neuralgia characterised especially by the absence of all material lesion, and often of any antecedent disease, by the pains being supportable as regards their intensity, but especially annoying by their continuousness, and by the effects which certain conditions exert on them. Thus dorsal decubitus and mental distraction always alleviate them, while walking and crossing one leg over the other always aggravate them—and this always in all cases without habit exerting any effect. Just in proportion as the testicular neuralgia approaches this type is the application of ice certain to effect a cure. Two marked examples of this are related; and even in cases in which the success has not been so complete or so rapid, M. Diday has met with an amount of relief attainable by no other means.

3. *Other Morbid Conditions of the Testis.*—These may be of different kinds, but ice will be useful in proportion as pain is the dominant element unconnected with inflammatory action. That this last is not amenable to the action of ice is seen in the most frequent and best defined of testicular inflammation—blenorrhagic epididymitis, where ice is useless, as it is in inflammation of the testis itself in all but for the relief of pain. A not unfrequent form of nervous pain, which, without being excessive, is very persistent and annoying, is found to prevail in the left side, succeeding epididymitis in persons having varicocele. Here ice is of marked advantage, but it is difficult to induce the patients, in spite of their constant complaining, to devote the time necessary for its effectual application.—*Annales de Dermatologie*, Nos. 1 and 3.

Summary.

Amputation.—Lücke on Transcondylac Amputation (Langenbeck's Archiv, b. xi, h. 1. Gives three successful cases, and contrasts the operation favorably with amputation at the knee-joint.)

Aneurysm.—Watson. Treatment of it by Compression. (Edinb.

Med. Journ., May. Two successful cases, the first that have occurred in Scotland. The compression made by weights.)—Ciniselli Galvanopuncture in Aneurysm of the Aorta. (Gaz. des Hôp., April 8. Summary of already published cases.)—Von Langenbeck. Treatment of it by the Hypodermic Injection of Ergotin. (Wien. Med. Woch., March 22. A subclavian and a radial aneurism successfully treated.)

Anus.—Buchanan. Case of Artificial Anus successfully treated by Dupuytren's Entrotome. (Ed. Med. Journ., April.)

Arteries.—Lente. New Method of Securing Divided Arteries. (Amer. Journ. of Med. Sc., April. Employs a thin silk ligature, cutting it off and leaving it in the wound.)—Tschansoff on Thrombus from Ligature. (Langenbeck's Arch., b. xi, h. 1. An elaborate thesis detailing the history of opinions, and describing numerous experiments on dogs. His conclusion is, that thrombus does not become organised, but acts as a temporary preventive of hæmorrhage, and that Jones's views on the operation of the ligature on the vessel are correct. Microscopical Illustrations.)

Burns.—Winternitz. Hydriatic Treatment of Burns. (Allg. Wien. Med. Zeit., April 20 and 27, May 4.)

Club-foot.—Streckeisen. Anatomy and Treatment of Club-foot. (Jahrb. für Kinderheil., 1869, h. 1. A paper left by the late Professor Streckeisen, who had attained great celebrity by his treatment of this deformity.)

Dislocations.—Richter on Dislocations. (Henle and Pfeufer. Zeits., b. xxxiv, h. 2. An elaborate essay on the mechanism of the production of the various dislocations.)—Blanquinque. Compound Dislocation of the First Metatarsal Bone on to the Great Toe and the First Cuneiform Bone. (Gaz. Hebd., April 9. Occurred in M. Demarquay's practice, who removed the displaced bone by dividing the tense tendon of the peroneus longus, which alone retained it. Analytical references to other cases.)—Verebély. Two Cases of Dislocation of the Astragalus. (Wien. Med. Woch., February 27 and March 3. Woodcuts.)

Ear.—Kessell. On Polypi of the Ear. (Arch. für Ohrenheil, 1869, No. 3. Chiefly occupied with the description of the minute structure of the polypi, of which two plates are given.)—Steudener. Pathological Anatomy of Polypi of the Ear. (Ibid, with Engravings.)—Lucæ on the Connection between Diseases of the Nose and Ear. (Ibid.)—Jacoby. On Perforation of the Mastoïd Process. (Ibid.)—Gruber. Treatment of Inflammation of the Membrana Tympani. (Allg. Wien. Med. Zeit., April 27 and May 4. Directions for scarifying the membrane when in a hyperæmic condition.)

Elephantiasis Arabum.—Fischer. Treatment of Elephantiasis by Ligature or Compression of the Principal Artery. (Virchow's

Archiv, April, 1869. Relates the details of three cases, and furnishes an analytical summary of eighteen others.)

Eye.—Blessig. Report on Operations for Cataract at St. Petersburgh Ophthalmic Hospital during 1864—68. (St. Petersb. Med. Zeit., 1868, h. 9.)—Knapp. Embolic Diseases of the Eye. (New York Med. Journ., March.)

Fistula.—Heppner. On Recto-Vaginal Fistula. (Monats. für Geburtsk., Feb. The particulars of twenty-two cases in a tabular form.)—Bozemann. On Vesico-Vaginal Fistula. (New York Med. Journ., Feb. "On the advantages of a supporting and confining apparatus and a self-retaining speculum, with models of forms of sutures." Illustrations.)

Fracture—Taylor. Case of Fracture of the Fibula, with Dislocation of the Foot outwards. (New York Med. Journ., March. Case of "Pott's fracture," treated by immovable bandage, applied on the sixteenth and removed on the thirty-ninth day.)

Gonorrhœa.—Morgan. Treatment of Gonorrhœa by Continuous Injection. (Dublin Journ., May.)

Hernia.—Balfour. Case of Congenital Diaphragmatic Hernia. (Edinb. Med. Journ., April.)—Larrey. On Lumbar Hernia. (Bullet. de l'Acad., March 9. Historical sketch of the affection, with details of a case which occurred to the author some years since.)—Sistach. Case of Traumatic Lumbar Hernia. (Gaz. Méd.,' March 20.)—Oettinger. The Ovary and Tube in an Incarcerated Femoral Hernia. (St. Petersburgh Med. Zeit., Dec., 1868.)

Jaws. Magitot. On the Pathogeny of Cysts and Abscesses of the Jaws. (Gaz. des Hôp., June 3rd and 5th.)

Joints.—Ollier. On Excision of the Large Joints. (Lyon Médicale, March 28th and April 11th. A general review of the results of sub-periosteal excisions.)—Czerny. On the employment of Weights as a means of Extension. (Wien. Med. Woch., April 24th and 28th, May 1st and 8th. Brief notes of twelve cases of disease of the knee, and nine of disease of the hip, occurring in Billroth's Clinic).—B. Schmidt. Three successful Cases of Removal of Loose Bodies from the Knee-Joint by Direct Incision. (Archiv. d. Heilk., 1869, No. 2.)

Laryngoscopy.—Knight. Two Cases of Paralysis of Muscles acting on the Cordæ Vocales. (Boston Journal, Feb. 25th. Woodcuts.)—Schrotter. On Division of the Larynx for Removal of Morbid Growths. (Med. Jarhb. d. Gesch. d. Aerzte in Wien., 1869, No. 2. A fatal case related. Illustrations.)—Narratil. Case of Extirpation of an Epithelioma of the Larynx by Incision. (Wien. Med. Woch., March 17th. Woodcuts.)

Larynx.—Stokes. Traumatic Fracture of the Larynx. (Dubl. Journ., May.)

Nasal Cavity.—Wertheim. On Inspection of the Anterior and Middle Thirds of the Nasal Cavity. (Wien. Med. Woch., March 3, 6, and 10. Describes an instrument which he proposes to call a "Conchoscope." Numerous illustrations.)

Neurectomy.—A. Wagner (Königsberg.) On Neurectomy in Facial Neuralgia. (Langenbeck's Archiv, b. xi, h. i. Full details of sixteen cases occurring in the author's practice, with engraving of the instruments employed in neurectomy of the infraorbital. In the same number is a paper by Von Langenbeck, giving directions for dividing the infra-orbital nerve within the infra-orbital fissure.)

Ovariotomy.—Hildebrandt. Case of Ovariotomy in the Königsberg Clinic. (Monats. für Geburt., Jan. Full details given of an interesting case in which double ovariotomy was performed, the patient dying on the eighth day of pulmonary œdema.)—Miller. Four Cases of Ovariotomy. (Amer. Journ. of Med. Sc., April. Two proved fatal, and a third could not be completed.)—Braun. Fatal Case of Ovariotomy. (Wien. Med. Woch., March 20 and 24. Death from hæmorrhage.)—Martin. Fatal Case of Double Ovariotomy. (Monats. f., Geb., March.)—Koeberlé. Seventy-third Case of Ovariotomy. (Gaz. des Hôp., June 8. Since his last published series, M. Kœberlé has had twenty-five cases, with twenty recoveries and five deaths.)—Tracy. Two Cases of Ovariotomy. (Australian Med. Journ. One successful, the subject of the other dying of exhaustion.) —Gutscher. Case of Ovariotomy. (Wien. Med. Woch., April 24, May 1. Occurred in Pithas' Clinic, the patient dying of exhaustion in thirty-three hours.)—Pean. Question of Performing Ovariotomy in Paris. (Union Méd., June 10 and 12. A second series of six cases given in great detail.)—Peruzzi. Successful Case of Ovariotomy. (Gaz. Med. di Torino., Jan. 7 and 14.)

Palate.—Whitehead. Surgical Treatment of Cleft of the Hard and Soft Palate. (New York Med. Journ., April. Illustrations.) —Bigelow. Observations on the Operation for Cleft Palate. (Boston Journal, Feb. 4.)—Suersen. On a new Artificial Palate. (Berlin Klin. Woch., March 15. Woodcut of the obturator, with which the author says he succeeds perfectly.)—Bruck. A new Method of remedying Defects of the Hard and Soft Palate. (Deutsch. Klinik., April 10.)

Phymosis.—Demarquay. Operation for Phymosis in a Diabetic Subject. (Gaz. des Hôp., April 8. Performed in the first stage of the disease, the wound healing by the first intention.)

Scalp.—Krafft Ebing. On Radical Treatment of Tumours of the Scalp. (Berlin Klin. Woch., March 15. This consists in procuring the speedy elimination of the tumour by the injection of a few drops of solution of tartar emetic.)

Spine.—Taylor. Differential Diagnosis of Disease of the Spine. (New York Journ. of Med., May.)—Schildbach. Treatment of Scoliosis. (Jahrb. f. Kinderheil, 1869, h. 2. Engravings of the machines employed.)

Subclavian Artery.—Koch. On Ligature and Aneurysms of the Subclavian. (Langenbeck's Archiv, b. xi, h. 1. (An elaborate assemblage of all hitherto recorded cases.)

Syphilis.—Stohr. Treatment of Syphilis by the Hypodermic Injection of Corrosive Sublimate. (Deutsch Archiv f. Klin. Med., b. v, h. 4. On the strength of 90 cases treated under Bamberger of Würzburg, the author reports very favorably of this mode of administering mercury.)

Tendon.—Lorinser. Rupture of the Tendon of the Rectus Femoris Muscle by Muscular Action. (Wien. Med. Woch., April 3, 10. Perfect use of the limb regained.)

Testis.—Valette. On Accidents resulting from Imperfect Migration of the Testis. (Lyon Médical, May. Case in which pseudo-strangulation of the intestinal canal attributed to reflex paralysis of the intestine was relieved by castration.)—Steudener. On Spermatocele. (Langenbeck's Archiv, b. x, h. 1. A new form of the affection consisting of cysts containing spermatozoa developed from the glandular canals of the testis.)

Toe-nail.—C. Emmert. On the Operation for In-growing Toe-nail. (Langenbeck's Archiv, b. xi, h. 1. For the usual painful and ineffectual procedure, the author substitutes the removal by incision of all the soft parts at the lateral region of the nail without interfering with this or its matrix. He has practised the operation in several cases with excellent results.)

Tracheotomy.—Fayrer. Clinical Observations in Eleven Cases. (Indian Annals Med. Sc., No. 25.)

Urinary Organs.—Creamer. Case of External Perineal Tracheotomy. (New York Med. Journ., May. Performed with success on a man sixty-six years of age. Woodcuts of Professor Gouley's catheter-staff and whalebone guides,)—Watson. On Lithotrity and a new Lever Lithotrite. (Ed. Med. Journ., June. Illustrations.)

REPORT ON TOXICOLOGY, FORENSIC MEDICINE, AND HYGIÈNE.

By Benjamin W. Richardson, M.D., F.R.S.

I.—Toxicology.

On the Physiological Action of the Salts of the Ammonium Bases derived from Atropia and Conia. Dr. A. Crum Brown and Dr. Thomas R. Fraser report on the above subject as follows:

Atropia.—Atropia is a nitrile base. All we know of its constitution is, that by the action of strong acids and bases it is decomposed, in accordance with the equation.[1]

$$\underset{\text{Atropia.}}{C_{17}H_{23}NO_3} + \underset{\text{Water.}}{H_2O} = \underset{\text{Tropic Acid.}}{C_9H_{10}O_3} + \underset{\text{Tropia.}}{C_8H_{15}NO}$$

So that atropia may be considered as tropia, in which one atom of hydrogen has been replaced by tropyl, the radical of tropic acid. Tropic acid belongs to the aromatic series, and is considered by Kraut to be phenylsarcolactic acid—$HO \cdot CH_2 \cdot CH(C_6H_5)COOH$. Of the constitution of tropia we know nothing whatever, except that it is a nitrile base.

Iodide of methyl-atropium.—Iodide of methyl acts very readily on atropia, a good deal of heat is produced, and after the reaction is over, the iodide of methyl-atropium remains as a white mass. From this the excess of iodide of methyl was removed by a current of air, and the dry salt dissolved in water, filtered, and evaporated at a temperature not exceeding 40° C. The concentrated solution thus obtained, on cooling, deposits the salt in prismatic crystals, apparently belonging to the monoclinic system; sometimes part of the salt separates as a heavy oil, which soon crystallises. These crystals have the composition $C_{17}H_{23}NO_3CH_3I$. They are tolerably stable, bearing a temperature of 100° C. without much alteration. When they are powdered, or when their solution is warmed, a pleasant fruity smell is observed.

Sulphate of methyl-atropium.—The sulphate was prepared from the iodide by the method formerly described for the preparation of sulphate of methyl-strychnium, &c. It is a white crystalline salt, very deliquescent, and very soluble in water.

Iodide of ethyl-atropium.—Iodide of ethyl acts readily on atropia, but not so energetically as iodide of methyl. In preparing the iodide of ethyl-atropium, atropia was treated with a considerable

[1] Kraut.—'Annalen der Ch. u. Ph., cxxviii, 280, cxxxiii, 87, cxlviii, 238. Lossen.—*Ib.*, cxxxi, 43, cxxxviii, 230.

excess of iodide of ethyl in sealed tubes at 100° C. for an hour. The remainder of the process, and the preparation of the sulphate, are the same as in the case of the methyl derivative.

The authors intend, on some future occasion, to describe these substances more minutely; for their present purpose, the description given above seems sufficient.

Atropia has a somewhat complicated physiological action, for it directly influences the functions of the cerebro-spinal, and also of the sympathetic nervous system.

The action of the methyl and ethyl derivatives on the cerebro-spinal nervous system is different from that of the natural base, while the action on the sympathetic system is essentially the same.

The principal effects produced by atropia on the cerebro-spinal nervous system are excitation of the spinal cord,[1] and paralysis of the motor and sensory nerves. In a previous paper, the authors showed that the spinal stimulant action of strychnia, brucia, thebaia, codeia, and morphia, is not possessed by the salts of the ammonium bases derived from these alkaloids, but that in its place these derivatives possess a markedly different paralysing action on the peripheral terminations of motor nerves. They now announce that a similar change occurs in the methyl and ethyl derivatives of atropia. These derivatives are more powerful paralysing substances than atropia itself.

A considerable amount of spinal stimulant and of paralysing action may be produced by a non-fatal dose of atropia; and it is probable that the one action is, to a certain extent, antagonistic to the other. As the methyl and ethyl derivatives, however, combine with the ordinary paralysing action of atropia, an additional amount of paralysing action bearing some ratio to the absent spinal stimulant action of the natural base, these derivatives affect the motor nerves much more powerfully than atropia itself. Probably, for these reasons, the salts of methyl- and ethyl-atropium are fatal to the lower animals in much smaller doses than the salts of atropia itself.

Paralysis of the vagi nerves and dilatation of the pupil are caused by these derivatives of atropia.

Conia.—The alkaloid prepared from *Conium maculatum* (hemlock) has been shown by Von Planta and Kekulé[2] to be a variable mixture of two bases, to which they give the names of "conia" and "methyl-conia." These bases resemble one another very closely in physical properties. Their composition is represented by the formulæ $C_8H_{15}N$ and $C_9H_{17}N$. The chemists above named investigated very completely the action of iodide of ethyl on conia, and proved that conia (or, as it is called in the present paper, *normal conia*) is an imide base, and that methyl-conia is a nitrile base.

The substances examined in the present paper are:

1st, *Conia*—samples of which were obtained from Messrs. Duncan

[1] See 'Proceed. Roy. Soc. of Ed.,' vol. vi, 1868-69, p. 434.

[2] 'Annalen der Chemie und Pharmacie,' lxxxix, 5.

and Flockhart, Macfarlan and Co., and Morson. The authors are also indebted to the kindness of Dr. Christison for the opportunity of examining the action of a specimen of conia which he prepared in the year 1835.

2*nd*, *Methyl-conia*—prepared from hydriodate of methyl-conia, produced by the union of iodide of methyl and *normal conia*.

And, 3*rd*, *Salts of dimethyl-conium*—obtained by the union of iodide of methyl and the methyl-conia contained in conia as obtained from the plant.

Iodide of methyl acts readily upon conia, producing a syrupy or crystalline substance, which is a mixture of hydriodate of methyl-conia and iodide of dimethyl-conium, the former produced from the normal conia, and the latter from the methyl-conia. The action of caustic potash decomposes the hydriodate of methyl-conia, setting the base free, while the iodide of dimethyl-conium is unattacked. The two substances can thus be readily separated from each other.

The authors find that the salts of conia and of methyl-conia very closely resemble each other in action and in poisonous activity. Their action agrees with the descriptions of the effects of conia by the more trustworthy of previous observers. Among the most obvious of the effects on rabbits were stiffness of the limbs, causing difficulty in moving about; spasmodic starts; distinct increase of reflex excitability; gradually increasing paralysis with diminution, and afterwards disappearance, of the increased reflex excitability; and, finally, death by asphyxia. Shortly before death a few starts and feeble convulsions usually occurred, but these symptoms were apparently caused by the advancing asphyxia.

The symptoms in frogs were mainly those of paralysis, and the authors confirm the observations of Kölliker and Guttmann, that this paralysis in the case of ordinary conia is due to a curare-like action. They further find that methyl-conia also acts in paralysing the terminations of motor-nerves.

The salts of dimethyl-conia differ from those of conia and of methyl-conia in never directly producing convulsant effects or other symptoms of abnormal activity of the reflex function, and in being much less active as poisons In rabbits and frogs the symptoms were invariably those of paralysis; and in the latter animal the authors have demonstrated that this paralysis is due to an action on the terminations of the motor nerves.

The samples of conia which have been examined by the authors were found to contain very varying proportions of normal conia and of methyl-conia; but as these two substances appear to be about equally active as poisons, it is probable that the very variable potency of commercial conia is due to its adulteration with a greater or less amount of water, and, possibly, also to the presence of varying quantities of ammonia.[1]—*Proceedings of the Royal Society of Edinburgh*, January, 1869.

[1] When the authors had nearly concluded their investigation on conia, they

On Poisoning by Cyanide of Potassium.—Dr. Arnold, of Baltimore, writes a very singular and instructive essay on poisoning by cyanide of potassium, the subject of the accident being himself. He was sent for one night to see a little child for whom he had prescribed a mixture containing chlorate of potassa. Early the next morning he was called again to find his patient dead, when the nurse informed him that the child, on the previous evening, could not be induced to swallow any of the medicine which he had prescribed, but that about half an hour ago the child took a spoonful of it, which almost instantly caused convulsions and soon after death. While he was examining the corpse, noticing the white froth at the mouth, the very pallid countenance, and coolness of surface, the nurse suggested that the medicine might have killed the child, and that either the apothecary or himself had made a fatal mistake. At the same time she handed a phial to Dr. Arnold containing nearly the whole of a two-ounce mixture, which he repeatedly carried to his mouth, in order to determine, by the taste, of what it might be composed. He was still holding the phial in his hand when he began to feel a slight giddiness of the head and an inclination to yawn, to sigh, and to heave. Soon after he felt some difficulty in using his lower jaw in the act of speaking. No doubt now remained in his mind that he had tasted some deadly poison. He hurried to a drug store at the corner of the next street, which happened to be the same one where the medicine had been procured. On his way thither, which took him but a few minutes, all the symptoms before mentioned increased, and when he reached the apothecary's his gait was unsteady. He called for a strong emetic, and sat down on a chair. Mr. Loffler, the druggist, handed to him in a tea-cup a solution of tartar emetic, which he had some difficulty to introduce into his mouth, and he recollects that he neither felt the usual taste of the drugs nor had any sensation of the act of swallowing. Mrs. Loffler, who was present at the time, told him afterwards that he fell off the chair before he had finished drinking the emetic, that he turned blue in the face, and breathed slowly and heavily. It was about eight o'clock in the morning when he went to the drug store, and at two o'clock of the same afternoon he gave the first signs of returning consciousness. The medical attendant who was first called found him lying on the floor in a deep stupor; a reddish froth covered the mouth and nose; his face looked livid and bloated; the pulse was hardly perceptible; respiration was heavy and laboured, and produced the blowing of bubbles at the mouth; urine and fæces came away involuntarily. About two pints of blood were taken from his arm without any mitigation of the symptoms. He perfectly recollected that some time before he had fully recovered from the

received a communication from MM. Jolyet and Cahours of Paris, informing them that these physiologists were ready to publish a paper upon the relative action of the salts of conia, ethyl-conia, and diethyl-conium. In order to secure simultaneous publication, it was arranged that the two papers should be communicated on the same day—the one to the Academy of Sciences of Paris, and the other to this Society.

effects of the poison he struggled desperately for breath, and that the horrible conviction of impending suffocation, though ignorant of its cause, did not leave him for a single moment. At the same time he recognised the presence of his wife and brother, but the violence of the asthmatic symptoms prevented him from speaking to them. This dreadful smothering sensation lasted about thirty minutes. The patient remembers the pungent smell of carbonate of ammonia, which was frequently held to his nose and produced a sensation of imminent suffocation. The efforts he made to prevent a repetition of it were wild and furious, and he recollects that his arms and legs were held tight by the bystanders while the ammonia was again applied. As soon as he felt a disposition to vomit his consciousness was restored, and he had a distinct recollection of anxiety, lest in the act of vomiting he would be smothered to death. The first ineffectual attempts did in fact increase the asthma; but to his great joy and surprise the copious evacuation of the contents of his stomach, consisting of an undigested breakfast, was instantly followed by a complete cessation of all the symptoms. The relief was prompt and permanent.

It appears that Mr. Eckhert heard that Dr. Arnold was lying at the point of death in Mr. Loffler's drug store; he went to see him and took with him the medicine which had proved fatal to his child. He accused Mr. Loffler of having poisoned the child, who, in an excitable manner offered to swallow the contents of the phial in order, as he said, to show that he had made no mistake. Unfortunately he was permitted to drink nearly a table-spoonful of the mixture, and in a few minutes afterwards he fell down dead. The attendant physicians now examined the prescription file of the previous day, and found one over Dr. Arnold's signature, which read: Potass. chlor. ℈j syr. gum acac. aqua anis, aa ℥j.—one teaspoonful every three hours. They next examined the contents of a glass jar which was labelled Potass. Chlorat. which was however empty, and a few grains of a dirty whitish looking salt which they scraped from the bottom of the jar bore no resemblance to the well-known crystals of the chlorate of potash. It was further discovered that another label was under the one which had P. C. written on it. This was brought to view after the top label had been detatched by carefully wetting the paper, when the Kali Cyanuret became distinctly visible. Mrs. Loffler afterwards cleared up the whole mystery by explaining that the jar marked Potass. Chlor. formerly contained cyanide, some of which adhered to the bottom of the jar, and that on the previous evening when the prescription for chlorate of potassa was brought in, it required considerable scraping of the jar to make up the full amount of the drug.

Dr. Arnold from his personal experience confirms the opinion of Mr. Nunneley that the primary action of the poison is on the motor system, inasmuch as he felt the stiffness of his lower jaw and the difficulty of moving his lower limbs before he lost his consciousness. He compares the symptoms which preceded his recovery with those attending a fit of asthma, and suggests that the phenomena may go

to explain the much vexed question of the pathology of asthma.—*American Journal of the Medical Sciences*, January, 1869.

Schönbein's Test for Hydrocyanic Acid in Vapour.—At the Academy of Medicine, Paris, a new test for hydrocyanic acid has been discussed. It consists of paper imbued with resin of guaiacum, and moistened with a solution of sulphate of copper at the moment of use. In contact with hydrocyanic acid the prepared paper immediately assumes a blue colour. To make the test paper three parts of resin of guaiacum are dissolved in a hundred parts of rectified spirit, white filtering paper is steeped in this solution and dried. The paper should remain white. A solution is prepared of one part of sulphate of copper in five hundred parts of water. To employ the test a slip of the paper is moistened with this solution of sulphate of copper, and brought in contact with hydrocyanic acid, either dissolved in water or diffused in the air, when the paper immediately becomes blue. The author declares that by this test one part of the vapour of the acid in 120,000,000 of air may be detected.—*Mr. Wood's Report in the 'Pharmaceutical Journal,'* January, 1869.

Schönbein's test above described has been tried by Mr. George Welborn, who comes to the following conclusions:—

It is quite true that the test papers are exceedingly sensitive to the presence of hydrocyanic acid vapour; but unfortunately for the value of the reaction as a proof of the presence of hydrocyanic acid, they are equally sensitive to the action of chlorine, and in a less degree to the action of the vapours of several other substances.

1. One drop of Scheele's acid was dropped into a bottle of 80 fluid ounces capacity, and the test paper suspended in it began to assume the blue tint instantly, rapidly becoming deeper in colour.

2. A trace of chlorine gas gave an immediate coloration, soon becoming deep blue.

3. Five drops of strong nitric acid were dropped in; in one minute and a half the coloration had commenced slowly changing to a deeper tint.

The following substances gave no reaction:—Hydrochloric acid gas, acetic acid vapour, and sulphuric dioxide.—*Ibid.*, April 1869.

II. Forensic Medicine.

Medico-Legal Responsibility in matter of Advice.—At a recent meeting of the "Société Medico-Psycologique," M. Legrand du Saulle said: "I find myself in the face of a very embarrassing professional difficulty, in regard to which I would greatly like to have the advice of the society. I have said nothing about it until to-day, hoping to get the views of my learned colleagues.

"In an important place in the department not far from Paris, lives a retired merchant, aged fifty years, and possessed of a fortune from

12,000 to 15,000 francs income. For twenty years he has lived in marital relations with a mistress by whom he has a daughter, now in her eighteenth year.

"In January, 1868, he became melancholy without any appreciable cause, careless, apathetic, and lethargic. His mind was occupied to a great extent with the state of his health, and he began to attach great importance to a congenital deformity of the sternum with which he was affected. His intellectual vigour was lessened, his sight became weak, his general strength was reduced, his gait staggering, his speech slow, and his sexual desires absolutely abolished. Doubtless you will think, as I did, that this was a case of general paralysis of the depressing type; but here is the difficulty. The patient has two brothers, and, at the news of his mental failure, they came to his assistance. The one is rich, and proposed the marriage of the mistress, and the consequent legitimization of the daughter; the other is poor, and insisted on the immediate interdiction of the patient. I was consulted before the arrival of the two brothers, and, taking all things into consideration, I decided to take no part in the matter, and consequently I have done nothing to change the civil state of the patient. 'If he,' I said to myself, 'had wished to marry, and acknowledge his child, would he not have done so while in the plenitude of his mental power? Should he do so to-day how should I know that he is performing a free act?'

"The two brothers were of diverse opinions, and desired M. Legrand du Saulle to act as the arbiter. He refused, however, to do so, and asked the opinion of the society on the question. After a full interchange of opinion, the view appeared to prevail, that the matter was not one for a physician to decide."—*Annales Medico Psychologiques*, and *Quarterly Journal of Psychological Medicine and Medical Jurisprudence for January*, 1869.

Medico-Legal Question relative to Suicide and Homicide.—Dr. Alfred Rumbault states, that on the 6th of June before noon, D—— having resolved to kill himself, went to an unoccupied garret in a secluded place, where there was no risk of being interrupted. He then wounded himself with his knife. Thinking this instrument insufficient, he replaced it in his pocket, and struck himself on the head with the sharp edge of a hatchet. Notwithstanding the frightful wound he gave himself, he was still unsuccessful in his attempt, so he resolved to adopt another plan, and that was hanging. A cord was necessary, and the garret not containing one, he tied his handkerchief over his head and face so as to conceal the wound and the blood, and putting on his hat, descended the eight steps of the staircase, to go in search of a rope. As he went down, and as he returned, a few drops of blood fell on the steps. Going into a courtyard which formed part of a neighbouring building, he went to a well, expecting doubtless to find a rope there. He was disappointed, however, and leaving a few stains of blood near the well, he went to a place in the vicinity where the lodgers were accustomed to deposit odds and ends, and found a cord that suited his purpose. Here he

lost a little more blood. Returning to the garret, he obtained a ladder, and fastening his rope to a beam at one end, made a noose in the other, staining the face of the ladder with blood from his head as he worked. Then, in order to do away with all chance of escape, he put the ladder against the wall in such a way that the other side was turned towards him. This explained the presence of blood on both sides. All his preparations having been made, he took off his hat, carefully folded his coat, mounted the ladder again, stretched out his body until his head reached the swinging noose, and, fastening this about his neck, struck himself a violent blow on the head with the hammer-part of the hatchet. A violent concussion of the brain was the result; he fell from the ladder, and remained hanging by the cord. The hatchet dropped from his hand, and his face, clothes, shoes, &c., were sprinkled with blood.

It appears from this narration that M. Riembault is of the opinion there was no murder, and that D— committed suicide, notwithstanding the extraordinary circumstances surrounding the case. What confirmed him in this view was the fact that the victim was a member of a family which had reckoned fifteen or sixteen lunatics among them, several of whom had committed suicide. D— was, moreover, under treatment for some cerebral trouble, was subject to melancholy, and complained that his affairs were in a bad condition, when the contrary was the case. The whole conduct of D— was of that desperate character so frequently witnessed in those affected with suicidal monomania.—*Ibid.*

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THE

BRITISH AND FOREIGN

MEDICO-CHIRURGICAL REVIEW.

OCTOBER, 1869.

PART FIRST.

Analytical and Critical Reviews.

Review I.

The Anatomical Memoirs of John Goodsir, F.R.S., late Professor of Anatomy in the University of Edinburgh. Edited by William Turner, M.B., Professor of Anatomy in the University of Edinburgh. With a Biographical Memoir by Henry Lonsdale, M.D., formerly Lecturer on Anatomy. Two vols. Pp. 469 and 524. Edinburgh, 1868.

Professor Turner and Dr. Lonsdale have done the general as well as the scientific public a service by publishing in the two volumes before us the 'Anatomical Memoirs' and a 'Biographical Memoir' of the late Edinburgh Professor Goodsir. They have done the scientific world a service, the especial bearings of which we shall hereafter specify in more or less detail; and they have done the entire world of earnest and intelligent men a service by laying before them the history of a life which may be truly called an exemplary one, and by making them acquainted with the conclusions come to and the methods employed by a great thinker and worker in problems of the most general human interest. John Goodsir's life we call exemplary, because its course was shaped by the combined action of the principle of duty and of the feeling of enthusiasm; and because it was as free from the strong man's snare of selfishness on the one side, as it was from the weak man's snare of vanity on the other. And, inasmuch as he was an anatomist and physiologist

of much the same calibre as Johannes Müller, his views and thoughts upon such subjects as 'Man's Place in Nature or in Creation' have a claim on the interest and attention of all who may think that the next few campaigns to be fought out between the rival champions on either side in the questions we allude to, will find their Jenas or their Waterloos somewhere or other within the territories of the organic sciences.

We will speak of the man in the first place, and of his works in the second. It is right thus to give precedence to the life and personal influence of the man, for by that he created a school. It may be said, indeed, of many men, that their scholars are their best works; and, with the very greatest respect for Goodsir's works, we incline to think that this may be said of him. This, however, can be said of Goodsir, which, in these days of competition and rapid intercommunication, can be said of very few other men, viz., that he retrieved a school which was falling into disrepute and decay; and that, succeeding an "evergreen *tertius* professor, who used to read his grandfather's essays on Hydrocephalus as part of an anatomical course" (see vol. i, p. 103), he left the Edinburgh School of Anatomy without a superior in Great Britain. The secret of Goodsir's successes lay in certain peculiarities of his character; closely connected with which peculiarities lay, also, the secret of his partial failure and early loss to science. He was gifted with the artist's intuitive self-representation of the perfect ideal, and with the conscientious man's feeling of being straitened until it was accomplished; and hereby it was that he attained his successes. But he lacked the power of acquiescing in seeing things go by default, and fall through, by the neglect of others; and by dividing his energies, and multiplying his activities beyond his own powers, or, indeed, those of almost any other man, he fretted himself into an early grave at fifty-three. It does not appear, from Dr. Lonsdale's 'Memoir,' that the "Bailies" (*Anglicè*, Bumbles) of Edinburgh were accessory to this calamity, as we are told they were to the parallel disaster in the case of the beloved Edward Forbes (see vol. i, p. 149); but there were not wanting in Edinburgh "ministers of Satan to buffet" a man so alien from everything Satanic as Goodsir. We will, however, follow the example of Professor Goodsir's biographer in forbearing to dwell on these memories, and in allowing the individuals in question to assist in the building of his sepulchre. Goodsir's career was like that of Sir John Moore: both undertook to restore, and succeeded in restoring, to efficiency what had become inefficient through nepotism, corruption, and neglect; both died prematurely, but, nevertheless, "wept for, honoured, known;" both had their lives prolonged

in the grateful recollections of men owing themselves and their careers to them.

There is little need to say much of the way in which Professor Turner and Dr. Lonsdale have performed their labour of love. Professor Turner is the successor, and is, therefore, presumably, well fitted for the office of editing the 'Memoirs of John Goodsir.' He has edited one, and is about shortly to give us another, edition of Mr. Paget's 'Surgical Pathology;' and thirdly, an inspection of these two volumes will show that his present performance has not belied the omen of these very favorable antecedents. From Dr. Lonsdale's 'Biographical Memoir' a fair and full conception of what Goodsir was may be gathered, even by persons who had not, as the present writer had, the advantage of personally knowing him. It is throughout interesting and lively; but it is written in a style which is very ordinarily either quaint or turgid or both, and which every here and there is a little slovenly. Such sentences as the following should not have been overlooked in the correction of the press:—"Fresh from the honours of the British Association, and now seated by the side of the Wernerian philosopher, implied that the Goodsirian star was in the ascendant" (vol. i, p. 45). And the parallel drawn between the surroundings of ancient and "modern Athens" with which Dr. Lonsdale begins his 'Memoirs,' though gratifying, no doubt, as well as interesting to the romantic Caledonian, appears a little out of place, or even a little forced, to the less imaginative Southron. Nevertheless, the 'Biography' answers its purpose; and the entire work is one which is not likely to be superseded by any rival attempting to cover the same ground, that ground being a territory with the main outlines and with many of the details of which every future biologist will be compelled to make himself acquainted.

The medical practitioner will be interested to know that Goodsir not only learnt, but for several years practised, the profession of medicine; and we are not quite sure that Dr. Lonsdale has given sufficient prominence to the years spent in this, as well as in other modes of activity, by the subject of his memoir. In Dr. John Reid's 'Physiological, Anatomical, and Pathological Researches' (p. 470), we read that his "friend, Mr. John Goodsir," had, within the last five years, attended in Anstruther and its neighbourhood about one hundred cases of fever annually, and it appears that the two friends were clear that what we now call "typhoid," or "pythogenic" fever, and find accompanied with intestinal lesions, was the common form in Fife, whilst it was rare in Edinburgh. Goodsir, indeed, himself (vol. ii, p. 372,) declines (in 1842) to enter upon the

question, as to whether a diseased condition of the intestinal glands constitutes a distinct species of disease, or is merely a form of the ordinary continued fever. But a man who formulates has already gone some way towards solving a question; and Goodsir and Reid had come very near to the meeting of the discovery, and the drawing of the distinction, which we here rightly connect with the name of Sir Wm. Jenner. It is common in the history of discoveries to find that several independent observers have been each upon the point of putting their hands upon the key of the problem they were severally engaged in looking into; time, place, opportunity, or what we call "chance," determine the question of precedence. We may observe, in passing, that it is a little amusing to note how even Goodsir could have his eyes, and indeed his other organs of special sense, diverted from attention to the intimate domestic relations which prevailed and prevail in Scotland, between the well and the cesspool (see Dr. Mac Adam, 'Third Report of Commission as to Sewage of Towns,' 1865, p. 36), and could speculate about the geographical distribution of forms of varying types in countries and continents (vol. ii, p. 372), and "circumstances social, meteorological, and geological, with the laws of which we were not yet acquainted," (vol. i, p. 77), instead of looking into the condition of the arrangements we allude to within the periphery of each house and yard which he visited in Anstruther, when investigating the ætiology of fever.

As in the case of Wollaston, a rejection at St. George's cost the profession a distinguished chemist, so a similar rejection at the Royal Infirmary of Edinburgh cost medicine and surgery the effective membership of John Goodsir. Of the possible effects of public hospital practice, and of those of private practice upon the professional life, much might be said, but not here; except to the extent of hinting that the working of the two kinds of employments would be very different. However, from the date of this rejection in 1848, up to that of his death in 1867, Goodsir held himself divorced from practice. But the truthfulness, accuracy, and thoroughness which he always insisted upon in the investigation of "God's truth" (see vol. i, p. 178), furnished the future medical practitioner with one of the best lessons a medical man can have. Carelessness and want of conscientiousness are the main causes of false therapeutics, and of the consequences they entail; and these faults may be as easily detected and corrected in the student, when he is dissecting the muscles of the sole of the foot, or indeed the muscles of a gasteropod, as when he is employed in any other line of study. Unhappily, it is usually only in student life that these faults, when detected, can be also corrected; and

teachers, therefore, of subjects apparently the most distantly connected with practical medicine and surgery would do well in the interests, not only of science but of humanity generally, to keep before their eyes, as their motto, Goodsir's saying, "Let us have God's truth in the measurements; God's truth in everything—I live for that." We here leave the subject of Goodsir's life and its influence, which this exclamation goes some way to explain, with the hope that the little we have said may induce our readers to study their history at full length in Dr. Lonsdale's pages; and we will now proceed to glance at a few of the many contributions which the late Edinburgh Professor made to the literature of Biological Science.

The doctrine of "Cell Territories," and its application to the explanation of nutrition, and secretion and disease, constitutes one of the main pillars upon which the fame of Goodsir, as "one of the earliest and most acute observers of cell life" (see Virchow's Dedication, 'Cellular Pathology,' translation by Chance), will ultimately rest; whilst, to the eye of the morphologist, his vindication of the value of development, as a criterion of homologies, is, even if a less original, still scarcely a less valuable science. But his achievements in both of these directions are well known, his memoirs upon both subjects having long ago been authoritatively published; and, upon the present occasion, we think it may be well to draw attention to Goodsir's views as to 'Man's Position in the Scale of Being,' which have been first put before the world in a trustworthy form in the eighty pages which they occupy in the first of the two volumes now before us.

In arguing for the dignity of human nature, we may either take up too much ground or we may give up too much. By doing the latter we incur all the consequences of actual and absolute defeat, both in our own estimation and in that of others. By doing the former, by establishing, that is, outworks on indefensible points, we run the risk of appearing to the outside world to be for the moment as thoroughly routed as though our very citadel were taken. Into this latter error of strategy, Goodsir, who, though incapable of personal bitterness, was yet more incapable of sacrificing principle to compromise, must at least, from his opponents' point of view, be said to have fallen. In his argument he has occupied the inexpugnable, even if not unassailable, points which the doctrines of the freedom of the will, and, on the other side, of the autocracy of conscience, furnish the true anthropologist with; but to the centrally placed and all-commanding which these positions correspond to, he has superadded certain outlying posts which can assuredly be turned, or at least masked, if indeed they cannot be taken by direct assault. Goodsir

(see vol. i pp. 213, 284) saw clearly, with Descartes and Bolingbroke, that the brute creation was distinguished from the human species by the invariability of its instinctive actions, that lower animals might be regarded as, in a certain sense, machines which "have to work," which "cannot transgress laws unless man leads them wrong," which "cannot be conceived to possess a choice between right and wrong, action and inaction." But the Supreme Being had, in his eyes, as in those of the two philosophers just mentioned, whilst

"Binding Nature fast in fate, left free the human will."

And clear-headed thinkers on both sides have long ago seen that it is upon the questions of the freedom of the will, and the authority of conscience, and not upon that of the presence of hippocampi, that the reconcileability of an acceptance of Mr. Darwin's views, with a simultaneous acceptance of certain other teachings, depends. Haeckel, in his recently published work ('Die Generelle Morphologie der Organismen,' Berlin, 1866) is as clear to this effect (*e.g.* vol. ii, pp. 212-435) as the most thorough-going of idealist or spiritualist philosophers. But whilst that section of the gradational school of biologists whom we would, for the sake of convenience and not for the purpose of giving offence, call briefly "Degradationists," sees that what they are pleased to call the false doctrine of the freedom of the will lies at the end of the entire chain of what they are pleased to call false dogmas, it is unwise to concede to them that the territory of morals and religion, which does interdigitate deeply along more than one, or indeed two, lines with that of the organic sciences, is yet so closely contiguous and conterminous with it along the entire length of these several boundaries as many persons are ready to allow. Goodsir based part of his defence of the dignity of man upon the exact contradictories of those postulates of Haeckel's to which we alluded in the first half of our last sentence, and disregarding a certain tendency to metaphysical over-refinements, which led him, *more Scotico*, to separate the "*pneuma*" of man, not only from his "psychical principle," from which it is really distinct, but also from his "will," from which, as being only one function, view, and aspect of it, it is only formally separable, we consider his position the true one. But as against either Gradationist or Degradationist the argument from the perfection of man's bodily organization, on which Goodsir insists so much as an evidence of man's radical distinctness from the brute, and of his "exclusion from any legitimate place in the animal kingdom," vol. i, 275, includes a *petitio principii*, the *principium* being the none other than the proper interpretation of the

words *species* and *creation*. Or, to put the matter into a slightly different bearing, it is obvious that the theistic follower of Darwin can mask the question of the "completeness of the human body," and disregard the excellent anatomical disquisitions contained in Goodsir's Lectures iii, iv, v, vi, and vii, as being neither more nor less than one long *ignoratio elenchi*, with the simple words "I grant all this; but the question is not as to the fact of the 'completeness,' but as to the mode and method whereby, in the dispensation of Providence, this 'completeness' was attained to. Did the Creator see fit to adopt the plan of creation through a series of variations, and submittings of them to selection; or did He, by his fiat, evoke the human form into its acknowledged perfection in an instant?" It is unnecessary to formulate the objections of other and less orthodox objectors, for their logical force, as distinct from their mere verbal asperities, lies in the fact that Darwinian principles, though not absolutely incompatible with all teleological argumentation, are so with those particular forms of it which Professor Goodsir delighted in. Of the two views of creation, that of creation by evolution, and that of creation by evocation, any two men may adhere to either; but if they are to reason together, on matters of the kind in question, they must be agreed upon electing the same one as their common ground. Nothing assuredly can be gained by such a statement with reference to man as the one at p. 283, vol. i, to the effect that "We cannot conceive an animal preserving the vertebrate type developed beyond him." From the theistic, which was Goodsir's, point of view such an aphorism amounts to a conditioning of the Unconditioned, to a limitation of Omnipotence, to a measurement of the Infinite by the rules, capacities, scales, and standards of finite and feeble human conceptions. And we should be curious to hear what logicians, such as Mill or Comte—to say nothing of men who are workers as well as thinkers, such as Darwin and Wallace—would say to such a *rationale* as the following of the extinction of a species:—"When a species ceases to exist, we must consider its disappearance as the result, not of a mere struggle for existence with other animal forms, or with cosmical conditions, nor of insufficient adaptivity to such extent of altered conditions of life as its specific endowments admit, but *as the more or less direct result of the law impressed upon its instinctive consciousness, in virtue of which it must cease to exist when no longer supplied with the conditions on which its activity and faculties may be exercised through the instrumentality of its corporeal vehicle.*" The italicising is ours.

We think that Goodsir has still further weakened his case by suggesting that the study of comparative psychology (i, p. 308)

is likely to be of as much service to the cause he is advocating as the numerous works now appearing on the subject, especially in Germany, would make it appear that many persons agree with him in thinking it is. For, at least in our opinion, Bonnet's dictum, to the effect that no advance can be made in comparative psychology until a philosopher has spent some time within the head of an animal without actually being that animal, constitutes an insuperable objection *in limine* to the validity of the arguments and counter-arguments of such works as the 'Vergleichenden Psychologieen,' of C. G. Carus, of Max Pertz, and of Wundt. But, granting that a "comparative psychology" may possibly not be an "Unding" or an *ipso facto* impossibility, of what use is it to cumber one's self with such arguments as it may furnish when one has adopted, as Goodsir so emphatically did (vol. i, pp. 213, 271, 276), St. Paul's trifid anthropology, to which Kant's philosophy is really reducible, and which teaches that body and soul and spirit are three distinct, however co-ordinated, entities, and that it is the addition or superaddition of the latter of the two immaterial factors specified which makes man to be what he is? It is always unwise to thin and spread one's line of battle when in front of an enemy who is really in earnest. If Napoleon had withdrawn his garrisons, in 1813, from the banks of the Ebro and the Elbe, he would not have been defeated on the Seine and the Marne; and comparative psychology is but a waste of power and force similar to that which left troops in busy idleness at Tarragona and Hamburg, whilst Blucher and Schwartzenburg were fighting their way to Montmartre.

If Professor Goodsir thus took up positions which, if not indefensible at all, need not necessarily have been occupied, he, on the other hand, and perhaps as a consequence of this error, omitted to fortify certain other points which commanded more or less of the entire extent of his lines. We are surprised to find no allusion to the question of causation in discourses delivered within the precincts of the city of David Hume, though the Professor may very well have been weary of the endless disquisitions on this subject to which all inhabitants of "Auld Reekie" are subjected by the *genius loci;* or may, to speak more seriously, have very well thought that the "categorical imperative" within him was articulate enough to make it unnecessary to discuss this, the objective, side of the question of free will.

A second omission, which a scientific writer should not have been guilty of, consists in not meeting the objection which is often raised against all moral and other argumentations *in pari materie,* on the very broad ground that they cannot claim to be

supported by evidence of at all the same quality as that which is rigidly required in all scientific questions. "How can you," say such objectors, when arguing with a man professedly scientific, "accept those conclusions of yours in these matters, when you allow that they rest upon evidence different in kind from that which you feel bound to employ in the subjects which are the business of your life?" But we think that medical practitioners who are old enough to be in large practice, without being too old to have forgotten the evidence upon which they acted in choosing their laborious line of life in preference to some more highly paid and less hardly worked avocation, will confirm us in saying that in the world as actually existing, to the evidence upon which they now have to act daily, as also to that upon which they formerly acted in the decision of the great question of choosing a profession, a demonstrative character is as much wanting as to any conclusion in religious, moral, or sociological matters. It is true, of course, that the element of probability, if present in the premises, must diffuse itself in proportions varying according to certain quantitative relations over into the conclusion. But in the two cases which we have just adduced as analogous in their evidence to the reasonings employed in moral and kindred subjects, however nearly the two scales may approach to equipoise, the conclusion to which the preponderating one points is considered to be imperatively incumbent upon all men in their senses; and we submit that acceptance is as incumbent in the one, as action is in the other series of cases.

It is an ungracious thing, however, to part from John Goodsir with criticism for our farewell, and we have pleasure, therefore, in going on to point out that in his lecture on 'Life and Organization,' which was delivered in 1856, and which, though not previously published, is of all his compositions the one most perfectly finished, this real anatomist and physiologist hints, not obscurely, at the unanswerable reply which can always be given to whatever arguments of the type of those furnished by 'Concomitant Variations,' the materialist can bring for the dependence of mind upon matter. "The nature of the connection between the chemico-physical properties of the living organism and its psychical manifestations will," says Professor Goodsir, "in all probability continue a mystery." . . . "At present I prefer stating the relation between the psyche and its organism as one of co-ordination" (vol. i, pp. 291, 297). In speaking thus, Professor Goodsir appears to have anticipated the utterances of Professor Tyndall, delivered to the very same effect last August at Norwich, but previously, as we think, to the publication of these volumes (see 'Athenæum,' August 29, 1868). He has anticipated also the similar *dictum* of Herbert

Spencer, which may be found in his more recently published fascicles on Psychology (October, 1868, No. 21, p. 140), as also that of another writer,[1] who, in 1862, whilst speaking of certain "concomitantly varying phenomena" which did *not* seem to lead to the conclusion that our "higher and diviner life" was the "result of the abundance of our convolutions," went on to say, that how such harmony as does exist "may have come to exist between them, our faculties are incompetent either to decide or to discover, but that this shortcoming of man's intelligence affects neither his duties nor his hopes, neither his fears nor his aspirations."

Review II.

1. *Annual Reports of the Registrar-General.* 1839—1869.
2. *On the Numerical Test of the Health of Towns.* Paper by Drs. A. Ransome and Royston, in the Manchester and Salford Report. 1863.
3. *Reports of the Manchester and Salford Sanitary Association.* Edited by Dr. Morgan. 1864 et seq.
4. *Reports of the Durham and Northumberland Medical Society.* Edited by Dr. Philipson.
5. *Statistical Examination of the Margate Death-rate for the five Years* 1863-1867, *by order of the Council of the Borough of Margate.* By Edward Mottley. Pamph., 1868.
6. *Two Papers on the right use of Records founded on Local Facts, read before the Social Science Association at Bradford,* 1859. By H. W. Rumsey, M.D. Pamphlet. 1860.
7. *Address on State Medicine, read before the British Medical Association at Dublin.* By H. W. Rumsey, M.D. Pamphlet. 1867.
8. *Paper by Dr. Ballard, read before the British Medical Association at Oxford,* 1868. 'Brit. Med. Journal,' Aug. 22nd, 1868.
9. *The Danger of Deterioration of Race from the too rapid Increase of great Cities.* By John E. Morgan, M.D. Oxon. Paper read before the Social Science Congress. Sheffield, 1865. Pamph. 1866.

The year 1869 completes the third decade since the commencement of our system for the registration of the cause of death. It would seem, therefore, a fitting opportunity to examine by the light of the able reports which issue year by year from the department of the Registrar-General what we have gained by the laborious collation of so many facts and figures,

[1] See 'Med. Times and Gazette,' March 15, 1862.

and the extent to which results have satisfied the aims of those by whom they have been so carefully elaborated.

Before proceeding to our more immediate subject it will be well to look back for a moment, and contemplate the almost total dearth of reliable information respecting the value of life and the frequency of death previous to the year 1838, when the first report was issued. Life tables were, indeed, in existence; but they were contradictory, and entirely unsatisfactory. Dr. Price's table, founded on the register of births and burials at Northampton, differed from Dr. Milne's, founded on the mortality at Carlisle, so far, "that a society which should adopt the Northampton tables would, if the mortality among its members should correspond with the Carlisle tables, have three annuitants where it calculated upon two; of these annuitants, moreover, a larger proportion would live to enjoy the annuity for a considerable number of years."[1]

By the new system of registration reliable data were for the first time supplied, and the older authorities were soon rendered obsolete by the publication of those magnificent life-tables, which alone are sufficient to render the name of Farr illustrious.

In a sanitary point of view the ignorance was so complete, that Liverpool, of all places, was believed by persons well informed to be one of the healthiest spots in England; and Mr. Rickman could say (in the 'Population Abstracts' for 1831) that "the great increase in the town of Liverpool is attributed to the salubrity of the air," &c.

Loose statements of this kind, deduced, in the majority of cases, from burial returns, could not long escape detection; and popular opinion was soon obliged to yield to the new test of death-rate. We shall have to consider presently the true value of the death-rate as a test of health; for the present it is pleasanter to dwell on the successful efforts which are made by the Registrar-General and his officers to render the new system of registration of permanent value to medicine, as well as sanitary science. It must ever be remembered to their honour that the voluminous comments and inquiries which accompanied their reports were amongst the first pulsations of that sanitary movement which has grown and struggled on, in spite of every obstacle, until in our own time it claims a literature and a separate representation of its own. With the exception of the Poor-law Relief Commission in 1832, the Factory Regulation Act of 1833, and certain Acts for the promotion of vaccination, the registration of the cause of death (an unauthorised but happy suggestion due to the Registrar-General himself),[2] was the first attempt, in this century at least, to ascertain the sanitary state

[1] 'Annual Report of Registrar General,' i, p. 16. [2] Ibid., i, p. 11.

of the country, to expose evils long suspected, to reveal others of which no suspicion had ever existed, and to suggest a remedy. As early as May, 1839, Dr. Farr proclaims that "it is possible to reduce the annual deaths in England and Wales by 30,000," and in the same letter occurs the framework of a nosology which has but recently reached its full development. The increased mortality due to density of population and overcrowding was detected by the very first return, and led to a minute examination into the causes of large death-rates in town populations. Perhaps one of the ablest of Dr. Farr's classical papers on sanitary subjects is that in the fifth report, which deals with the causes of disease in crowded courts and impure dwellings.

At the close of 1842 a series of questions were forwarded to all the metropolitan registrars, requesting information on the water supply, drainage, density of population, and nature of diseases found in their several districts; and the replies obtained were of undoubted value, although we may reasonably suppose that some of the informants would scarcely, from their status, be the best judges of water, air, drainage, and other sanitary requirements.[1]

We would particularly draw attention to the fact that inquiries of this nature had their origin in the voluntary exertions of the Registrar-General's office; and were a fit introduction to the able reports which since the year 1858 have issued from the Privy Council through their medical officer.

In the Registrar-General's Reports for 1851 and 1852 we find the germ of those ampler inquiries into the mortality of certain trades and professions, which we owe to Drs. Greenhow, Buchanan, Gull, and others,—a happy instance of the co-operative action of these two governmental departments, the one suggesting, the other by local knowledge, and consideration of attendant circumstances, confirming or else correcting the conclusions deduced from figures alone.

It is the laborious collection of local facts, and the just appreciation given to disturbing causes acting over limited areas, which has lent a peculiar value to the reports of the medical officers acting under the Privy Council, and has placed them not unfrequently in favorable contrast with the somewhat rash generalisations of the older office; but of these hereafter. It has been our object for the moment to point out the great value of that system for registering the cause of death, which was inaugurated by the Registrar-General in 1838, and the various uses to which so vast an accumulation of facts and figures have, by Dr. Farr's industry, been made subservient.

If in the remarks which follow we are obliged to point out

[1] 'Annual Report of Registrar General,' v, p. 473, and xxiv, p. 43.

certain defects in our registration system; if we shall appear to lay more stress on failures than on success, it is from no wish to depreciate a really great work, or to detract from the well-earned fame of our greatest sanitary statist. If the results of to-day have not quite fulfilled the hope and promise of thirty years ago, we may feel assured that it is due to inherent difficulties of no mean dimensions. No words could express more clearly the advantages anticipated from the new registration system than those of Dr. Farr himself in his first official letter in 1839. We shall take them as our text on the present occasion, and consider by the light of subsequent reports how far present results have fallen short of these expectations, at the same time examining the causes which would appear to oppose the full development and usefulness of a system so well matured and so energetically administered.

It will, perhaps, be convenient if we confine our attention at present to the medical rather than the commercial aspect of death registration, to sanitary statistics rather than to life tables.

The health of towns is a subject of growing importance; not a watering-place on our coasts but appeals to the figures of the Registrar-General as a final and indisputable testimony to its sanitary status. Medical men with views extended and enlarged by the sanitary knowledge of the day, are ceasing to be mere prescribers of drugs. Prevention is put before the cure of disease; and some knowledge of hygiene in its largest sense is expected from the most remote practitioner; to such the tables of the Registrar-General are presented as a health barometer, to guide him in the choice of residence for the sick, and in the treatment of disease.

In Appendix P to the first report Dr. Farr writes:

"A. One of the many obvious applications of the facts will be to *the promotion of practical medicine;* and the extent to which epidemics vary in different localities, seasons, and classes of society, will be indicated by the registered diseases; and the experienced practitioner, wherever he may be placed, will learn to administer remedies with discrimination, and with due reference to the circumstances of the population. He will discover that the character of diseases change, and will not treat a pneumonia in the same way in Whitechapel and in Westmoreland, if it appear from the causes of death that the diseases and constitutions of the population present striking discrepancies.

The modifications in the character of diseases, and in the medical treatment, are indicated perhaps more accurately by the prevailing epidemics than by either the temperature, the hygrometricity, or any other appreciable condition of the atmosphere; and it was Sydenham's doctrine that the treatment of acute diseases should

have a reference not only to the immediate symptoms and to the seasons, but also to the epidemic constitutions of the year and place. A national system of registration, like the present, can alone indicate the character of the diseases in every district. . . . .

"B. The registration of the diseases of the several districts will *furnish medical men with a series of valuable remedial agents.* It will designate the localities where disease is most rife,—where there is the least tendency to particular classes of sickness and infirmity. In recommending a residence to patients, the physician will find the registered causes of death an indispensable directory, and the utility of a sanatory map of the country, such as the returns will furnish, cannot fail to be felt in England, where a part of the population is constantly migrating from place to place in search of health. . . . . .

"C. The registration of the causes of death, besides contributing to practical medicine, will give greater precision to the principles of physic. Medicine, like the other natural sciences, is beginning to abandon vague conjecture where facts can be accurately determined by observation, and to substitute numerical expressions for uncertain assertions. The advantages of this change are evident. The prevalence of a disease, for instance, is expressed by the deaths in a given time out of a given number living, with as much accuracy as the temperature is indicated by a thermometer, so that when the mean population of the district is known, the rise and decline of epidemics may be traced exactly, and it will then be possible to solve the problem whether certain tribes of epidemic disorders constantly follow others in one determined series or cycle.

"D. Diseases are more easily prevented than cured, and the first step to their prevention is the discovery of their exciting cause. The registry will show the agency of these causes by numerical facts, and measure the intensity of their influence. . . . . In exhibiting the high mortality, the diseases by which it is occasioned, and the exciting causes of disease, the abstract of the registers will prove that while a part of the sickness is inevitable, and a part can only be expected to disappear before progressive social amelioration, a considerable proportion of the sickness and deaths may be suppressed by the general adoption of hygienic measures, which are in actual but partial operation."[1]

Such is the Utopia to which the eyes of medical men were directed in 1839! such is the scope and aim of our system for the registration of the cause of death. Let us look for ourselves and see how far they have been attained.

The characteristics of a nation or a race are but the sum of the characteristics of the individuals composing it; the πολιτεία is the reflection of each separate πολίτης; and so it is with the great sum presented each year in the abstracts of the causes of death by the Registrar-General. The accuracy of the whole is

[1] 'First Annual Report of Registrar General.' Appendix P, p. 86.

necessarily dependent on the accuracy of the units of which it is composed. A death certificate is such a unit; and it will be well before proceeding further, to follow out the circumstances under which the cause of death is usually certified; we shall then be in a better position to estimate the value of such a certificate, and the weight we shall be justified in giving to the deductions based upon it.

In the first place, the registration of the cause of death is not compulsory either on the part of the medical attendant or the friends of the deceased; it was solicited as a favour through the Presidents of the Colleges of Physicians and Surgeons, and the Master of the Apothecaries' Company; it was earnestly recommended to the profession by the Registrar-General, but it was not required by the Act for Registering Births, Deaths, and Marriages.[1] The appeal to medical men was not made in vain, for although fifty recusants were recorded in 1845, there are few, if any, at the present day who would, without special cause, decline to state the disease to which a patient's death might be attributed. The imperfect tale of certificated deaths cannot be laid to the medical profession; they have done their part often at great personal sacrifice and inconvenience; it is due solely to the laxity of a law which allows the child farmer, the midwife, the maid-mother, to account for the sudden death, the marasmus, or still-birth of illegitimate offspring, which leaves it to the discretion "of a solicitor, a chemist, a clerk, a schoolmaster, a farmer, a dissenting minister, a parish clerk, an undertaker, a landagent, a surveyor, an auctioneer, a grocer, or a tailor,"[2] to decide whether the testimony of such witnesses is to be accepted or not.

What the discrepancy may be between certified and uncertified deaths must be more or less conjectural. It will vary with the character of the population and the vigilance of the local Registrar. In parts of Wales a certified death forms the exception, and not the rule. Dr. Hunter found in the town of Narberth 287 uncertified, out of 450 entries in the Registrar's book;[3] but even this is eclipsed by the St. David's register, which, out of 500 entries, showed but fifteen medically certified. These are extreme cases, it is true, yet even here the office of the Registrar-General gives no uncertain sound; the totals stand boldly out in the Annual Report, and assume to guide us. We are told of the single case of scarlatina, measles, or typhus, as if there could be no doubt or question about the facts. Surely Dr. Farr would not wish us to send patients to St. David's on evidence,

[1] 'Annual Report of Registrar General,' i, p. 77.
[2] Ibid., xxiv, p. 43.
[3] 'Privy Council Report,' vii, 496.

however favorable, derived from one in every thirty-three of the registered deaths!

Uncertified deaths in large towns are, of course, less numerous than in the country parishes we have quoted; but it is said that even in Manchester as much as one third of the deaths come under this head; and taking England and Wales together we have the authority of Dr. Farr for saying that in 1858, out of every 100 deaths registered 83 were certified by the medical attendant or coroner, and 17 were uncertified. If the causes of death in 83 cases out of 100 were thoroughly reliable, little fault might be found with the conclusions deduced from them; but this is far from being the case. Let us pursue the matter further, and look somewhat more closely into the circumstances under which the medical certificate is usually given, and the difficulties which surround it.

In the first place a certificate may be given either through fraud or inadvertence, when no death has taken place. The certifier is not bound to view the corpse, though, as the Registrar-General remarks, "it is, of course, incumbent on him, when he has not actually seen the corpse, to exercise a wise discretion as to the reliance placed by him on the statement made to him of the death having occurred in his absence."[1]

The results of evidence so loose and unsatisfactory is apparent in the fact that, although "a certified copy of an entry sealed at the Registrar-General's office is evidence according to the Act, without further proof of the death to which it relates, the Bank of England refuses such evidence;"[2] and the Vice-Chancellor is reported as saying, in Leach *v.* Leach ('Times,' March 6th, 1844), that the registry "proved only that some one called at a particular house, and was told by some one that a man named So-and-So was dead; although such evidence was Parliamentary, he did not consider it sufficient here."

The whole subject is ably discussed by Dr. Farr, in a letter which accompanies the twenty-seventh Annual Report of the Registrar-General, where it is proposed that the medical certifier "shall have seen the deceased on the day of death, or shall have seen the body subsequently for identification," all deaths not so certified to be inquired into by a recognised medical registration officer duly appointed in each district. Such an official could not fail to be a most effectual check on fraud and carelessness; but we may reasonably doubt whether the latitude which would still be allowed to medical men is not too great, and whether the dead body should not in all cases be certified, after inspection, as that of the patient seen in life.

[1] Letter from the Registrar General, 'Brit. Med. Journ.,' May 2nd, 1868.
[2] 'Annual Report of Registrar General,' vii, p. 179.

A grave responsibility now rests with the medical attendant who certifies to a death on hearsay evidence, and many decline to do so.[1]

At a meeting of the medical profession in Liverpool it was proposed to alter the present form of certificate as follows:

"I hereby certify that I attended , whose death has been reported to me by ; that I last saw h ," &c.

But this shifting of responsibility, satisfactory as it may be to the certifiers, adds nothing to the evidence which would render it more acceptable to the legal mind.

Fraudulent certificates are, however, few in number, and insignificant as compared with the vast tale of sudden deaths from certified causes, on which, in the absence of a post-mortem examination, no reliance can be placed.[2]

The certificates signed by a qualified practitioner, and filled up by his unqualified assistant need not be dwelt upon in this place, though we have good reason for believing that in one town at least an excessive death-rate from cerebral disease has been due chiefly to the affection which an unqualified assistant shows for the term *phrenitis* as a cause of death. If we consider the influences brought to bear in private practice, the sensitiveness of friends in cases of death from cancer, delirium tremens, syphilis, mania, and the great probability that symptoms under such circumstances may be made to do duty for disease, the conclusion is inevitable that these special diseases will stand below their normal amount in the grand total, and that no deduction can fairly be based upon them.

To quote but one example: Dr. Morgan, in a closely reasoned paper on "Deterioration of Race in Large Towns," speaking of constitutional syphilis, says, "it is not easy to estimate the extent to which this baneful and contaminating disorder is generally disseminated. On this question we learn little from registers of mortality. Actual death comparatively rarely results either from the directly contracted or inherited form, and even when it does, its true origin is often ascribed to some more innocent cause, less calculated to wound the feelings of surviving relatives. But, though the registers are silent, we may learn much from disease returns. In the course of the two years, 1863 and 1864, 3217 new cases of constitutional syphilis were observed in that portion of the public practice of Manchester from which the returns of the Association are derived."[3]

[1] The out-patient staff of the Hospital for Sick Children, Great Ormond Street, decline to certify on these terms.

[2] Registrar General's Report, iii, 94.

[3] 'Danger of Deterioration of Race,' by J. E. Morgan, M.D., p. 32.

But presuming that the large majority of causes of death are honestly given, with every wish to follow out the directions of the Registrar-General, it will be seen that even here the difficulties and discrepancies are sufficient to vitiate any but the widest generalisation of facts.

According to the rules laid down by the Registrar-General:

"The signers of English certificates have nothing to do with classification; they state simple facts."[1]

Secondly. "The duration of disease must be substituted for acute, chronic, sudden. This will furnish many highly important results. The latent stages must not be guessed."[2]

The cause of death and the duration of that cause are to be clearly and succinctly stated. But a clear statement of facts is not always easy. The commencement of disease is seldom well defined, and dates far beyond the first visit of the doctor—even far beyond the first abnormal sensations of the patient. The symptoms of degenerated kidney or diseased heart are seldom noted until œdema gives rise to alarm. Scirrhus, phthisis, ulcer of the stomach, ovarian disease, and diabetes, are usually detected at an advanced stage, when no precise date can be assigned to their commencement.

In some acute diseases—as pneumonia arising from a chill, or measles beginning with malaise and symptoms of catarrh—something approaching to accuracy may be reached; but it is clear that conclusions deduced from any but the zymotic diseases, and a few others equally well defined, must be open to the gravest doubts, and that if the latent stages are not guessed roughly, they are not given at all. In one town, with certified entries of death amounting in the year to 759, we found that 414 only were accompanied by data sufficient to divide them, even approximately, into acute and chronic; whilst 346 gave no information whatever on the subject. But to return to the cause, or rather causes, of death. There is scarcely any medical man who has not at some time or other felt the difficulty of filling up a certificate clearly and intelligibly and honestly, with a concise statement of facts. He is told not to classify; he is to act as a mere amanuensis—to note down what he sees in its proper sequence, and that is all; but bald facts in the absence of the interpretation placed upon them by the medical attendant would be worse than useless. Dropsy without a clue to its origin in kidneys, liver, or heart, or venous obstruction, gives information of no value to the sanitary statist.

There must be classification, however unconsciously it may be performed; and it is by the correctness of this primary

[1] 'Annual Report of Registrar General,' ii, p. 79.
[2] Ibid., iv, p. 146, and vii, p. 259.

classification that the worth of the larger generalisations must eventually be weighed. No subsequent manipulation by the clerks in a central office can compensate for ignorance or carelessness in the original entries. It is in these that improvement must be sought, and the issue of a new nosology, sanctioned by the highest authority, leads us to the hope that something will be done towards remedying the shortcomings of the present and the past. Considering the extreme importance attaching to authentic mortuary returns, and the wide use which is now made of the generalisations derived from them, it would scarcely be too much to require some knowledge of the subject on the part of those who are to contribute so largely to the results. It is in the schools, and in the schools only, that such knowledge can be attained, and the whole system of death registration and nomenclature of disease might reasonably form part of the curriculum of study insisted on by the different examining bodies.

The long list of vague or inadequate causes of death given by Dr. Farr in the 'Fourth Annual Report of the Registrar-General,' p. 166, shows plainly the rock on which practitioners have foundered. It is not professional ignorance or faulty diagnosis so much as a want of uniformity of system, and entire inability, owing to defective teaching on this point, to appreciate the importance of accuracy and definition in the returns which they make.

In South Wales, for instance, Dr. Hunter found that consumption was used to mean not necessarily a thoracic complaint, but something analogous to decay, or, in advanced years, at 82, as synonymous with natural death.[1]

Even in Manchester, according to Dr. Leigh (writing in 1852), there was no record of emphysema in the death certificates, when eight out of twelve in one trade were affected by it; no one died of acute rheumatism, and but few from pneumonia.[2]

Any one who has examined a collection of death certificates, must have been struck by the variety of so-called second causes, and by the confusion which evidently exists in the minds of certifiers as to the exact nature of the entries which are expected from them; hence the frequent insertion of two or more possibly independent diseases, such as—

Morbus cordis and bronchitis,
Paralysis and bronchitis,
Diseased heart and laryngitis,
Diseased liver and kidneys,
Diseased stomach and liver,

[1] 'Report of the Medical Officers of Privy Council,' vii, 496.
[2] 'Quarterly Return, Registrar General,' 1852, No. i, p. 22.

the actual cause of dissolution being omitted, or expressed in such vague terms as exhaustion, nervous prostration, or marasmus.

With the greatest deference, we would ask Dr. Farr where is the great advantage for statistical purposes of recording a second cause? What do we gain by knowing that typhoid has ended in pneumonia, or scarlatina in convulsions of so many hours' duration? Surely statistics of the complications in acute and chronic disease shortly before dissolution are better learned from accurate hospital records than from the very uncertain entries on death certificates. If it is intended as a record of the manner of death (Todesart), we think with Dr. Rumsey, that a true mortuary register should be distinctly apart from any attempt at a record of sickness.

The fallacies, then, of death registration, as they affect the totals of the Registrar-General, may be briefly summed up as far as we have gone:

(A) Deaths which have not been certified.

(B) Deaths which have been medically certified.

(1) Certificate given where there has been no death.
(2) Certificate filled up in a non-natural sense.
(3) Certificate filled in by an unqualified assistant.
(4) Certificate given in case of sudden death; no post-mortem examination; cause surmised.
(5) Certificate filled up in ignorance of facts; faulty diagnosis.
(6) Certificate filled up in carelessness; use of local terms.
(7) Certificate inadequate, or defective from ignorance of form.
(8) Certificate accurately given by the certifier, but useless for classification, such as concurrent diseases, without the actual cause of death.

From the certifier the certificate passes through the friends of the deceased to the Assistant-Registrar, who may happen to be farmer, grocer, or tailor. Can we wonder that the rustic interpretations of medical caligraphy are often puzzling and obscure. It is here that the raw material—the unclassified fibre of a medical entry—first passes into the statistical mill, and is submitted to the rough teasing of the Registrar-General's staff. In the absence of any official inspection or comparison of certificates with the registered entries, it is in the power of tailor or grocer to omit a second cause or a note of duration of disease, and so prepare the way for that system of classification which is

denied to the certifier himself. When the tale of 500 entries is complete, they pass to the Superintendent-Registrar, and are thenceforth removed from public gaze until they are in due time woven into the fine and wondrous tissue of the 'Quarterly' and 'Annual Reports.' Little is known of the processes through which they pass. Dr. Farr has partially raised the veil from time to time, and we are permitted a glimpse of clerks learned in the nomenclature and classification of disease, supervised and guided in their work by that untiring and vigorous mind, to which an analysis of 400,000 deaths per annum does not appear as an impossible feat; but of the principles on which the classification is conducted, we are left in ignorance the most profound.[1]

Setting aside the necessary doubts, the unavoidable errors of diagnosis, and taking the certified entries as they stand to be tolerably correct on the whole, one cannot examine them without feeling that more than one interpretation may be given to a large proportion of the causes of death, even by one versed in medical nosology, and in the sequence of morbid changes. We should like to know the instructions issued by Dr. Farr to his clerks, and what interpretations they or Dr. Farr himself would place on such entries as the following, taken at haphazard from a register:

"Morbus cordis, five years; phthisis, three years.
Congestion of heart and lungs.
Old age; bronchitis [Would this add to a town's repute as old age, or detract from it as bronchitis?].
Diseased heart; laryngeal ulceration.
Asthma; Bronchitis.
Diseased liver and kidneys.
Hepatic and pulmonary congestion.
Spinal disease two years; dropsy three months; bedsores.
Lead poison; diseased spine and bowels."

To quote Dr. Rumsey—

"How is he, the classifier, to determine the proper place which the death so certified should occupy in the national classification of causes? His allotment must often be quite as arbitrary as the certifier's statement, and therefore quite as unreliable. In fact, the ætiological views of the classifier for the time being must determine the distribution of a host of units."[2]

The crude nosologies in common use are not those of Dr. Farr, and it must be clear that so long as certifiers are unin-

[1] Dr. Farr did once say at Vienna that one man could alone analyse and abstract 400,000 deaths per annum.

[2] 'Address on State Medicine,' by H. W. Rumsey, M.D., 1867.

structed in nosology and forms of statistics, the profession and the Registrar-General will continue to run in different grooves; and the records of the former, however faithful, will need a mischievous manipulation before they can take their place in the elaborated total of an annual report.

We have now enumerated the chief dangers which beset the death certificate from its origin with the certifier to its final goal in the hands of the classifying clerk, and it must be acknowledged, that in all but zymotic diseases, where identification is easy, the odds are fearful against a fact finding its way safely through such an ordeal. But if this is so, must not our faith in the statistical returns be rudely shaken? Can we safely use them as premises on which to base larger conclusions. "The smallest evil," says Dr. Buchanan, "of registration, which admits of erroneous entries, is the vitiation *pro tanto* of all deductions from the death returns."

That they have answered great ends, and done good service, in the masterly hands of Dr. Farr, we have already shown and freely allowed, but it is possible to bring the vast labours of the central office to bear upon our sanitary life with a mischievous success; a slight examination will suffice to prove that this is so.

On referring to Dr. Farr's remarkable letter in the first annual report (Appendix P, p. 86), the first thing that strikes us is the fact that registration of death and registration of disease are used indifferently to describe the certified entry of the cause of death.

We shall presently endeavour to show that the cause of death is no safe indication of the prevalence or fatality of disease, and that the conversion of a mortuary record into a health barometer is to the last degree mischievous and the results untrue.

1. Dr. Farr's first point is "the promotion of practical medicine." The practitioner will be guided by the registration of disease to a knowledge of the prevalent constitution and diseases of the district in which he resides; he will be guided in his treatment by the epidemic constitution of the year and place. He will be warned of sickness, and patients will not be sent into the jaws of an epidemic.

2. The registration of disease, by furnishing material for a sanatory map, will place in the hands of the medical man a series of reliable climatic agents in the cure of disease.

3. The registration of the causes of death will give greater precision to the principles of physic.[1]

4. The registry will show the causes of disease, will measure their intensity, and lead to their prevention.

[1] 'Cf. Registrar-General's Reports,' ii, p. 70; and iv, p. 3.

To fulfil the first requirements here indicated, it is essential that the returns of causes of death and prevalent disease should be prompt and accessible. We know that the abstracts of the Registrar-General are more than a year after date, and the quarterly notes at least a month. Epidemics are passed and gone; the lesson has been learned; the town is drained; the horizon is cleared before the warning note from the central office is heard; the door is closed when the steed is gone; or fever may have broken out afresh, and the highly praised health resort may have lured many to death with its syren voices ere the statistical Orpheus shall have condemned it to silence and desertion. The difficulties attending a prompt return of disease or death from the central office must be insuperable without a much more perfect and extended organisation. It would be well, therefore, if local effort could be made in some sense to supplement the shortcomings of the national returns—if local knowledge of topography, meteorology, drainage, water supply, social conditions, and all those circumstances which more immediately affect a people's well-being, could be brought to bear upon the interpretation of local records of sickness and disease.

The medical man, when he enters upon a new field of practice, is naturally anxious to know something of the diseases which characterise the district, of the unhealthy quarters, the fever dens, the pesthouses of his town. Reference to the annual reports cannot satisfy his yearning; they are too general. His only resource is in the Superintendent Registrar of his district (a lawyer, probably), who is permitted to place a prohibitory tariff on the examination of those very records which, but a few months before, had been gratuitously contributed at no slight inconvenience and trouble.

The centralisation of our registration system is a serious evil, and the want of local knowledge and local supervision is severely felt. Nothing can be more fallacious than the conclusions often to be drawn from the figures of the Quarterly Report, in the absence of local correction and comment. One instance will suffice. "Why," asked the Registrar-General in 1864, "why is the mortality of the Isle of Thanet, including Ramsgate and Margate, still 23? Why is the mortality of Hastings 24? Why is the mortality of Clifton 24? Why is it in Yarmouth at the rate of 25 in 1000?" These figures we may remark were for three months only, Bath being quoted at 25, and Cheltenham at 17 for the same period. Now, setting aside the unsatisfactory nature of conclusions derived from three months, and the mischievous use here made of them, it will be seen by a reference to papers read before the statistical

section of the British Association in the same year, that in the case of Bath, Clifton, and Cheltenham, the verdicts were calculated to deceive.

"The figures of the Registrar-General's Report," said Dr. Symonds, in his defence of Clifton, "were as plain as the 'Mene Mene' on the walls of Babylon, and yet as much in need of interpretation." But the surprise of the numerical statement subsided when it was explained that Clifton, in the Registrar-General's report, did not mean merely the watering place, but the watering place, together with subdistricts possessing a population, crowded, destitute, and almost quintruple the population of Clifton proper. In the case of Cheltenham, Dr. Wilson showed that it had gained as much as Clifton had lost by alliance with adjacent parishes. The district, with a death-rate of 17, comprised the town with a death-rate of 19. And Mr. Mottley, answering for Margate, has shown by a detailed analysis of the register, that the apparently excessive death-rate there is due to the circumstance that "the names of strangers now occupy one-third of the registration list, a fact certainly never before recorded, and one that has no parallel at any place of popular resort on the Continent, and certainly not in any of the 623 districts of England and Wales."[1]

But, perhaps, the clearest idea of the local information absolutely required to correct the registered death-rate of a district may be gathered from the report by Dr. Buchanan, on the distribution of phthisis as affected by dampness of soil.

Sir Roderick Murchison, and many others, had assisted in the geology; military and naval officers, directors of convict prisons, superintendents of lunatic asylums, medical officers of hospitals gave themselves labour *to enable corrections to be made in the registered mortality of districts!*[2]

The local inquiries so ably carried out by the medical officers of the Privy Council, are but one of the means devised for supplementing the acknowledged shortcomings of our registration system. So urgent is the necessity for local information, prompt and reliable, that many large towns, such as Glasgow, Liverpool, Manchester, and Newcastle, and Dublin, have voluntarily incurred the expense attendant on an accurate and speedy return of the cause of death—in some cases of the prevalence of disease.

The whole subject of the registration of disease has been ably treated by Dr. Richardson, in a paper recently read before the Metropolitan Association of Medical Officers of Health. Its growing importance, and the intimate connection which it has

[1] Statistical examination of the Margate death-rate, by Edward Motley. 1860.
[2] Tenth 'Report of the Medical Officer of the Privy Council,' p. 57.

with the certification of death, must be our excuse for dwelling upon it somewhat largely in this place.

Is it a fact that the prevalence of disease is expressed by the deaths in a given time, out of a given number of living, with as much accuracy as the temperature is indicated by a thermometer?

Experience and almost universal testimony answer, that it is not,—that any conclusions based on such principles would be far from the truth. Dr. Ballard, in a paper read before the British Association at Oxford, in 1868, showed beyond a doubt the non-agreement of the disease and death barometers.

The order of *sickness* was least in spring; next, summer; winter; greatest in autumn.

The order of *fatality* was least in spring; next, summer; autumn; greatest in winter.

Taking the months—

The *sickness* was least in May, then April, June, September, March, February, August, July, October, January, November, December.

The *fatality* was least in September, then June, May, August, October, July, April, February, March, November, December, January.[1]

From a variety of causes, more or less appreciable, on the spot, but totally beyond the cognizance of any central authority, the death-rate varies for the same disease in different epidemics, and for the totality of diseases in following years. Thus, out of 82,441 new cases of disease in public practice at Manchester, in 1863, 1 in 30 died. In 1864, with 75,754 cases, 1 in 28·6 died; whilst in 1865, with 74,490 new cases, 1 in 25 died.

"Though, as a rule" says Dr. Morgan ('Manchester and Salford Report,' 1864) "a rise in the disease return is, usually after some short interval, followed by an increase in the death-rate, still (as the statistics of this Association abundantly prove) such a result is by no means constant, for there are seasons in which, even though sickness proves very general, the mortality is not excessive."

Other reasons for the discrepancy between disease-rate and death-rate are well given by Drs. Ransome and Royston, in their paper on the 'Numerical Test of the Health of Towns.'

"It is the vast influence of the so-called moral causes of disease (drunkenness, want of care, &c.) that should prevent us from drawing any conclusions respecting the physical sanitary condition of a place simply from the magnitude of its death-rate."

The conclusions they come to are as follows:—

[1] 'British Medical Journal,' August 22nd, 1868.

1. That the migration of persons from healthy districts to towns caused important variations in the death-rate.

2. This variation not being due to causes connected with disease, prevents any determination of the health of towns by a mere comparison of their respective death-rates.—P. 13.

3. No conclusion can be drawn as to the sanitary conditions of a town from a mere inspection of its rate of mortality.

They point out, further, two great classes of causes for preventable deaths, which can be ascertained to exist only by local investigation, and local knowledge of facts. These are—1. Defective sanitary arrangements, or essential physical insalubrity of the places themselves.

2. Those produced by the so-called moral causes from want of proper management of health on the part of the people themselves.

The extent of a visitation of *small-pox* can scarcely be measured by the deaths, when the death-rate per cent. of cases varied from 0 in Philadelphia among those previously vaccinated, to $7\frac{2}{3}$ in Milan, and from $14\frac{1}{2}$ in Carinthia, among the unvaccinated, to 30 in Vienna, and 60 in Philadelphia.

In the several epidemics of the same disease, which have been carefully noted, the death-rate ranges from 5·0 per cent. of those attacked in Genoa, 1845, to 17 at Marseilles in 1828, and 22·7 at Norwich in 1819.[1]

In Manchester it has been calculated that each death from small-pox, on an average, represents 16 seizures of the disease.

With *scarlet fever* the variations in mortality are perhaps still more remarkable. In Manchester, 1864, the death-rate ranged in the quarters of the year from 1 death in 6·28 cases to 1 in 36; whilst the averages for the years 1863 and 1864 were 1 in 7·8, and 1 in 10·4 cases respectively.

So with *Croup* the Manchester tables for 1863 give 1 death in every 2·6 cases; whilst the Newcastle tables, so ably prepared by Dr. Philipson, gave but one death to every 13·75 cases in 1867.

In Manchester, 1864, first quarter, 35 died out of 567 cases of continued fever (four kinds), or 1 in 15·7 cases; whilst in another quarter, with a greater number of cases, the deaths were only 1 in 27·6. The Registrar-General's calculation is 1 death in 8 cases.[2]

Lastly, the influence of season is marked in the range of mortality from diarrhœa, in the different quarters of the year,

[1] Tab. ix, Dr. Ballard on 'Vaccination.'
[2] 'Registrar-General's Report,' xxviii.

from 1 in 3·3 to 1 in 35, the deaths being in inverse proportion to the prevalence of disease.[1]

The Epidemiological Society estimates, taking one disease with another, that there are 20 to 30 cases of illness to each death; in Manchester there are 28 to 30.[2]

Instances might be multiplied indefinitely of the extremely varying ratio of deaths to cases in various epidemics, in various localities, under varying conditions of soil, climate, and general health conditions of the population.

But enough has been adduced to show that the death-rate is no safe index of sanitary state, or of the prevalence of disease. We might as well try and ascertain the temperature by means of the barometer. It is not often that man, like Nature, can adapt the same machinery to two widely different purposes. Far be it from us to condemn the zeal and wonderful fertility of resource with which Dr. Farr has used the materials which have been available—it must never be forgotten that the reports of the Registrar-General have formed the starting point for such researches as those of Dr. Greenhow, and the more recent investigations of Dr. Buchanan; but we may well inquire whether the results of our registration system are such as we have a right to expect; whether they are more or less trusted, the more we examine the machinery by which they are prepared; whether any more effective method can be devised by which data, so desirable, so essential in our present state of sanitary knowledge, can be obtained.

If we are once convinced that a record of the causes of death cannot be at the same time a record of disease and a health barometer (so to speak), much will have been done to clear the way for a better and a truer method of investigation.

"My experience," says Dr. Morgan, "in analysing the disease-returns of the Manchester and Salford Association convinces me that, if we would enlarge our acquaintance with many interesting problems connected with the public health, we must no longer confine our inquiries to the registration of deaths, but extend them to returns of disease."[3]

Sanitarians have seen this for some time past, but circumstances have been against them. Noble, but isolated efforts have been made from time to time, at considerable trouble and much expense, to obtain a registration of disease. Many have failed, but some still exist to prove the feasibility and great advantages which may result from a very simple organisation. Dr. A. Hill at Birmingham, Dr. Whitmore in Marylebone, the

[1] 'Manchester and Salford Report,' 1864-5.
[2] Ibid.
[3] 'The Danger of Deterioration of Race,' by J. E. Morgan, M.D., p. 46.

Manchester and Salford Sanitary Association at Manchester, and the Durham and Northumberland Medical Society at Newcastle and Gateshead, are at the present doing thoroughly and efficiently, over limited areas, a work which indubitably should fall to the share of an enlightened and far-seeing Government.

A registration of sickness is a national want. The Registrar-General cannot combine it with the registration of causes of death. To what agency then can we look for conducting a department so distinct and of such great and national importance? Our attention is at once directed to the Privy Council, with its able staff of officers skilled specially in sanitary matters and the causation of disease. The machinery is ready to hand in the records of poor-law officers, hospitals, dispensaries, and friendly societies and sick clubs throughout the country. These returns, properly classified and corrected by *local knowledge*, would go far to fulfil the objects aimed at by Dr. Farr. Quick returns, accessible on the spot to governing bodies and medical practitioners, could not fail to yield the most important results. The small-pox or fever case would be marked at once, and steps might be taken to stamp it out. The character of an epidemic would be known, and the practitioner guided in his treatment. The progress of disease, from the hovel to the mansion of the rich, would be clearly traced, and self-interest would be enlisted in the cause of sanitary measures.

But the advantages would not be merely local. Classified returns, when forwarded to the central office, would become the basis of wider deductions, and the starting point for imperial measures of reform. In the words of Dr. Rumsey,—

"Diseases, &c., being uniformly named according to an official nomenclature in each district, being accurately returned under their proper designations, there would be nothing to prevent any system of classification or arrangement being *afterwards* applied to the returns by the central department (Somerset House[1]) or its inspectors, and this either for general purposes or for special researches."[2]

The two great departments of the Registrar-General and the Medical Officer of the Privy Council would then confirm and strengthen each other. To the one would be committed the public health, embracing the prevention of disease in its widest sense; to the other, the medico-legal divisions of state hygiène.

[1] We should prefer to substitute the Medical Department of the Privy Council.

[2] 'Social Science Review,' "Sanitary Statistics," Section xxi.

The death certificate should be so precise and so fully authenticated as to be received without cavil in a court of law. It should be *the* legal evidence of death. At the same time, a record of the actual cause of death might be made available for the detection of crime or culpable negligence. Of the statistical uses to which an authentic registration of deaths and their causes may be put there is no need to speak; all we ask is, that it shall not be enlisted for a service to which it is manifestly unfitted. To quote Dr. Rumsey,—

"It is futile to attempt to convert the mortuary register into a record of disease; the two things ought to be dealt with separately. "Believing, as I do," he goes on to say, "with Professor Laycock, that in medicine that which is necessarily antecedent to an event, that which cannot be separated from it, is its cause, I should wish to see the immediate cause or *manner* of death (Todesart of the Germans) expressed simply and briefly so as to form the correct *unit* for after grouping and for statistical results; while any further information concerning constitutional, hereditary, or social causes, or even concerning secondary phenomena, should be referred to another classification, and form the first element in a national registration of sickness."[1]

For the extent and possible limits of such a registration, we would direct attention to another of Dr. Rumsey's able papers, "On the Right Use of Records founded on Local Facts," read at Bradford before the Social Science Association in 1859.

"Commencing with cases attended under the Poor Law, we might at once determine the district rates of sickness and mortality in that class of the community. The statistics of hospitals and dispensaries might soon follow" (p. 22). "A national registration of disease might readily include returns from certain classes more or less isolated from the rest of the community, as in prisons and penitentiaries, in the dockyards, arsenals, and other public works; in the revenue departments and the police force; in mines and collieries and factories; in asylums of different kinds; in schools maintained by endowments, or aided by national funds. All these are in various degrees under legal inspection and Government control, and might therefore be called upon to contribute to the common record their *quota* of facts for the public benefit" (p. 20).

From the tenor of the preface to the 'New Nomenclature of Disease,' it may fairly be inferred that the registration of disease and not the cause of death was uppermost in the minds of those who compiled it. It is there said,—

"The advantages accruing from accurate statistics of disease are

[1] 'Address on State Medicine in Great Britain and Ireland.' By H. W. Rumsey, M.D. Lond. 1867. Read before the British Association, at Dublin.

likely to be the greater and the surer in proportion as the field of investigation is the wider. . . . . .

"Among the great ends of a uniform nomenclature must be reckoned that of fixing definitely, for all places, the things about which medical observation is exercised, and of forming a steady basis upon which medical experience may be safely built. Another main use of the statistical *registration of diseases* on a wide scale is, that it must tend to throw light upon the causes of disease, many of which causes, when duly recognised, may be capable of prevention, removal, or diminution."[1]

The attention of sanitarians has long been directed to this subject, and much is reasonably expected from the consideration which the Royal Commission now sitting is pledged to give to the shortcomings of our registration system, much also from the united efforts of the British Medical and Social Science Associations for the establishment of a National Record of Disease.

In the foregoing pages we have endeavoured to expose some of the fallacies inherent in our present system of death registration.

Notwithstanding the ability which presides over the department at Somerset House, and the willing co-operation of medical men all over the country, a very large proportion of the deaths which take place are uncertified, or the certificates, from causes which we have endeavoured to explain, are often useless, and worse than useless, for the purposes of generalisation. It has been seen further that local facts, however carefully reported, lose much of their value and significance in the manipulation which they undergo, first at the hands of district registrars, lastly in the central office. Local inspection and local knowledge would seem therefore to be essential not only for the collection but also for the true interpretation, the correction and preparatory classification of local facts. The returns from a central office can never be prompt enough or detailed enough for local use.

The remedies suggested with a view to meeting these acknowledged shortcomings are—

I. Local supervision by district officers under a central organisation.

II. Extension of knowledge among medical men of the importance and use of a correct nomenclature and classification of disease.

Lastly, it has been shown that much of the uncertainty and doubt with which the reports of the Registrar-General

[1] Preface to 'Nomenclature of Disease,' drawn up by a joint Committee appointed by the Royal College of Physicians. London, 1869.

are now regarded, results directly from the attempt to convert a mortuary record into a measure of the intensity and prevalence of disease.

The cause of death, and the existence of disease, are distinct as the objects for which they are separately recorded, and we have given our reasons for believing that a national record of disease, under the direction of the Privy Council, would form the best indication for action on the part of their able and energetic inspectors; whilst the fact and actual cause of death, more fully authenticated and freed from the uncertain elements which now surround it, would remain the basis for inquiries less strictly sanitary for the medico-legal divisions of the hygiène of the state.

Review III.

The Practitioner: A Monthly Journal of Therapeutics. Edited by Francis E. Anstie, M.D., and Henry Lawson, M.D. Vol. i, pp. 391; vol. ii, pp. 391.

The avowed object of this journal is to furnish the practitioners of the kingdom with "a special medium for the intercommunication of ideas respecting the action of remedies." The Editors have seen with sorrow the scepticism in the matter of therapeutics, which is slowly creeping in among us: they have watched, with a sadness that many others have shared with them, that despairing nihilism in the treatment of disease which advances, *pari passu*, with a rapidly increasing knowledge of pathological facts and of the causes of disease; and they send forth to the profession an appeal to combine with them in a common, well-directed effort to test with unbiassed judgment the action of drugs, to weigh honestly the effect of all kinds of "outward influences" on the perverted, or faulty, nutrition which constitutes disease, and to submit the results of such impartial work to the needful criticism of fellow-workers in the pages of the 'Practitioner.' Now, the very fact that medicine possesses among her stores certain substances which seem to have been given us as very antidotes for certain morbid conditions—remedies which with unfailing certainty correct and remove peculiar diseases—has driven the sick public, all unacquainted as it is with the very limited number of such remedies, to demand from medicine a similar antidote for every disease that may befall, and has tempted the dispensers of these stores to meet the demand with a too ready supply. Hence the hundreds of drugs which have been vaunted as cures for

diseases, have had their partisans for a while, and have then sunk into oblivion. Hence the pages of remedies for each disease which a proper hand-book of medicine still thinks fit to furnish the student with. Hence, too, the "do-nothing" system which has recently found favour, and which is only a necessary reaction after the wholesale doing, dosing, and drugging that preceded it. That this reaction is in great danger of becoming excessive, no observer of the present temper of medicine will deny. The same captious, hypercritical spirit which is manifest in our daily reading of political life, is abroad among ourselves. But, at the same time, it must be equally allowed that this very reaction has been to a certain extent healthy. Before it came upon us there was a still more pernicious excess in the other direction. That earnest men have paused in their work, and dared to inquire into the natural course of disease; and that, by means of such inquiry, some of our most cherished modes of treatment have received the rudest blows, and have been proved to be harmful, or at the best, useless, is the very happiest thing that could have befallen medicine. Under these circumstances, the task set themselves by the conductors of a journal for therapeutics is a most arduous one, and involving the most serious responsibilities. They must steer their course betwen two dangerous rocks. On the one side is the sneering scepticism so fatal to the profession. On the other is that no less fatal readiness to accept on insufficient trial each new drug or remedy that turns up, and to publish dogmatic statements on the good effects of this or that remedy, in this or that disease. How then has the 'Practitioner' hitherto steered its course, beset with such difficulties? A short sketch of its plan, and an epitome of the principal papers that have appeared in it up to the present time, may be well introduced at this point before answering this question. Each number contains a "series of short original articles upon important special subjects in therapeutics; a brief *résumé* of the more interesting items of treatment recorded in the foreign journals; short reviews of important works bearing on treatment; a brief sketch of practical medicine for the month, as observed in the London and provincial hospitals; a department for notes and queries, in which correspondents may ask and obtain replies to questions in reference to problems on which they desire to have the opinion of other medical men; and, finally, a bibliographical list for the month."

Dr. Maisonneuve opens the volume with some observations on the "treatment of wounds by pneumatic aspiration." By means of an exhausting apparatus which he fits on to his stumps, he is enabled, through an air-pump connected with the apparatus, to draw away from the wounded surface the air and, after the

air, the discharges from the wound. The most fertile source of pyæmia is, he thinks, the accumulation of decomposing liquids on the surface of the wounds. By the above apparatus he obviates this great danger.

Dr. Russell Reynolds believes "that in the vast majority of cases bromide of potassium is of signal service in the treatment of epilepsy;" the fits of a severer type being especially amenable to its influence. In paroxysmal vertigo, "immediate and permanent relief" is similarly derived in some cases. In acute mania, acute alcoholism with insomnia, and those "disturbances of the vaso-motor system" evidenced by local numbness, sudden distressing feeling in the epigastrium, and fluttering of the heart, the bromide is a valuable medicine.

An excellent short account of the different forms of electricity and their uses in medicine, by Mr. J. N. Radcliffe, follows. Stöhrer's apparatus is fully described and recommended as the best of modern inventions in that line.

Dr. Sydney Ringer thinks that we have in the "glycerine of tannine" an unappreciated remedy, applicable in ozæna, discharges from the ear, the early stages of eczema, relaxed throat, &c.

Perhaps the most useful contribution in the whole volume is an article by Dr. Anstie, on the "Hypodermic injection of remedies." As to the place, he concurs in the main with Mr. Hunter's view, that the spot selected is indifferent. As to the syringe, he recommends a modification of Coxeter's. As to the remedies, he gives a long list, morphine and atropine being, of course, the two principal. Five grains of the acetate of morphine are to be dissolved with a minimum of acetic acid in a drachm of hot distilled water. Two minims of this ($=\frac{1}{6}$ grain) will be the proper quantity to begin with. Two minims of a solution of sulphate of atropine in water (gr. $\frac{1}{4}$ to f. ʒi) will be the proper dose of atropine ($=\frac{1}{120}$ grain) to begin with. Great stress is laid on the advantage of the hypodermic method over administration by the stomach.

Dr. Beale writes of the value of quinine in large (gr. vi) doses in the so-called (and wrongly so-called) "intermittent hæmaturia." What the dark-coloured deposit is does not seem to be determined; but it is not blood. The author suggests that it may "result from disintegration of blood-corpuscles and the secretion of the dissolved colouring matter in the altered form by the kidneys."

Dr. Fraser has a high opinion of the Calabar bean as a remedy in tetanus and chorea. In the former disease, one-third of a grain of the extract, carefully mixed with ten or fifteen minims

of water and neutralized with a solution of carbonate of soda, is to be injected subcutaneously. Or, if it be given by the mouth, one grain is the proper dose for an adult. The above doses are to be repeated frequently, according to the severity of the symptoms, the quantity being gradually increased. Nausea and vomiting, and excessive sweating are the most striking symptoms after too large a dose.

Dr. Graily Hewitt has some remarks on Gooch's "irritable uterus," or, as he will have it, "retroflected uterus," and its treatment by instruments which keep up pressure behind the cervix, so as to "maintain the cul-de-sac of the vagina behind the cervix in a high position in the pelvis." He has invented an oval-shaped ring for this purpose.

Dr. Hermann Beigel comes next with a practical paper on inhalation of atomized fluids, which are to supersede the gargle in sore-throat and laryngeal affections. Bergmann's apparatus, improved by Dr. A. Clarke, and supplied with Winterich's tube, is strongly recommended, being known as the "handball atomiser."

Dr. Harley believes in the "succus conii," administered in full doses in chorea. We believe Dr. Bristowe, in some later remarks on the treatment of chorea, to be much nearer the truth in this matter.

Mr. Henry Power has a capital paper on "sulphate of soda as a means of removing opacities of the cornea." The lid is to be everted, and the powder, not exceeding in quantity one or two grains, brushed lightly over the inner surface with a camel-hair brush, the application being repeated every morning or less often, according to the amount of irritation produced. There follow directly redness, pain, and lachrymation, which last for half an hour or more. The forms of opacity most likely to yield to this treatment are the "diffused haziness or bluish cloud on the surface of the membrane" called "nebula," and the denser opacity called "albugo." The action of the sulphate is that of an irritant, not of a solvent. In the cases related in illustration, the remedy was persevered with for from six weeks to several months.

Dr. Symes Thompson writes to advocate very strongly, from a large acquaintance with its effects, the use of perchloride of iron in phthisis.

Dr. Meadows extols the virtues of ergot-of-rye as a remedy, not only in uterine, but also in other forms of hæmorrhage, its good effects being explained by its action on the involuntary muscular fibre. Attention is especially drawn to this property as manifested in the contraction of the blood-vessels under its influence.

Dr. Lawson has found great benefit from the use of sulphurous acid (in doses of from ɱxxx to ʒi) in pyrosis. The acid acts, he believes, by virtue of its destructive powers on the vegetable organisms asserted to be present in the fluid of waterbrash.

A very interesting letter from Dr. Behier, of La Pitié, Paris, to Dr. Anstie, on the influence of tonic treatment in inflammation—by the relief afforded to the vaso-motor paralysis, which M. Behier believes to be the cause of inflammation—opens the way for some remarks by M. Personne on the roasting of coffee. The latter has succeeded in demonstrating that the caffeine which, as was before known, is lost during the process of roasting—a loss computed at nearly one-half of all the caffeine present—undergoes transformation into a volatile base, "methylamine" or "methyl-ammonia" (C_4H_5N). He inquires whether this is not the substance which gives to coffee its excitant powers? Caffeine, *per se*, cannot be said to have this property, for green coffee has no such power, and roasting removes half the caffeine. To settle this question, the acetate of methylamine was administered to several patients under M. Behier, and the effect tested with the sphygmograph, with the following results—that this compound increases arterial tension, and sometimes produces irregularity of the pulse, but has little effect on its frequency. M. Personne does not speak of tea or theine in his paper. Is the stimulant effect of tea, to some people even more renovating and delightful than that of coffee, to be attributed to a conversion of the theine into methylamine during the process of preparation for use?

Dr. Hughes Bennett, in the treatment of skin diseases, trusts mainly to two very simple remedies—water and oil. In all diseases with moist secretions, apply water. In all dry, scurfy, scaly diseases, apply oil. In the hundreds of ointments in vogue, the grease is the only useful ingredient. In the hundreds of lotions recommended, the water alone does the good. One remedy, pitch, is allowed to have a "remarkable local action;" but the same merit is not assigned to sulphur. The acarus is destroyed, not by the sulphur, but by the grease in the sulphur ointment. If this be so, how is it, we ask, that patients will come weekly to out-patient rooms of hospitals, with chronic scabies, who have been steadily applying ointments of different kinds without effect, and in whom one week's use of the sulphur ointment cures so rapidly?

A paper by Dr. Burdon Sanderson on the "Salt and Compressed Air Cures of Reichenhall," in Bavaria, deserves attention. The modes of inhaling the salt, with which the waters of the place are very highly charged, are clearly described; and a full and lucid account is given of the apparatus employed for

compressing air. The physiological effects of compressed air on the body, as ascertained by sphygmographic and ophthalmoscopic observations, are to diminish the quantity of blood in the veins and auricles, and increase that in the ventricles and arteries. Hence this treatment is said to be especially applicable in cases where there is a mechanically congested or over-filled venous system, as in emphysema and chronic bronchitis, where the left ventricle is imperfectly filled and the arterial tension consequently diminished.

Dr. Buzzard proposes, as a means of intercepting the epileptic aura, and so checking the fit, the plan of circular blistering at a point of the limb just above the starting-point of the aura.

Dr. Lloyd Roberts advises the use of carbolic acid as a local application in chronic affections of the os and cervix uteri. The surface, carefully exposed with the speculum, and wiped clean, is dabbed with a piece of lint saturated with acid, just liquefied by the addition of a little water.

Dr. Marcet speaks highly of the inhalation of an aqueous solution of carbolic acid (gr. i, vel iss, ad. f. ʒi), in the form of spray, for the treatment of phthisis. It is appropriate in the chronic first stage, or at the very beginning of the second, but is contra-indicated "when the process of softening is going on rapidly."

Dr. Richardson has had the courage in these days to stand forth as a "*laudator temporis acti*" with regard to the practice of bloodletting. He still urges on practitioners the great good of bloodletting in the following cases:

"In some stages of typhus fever; in cases where there is sudden tension of blood, of which sunstroke is an example; in cases of chronic congestion of the brain; in cases of acute pain from serous membrane; in some classes of spasmodic pain; in cases of sudden arrest of circulation from concussion; in cases of congestion of the right heart; and, it may be, in extreme cases of hæmorrhage. Above all, ... in the treatment of simple uræmic coma."

The paper is written in his usual terse and vigorous style, and is well worth careful reading.

Dr. Harley has a second paper on the action of narceine. This principle has some physiological interest, but is "practically useless as a medicine." It is a pure hypnotic, but is much feebler than morphine, and not convenient for subcutaneous injection on account of its insolubility.

Mr. Christopher Heath has made extensive internal and external use of belladonna in surgery, and comes to the conclusion that it acts beneficially by influencing the vaso-motor system of nerves, diminishing the calibre of the small blood-vessels, and reducing the vascularity of inflamed parts.

Side by side with the above is well placed an article by Dr. Wilks "On the Use of Aconite as an Antiphlogistic." The probable action of this drug, when given in small doses, is the same as that of belladonna, namely, stimulant to the vaso-motor branches of the sympathetic, and, through them, to the coats of the smaller arteries. Acting on this belief, Dr. Wilks has made repeated trial of the tincture (in doses of from two to five minims) in acute inflammations of different kinds—pneumonia, rheumatic fever, bronchitis—and regards aconite as a remedy of decided effect in some such cases. His remarks are evidently published rather with the view of encouraging the profession to use the drug more extensively and report on the results, than to claim at once for aconite the place of a reliable antiphlogistic. The five cases produced by him in support of his views cannot, as he wisely adds, prove much, but may tend to further the employment of this medicine in the hands of others.

Mr. Lawson offers some advice on the "treatment of the three most troublesome forms of purulent ophthalmia." This is a paper that every practitioner must read: there can be no doubt about its usefulness. The points of practice most insisted on are great cleanliness, the frequent and persistent use of astringent lotions, and, in the severer forms, the application of strong solutions of nitrate of silver. At the same time the system is supported by food, tonics, and stimulants.

The treatment of progressive muscular atrophy by electricity is shown by Dr. Hilton Fagge to be attended, at least in its less advanced forms, with excellent results. He instances ten cases, of which two were cured, three derived more or less benefit, and five were uninfluenced by treatment. Both the continuous and the induced current were used. These results are certainly satisfactory; this disease being regarded as hopelessly incurable by some pathologists.

The "muriate of ammonia, as a remedy for some nervous disorders," finds a warm advocate in Dr. Anstie. The paper is written with his usual power. The peculiar effect of this salt on pain may be best studied in the so-called "myalgia," or muscular pain, the migraine and clavus of women, the intercostal neuralgia of delicate females, and that very rare disorder, "hepatic neuralgia," all of which are amenable to the influence of the muriate. The *locus in quo* of its therapeutic action is, he believes, the nervous system.

Dr. Maudsley, in some remarks on the use of opium in insanity, points out the necessity of discriminating the varieties of insanity, and getting at the diathesis or idiosyncrasy of the patient before thinking of the treatment. The most hopeful effects of opium are to be looked for in the very early stages of

insanity. The sleeplessness, unaccountable depression, and strange feelings of alarm, which so often precede regular insanity, are capable of relief by opium. It is especially in the melancholic forms that the drug is beneficial. In asthenic mania it will do good, but not in the sthenic form.

Dr. Meadows has great faith in "medicated pessaries." Those which he employs have for their basis the neutral soft soap of the British Pharmacopœia, three parts, and powdered althæa root, one part. Belladonna is the anodyne on which he sets most store, and which he is able in this way to apply comfortably.

Mr. Carter supplies some interesting contributions to ophthalmic therapeutics. In photophobia, if there be serious ulceration of the cornea, or evidence of excessive spasm of the orbicularis, this muscle is to be divided by transfixing with a bistoury the skin at the margin of the orbit, and cutting freely, from within outwards, through skin, muscle, and conjunctiva. The incision is to be made at the external canthus. In milder cases it is generally sufficient to keep the eyelids closed, and supported by well-adapted pressure, to employ counter-irritation behind the ears, and to use atropine drops as a local sedative: but even here he thinks that division of the orbicularis would be the best and quickest mode of treatment. In chronic lachrymal obstruction he recommends to notice Stilling's plan of passing a small knife, specially contrived for the purpose, into the nasal duct, and freely dividing in different directions the resisting structures.

Dr. John Chapman cures delirium tremens, as also many other disorders, with the "spinal icebag."

Mr. Holmes brings forward a case of sub-periosteal excision of the elbow, and makes it the subject of some practical remarks on the operation. His own experience of this method of proceeding is not sufficient for him to express an opinion as to its merits, but he lays down very clearly the advantages and disadvantages of the operation as estimated by the greater experience of continental surgeons. The fact, as ascertained by a dissection of Doutrelepont, that not only may the parts of the bone removed be reproduced, but the joint itself restored, will be certainly of sufficient importance to give the operation a more extended trial in this country.[1]

Mr. Furneaux Jordan follows with a "new method of treating surgical diseases, especially inflammations." The method consists in the employment of "pressure" and counter-irritation;—the former applied with a will to the inflamed part; the latter

[1] For a *résumé* of what is at present known on this interesting surgical question, see this 'Review,' April, 1869, p. 334.

to be excited not directly over the inflamed part, but "over the next artery or next vascular territory."

Dr. Blandford speaks with much good sense and authority "on the treatment of acute delirious mania." He trusts mainly to regular nursing and feeding. Solid food should be tried as long as it can be taken; and stout or ale is preferable to wine or brandy in the early stages. Opium not only does no good but is harmful. A purge is good at the beginning, but otherwise he has no good opinion of any drug.

Dr. Webster, in a paper on the "Treatment of Uterine Functional Disturbances," "*projicit ampullas et sesquipedalia verba.*" Thus, he writes of "the neglect of a natural aperiency of the bowels with females, especially the adolescing." And again, he thinks that if a purge be given at night to "loose-watered boys given to wetting their beds during the heavy hours of sleep . . . . . no spasm of the vesica supervenes."

Dr. Fuller has been roused by Drs. Gull and Sutton to reiterate his belief in the efficacy of the alkaline treatment of rheumatic fever. This is a point on which every practitioner must strive honestly to satisfy himself. The rules are very fully laid down.

Dr. Bricheteau gives a short historical sketch of the attempt made in later years to administer mercury by subcutaneous injection, and suggests a preparation of his own which may be thus employed without producing the local irritation so often caused by the bichloride. His formula is as follows:—Double iodide of mercury and sodium, 23 grs.; distilled water, 3 oz. and 3 drms. Begin with ten drops of this solution, and increase gradually. One injection every second day. Where the stomach is irritable, or it is necessary to bring the system quickly under the influence of mercury, this plan is recommended.

Dr. Morell Mackenzie lays down a list of rules for the employment of faradisation in aphonia and weakness of the voice. We have not space to reproduce them here, but will give one as of special importance—that "a hoarse voice, a shrill cough, the slightest dyspnœa, contra-indicate the use of electricity."

Dr. Duckworth thinks that the present generation has made a mistake in suffering "dry-cupping" to fall into disuse.

Dr. Bristowe has some wise observations on the treatment of chorea. He concludes that there is no specific remedy for chorea. The only good that can be effected is indirect, by means of tonic medicines and careful dietetic and hygienic management.

Mr. Coote strongly advises the use of ether spray in operations about the anus. This advice is rather sharply criticised by two brother practitioners in a subsequent number, who

declare that the very application of ether spray to the anus is intolerably painful, more so even than the operation for piles.

Mr. Durham, in a very able contribution, discusses "some of the difficulties and dangers of tracheotomy." He begins by showing that the operation, if well performed, is not of itself so dangerous as is supposed. The high mortality after it depends rather on "the diseases and accidents which render it needful." The operation itself may cause death in three ways—1st, by hæmorrhage at the time of the operation; 2nd, by ulceration from pressure of the tube, causing either secondary hæmorrhage or extension of inflammation downwards; 3rd, by subsequent inflammation of the lungs from admission of cold and dry air. The first may be obviated by care in the operation; the second, by using a tube of his own invention, the several parts of which are well figured, and will be understood by a glance at the plates; the third, by keeping the atmosphere of the room warm and moist, and by placing lightly over the tube two or three layers of moistened muslin. An important point in his mode of operating is the employment of a blunt-pointed "pilot-trocar," upon which the outer cylindrical tube is mounted before being passed into the trachea. The most difficult and critical stage in the operation—the introduction of the cylindrical tube—is thus greatly facilitated. His instruments may be obtained from Messrs. Mayer and Meltzer. This paper should be read by all.

Dr. Hughes Bennett harps anew on his favorite theme—the treatment of pneumonia. The principles of "restorative treatment" in that disease are now so established as not to need repetition here. The part of his communication which we regard with peculiar interest is that in which he combats Dr. Richardson's views on bloodletting. The discussion and criticism of each other's statements by men of this calibre will greatly enhance the value of the 'Practitioner.'

It is quite proper that an appeal in behalf of poultices should come from St. Bartholomew's. Mr. Callender hopes that they will not be quite forgotten in the search after new remedies. In cases of lupus; in acute inflammation of the surface or subcutaneous tissue; in ulcers of many kinds; in stumps and other wounds, most "remarkable results follow the use of poultices." The poultice must cover the parts for some distance round the seat of inflammation; and where there is much discharge, the skin should be dusted over with a little zinc or drying powder before applying the poultice.

Dr. Lockhart Robertson publishes a note of two cases of mania and one of melancholia, in which the subcutaneous injection of morphine is supposed to have had good effect.

Dr. Mackey gives a paper on the therapeutical value of the inhalation of oxygen gas. He thinks the gas especially applicable in venous congestion of all kinds, whether of liver, lungs, or uterus. Twelve cases are narrated in illustration, ten of which are said to have derived more or less benefit, two to have been uninfluenced by the treatment. An important clinical fact is mentioned in connection with one of the latter—that she "was a lady highly connected, and had been under the care of several London physicians."

We will conclude this long list with some remarks from Dr. Risdon Bennett on "counter-irritation." He begins by defining counter-irritants as "agents which by their irritant action determine an increased attraction or flow of blood to one part of the body, and thus influence morbid action in some other part." He then proceeds to show how nature gives us favorable instances in every day's experience of what we coarsely imitate in counter-irritation. The way in which bronchial inflammation and eczema, on the one hand, or gout in the toe and gastralgia, on the other, may be vicarious one of another, reads us, as he thinks, a lesson not to be disregarded. He next adduces bedside illustrations of what he surely recognises as good effects of counter-irritation, and finally asks why, with nature's teaching and our own clinical observation thus convincingly manifested to us, we are to refuse to believe that tissue-changes and modifications of cell-growth can be effected, simply because there is no direct communication, whether vascular or nervous, between the seat of our counter-irritant and that of the disease. These thoughtful words will be to many medical men a happy vindication of a mode of treatment most important and useful when judiciously employed.

The foregoing sketch will sufficiently indicate how much that is valuable this journal supplies. On the other hand, the very fact that the contributions are the result of individual observation and not of combined labour, is enough to explain the tendency, manifest in a few of the papers, to lay down too absolute rules for the treatment of certain diseases, and to make medicine too easy. Many of the contributions are of the very first order, and most of them contain some useful hints. In a few only do we see any sign of a tendency to "that prevalent kind of writing which consists of plausibilities supported by successful cases." The best possible means of arriving at trustworthy conclusions on the real action and uses of drugs is by well-appointed committees of investigation. Failing this means, the next best thing that can be done is what this journal is seriously trying to do—to collect together from the best sources the experiences of individuals, and subject such expe-

riences to fair but searching criticism. It seems to us that a little stronger infusion of this criticism would be a good thing for the 'Practitioner,' and that a few more papers like that of Hughes Bennett would make it what it bids fair to become—a great success, in the best sense that the word can be employed.

Review IV.

El Pabellon Medico: Revista Cientifica y Professional de Medicina, Cirujia y Farmacia. Se publica los dias, 7, 14, 21, 28 de cada mes. Vol. viii, 1868. Madrid.

The Medical Pavilion: Scientific and Professional Review of Medicine, Surgery, and Pharmacy. Eighth year. Vol. viii, pp. 596, Published weekly. Madrid. 1868.

The ever-increasing circulation of periodical literature, which is one of the main features of the age, tends more and more to an equilibrium in knowledge and a certain community in science throughout the civilised world. At one point of the current, perchance, a stronger vibration may be felt, while elsewhere it may seem to stagnate, but each distant corner feels its warmth, and every segment gains strength and draws animation from its flow. No country perhaps more than Spain, at a recent period of her history, has shown a more passionate trust in this new machinery of discourse. No territory or colony of Spain, of any importance at least, but has now its medical journal in addition to the public news. But what of the standard literature, has it not somewhat fallen in esteem? Is it not interfered with by this overgrowth? In countries of more eager advance, so far at least as medicine is concerned, all early literature is discredited, there is scarce standing place for it left in the crush-room of modern celebrities. In Spain this is not so much the case; though science may advance with slower step they have this advantage in delay, the progress there is more upon one front, less of truth is relinquished and forgot. With the Spaniards this further is observable, wherever the Castilian is spoken, a literary element survives, respect for the bygone age, a clinging to the lessons of the past. In records they are far too rich, in their antecedents too remarkable, for the same degree of slight to be cast on the hoarded treasures of their literature, which has fallen upon our more modern and less original stores. The Spaniard is fully aware he sinks into a second place if he quits this reliance

on the past; among her now living physicians Spain yet has excellent writers, a delicate spirit is discernible, the old way is not yet forgot. The taste for studies of old date with us is fast dying out, the wheels of science turn so quick they dazzle and confound the beholder. No record of our earlier success, no tale of our continuous advance can vie in interesting recital with the newest scientific disclosures. The evidence of preceding ages, and even of the past generation, is fallen into thorough disrepute; in the choice which we make of books we take now small heed of their parentage, the date of publication gives them warranty, though they be of foreign supply. Let us imagine in London here, some physician or stranger from afar, with a taste for humanitarian pursuits, shall we say from Cochin China or Siam, from Yokehama or Pekin? In such a one as here described, amid a vast concurrence of distractions, the subject of vaccination for smallpox might have the strongest hold on his mind, and stir all the springs of curiosity. How few original treatises, how small a portion of our literature devoted to this single subject, compared to his view of its importance, would an order on his bookseller procure. We have cumbrous volumes about trifles, but this which concerns the human race and all the coming generations we treat as an indifferent theme, or consign to some future date the study of its progress and its destiny. Content with a few brief hints, or a very general indication as to its main and practical bearings, as a field of observation and experiment, it is turned by us to little account; in pathological argument we draw on it but seldom for analogy, the uniformity of the phenomena repels us, the want of precariousness in the result detracts from our idea of its beneficence, and lessens our sense of gratitude for the wholly unparalleled discovery. The same yet more strongly applies to the practice of variolar inoculation. There is little of written experience, there is nothing of oral record which now survives for our instruction. It is further painful to confess that, whatever light has been shed on these weighty objects of inquiry, in these latter days at least, has been chiefly reflected from abroad.

Within the last three years or so, since 1866 in fact, a notable epidemic of smallpox has been experienced in Spain. Contrary to all that was known or could be learnt of former visitations of variola, it has been recently quite general through the kingdom. In the spring of the year that is past, the cities of Madrid, Barcelona, Valencia, Valladolid, Seville, Corunna, Saragossa, and other places were all of them suffering from smallpox. Its confluent and typhoïd character is no less remarkable a feature than its very general extension. A nearer acquaintance with the subject cannot fail to enforce conviction that this so-called epidemic exists in

unbroken succession to minor developments of the pest, which gradually accumulating strength with little painstaking or precaution on the part of society against it, has been constantly and continuously advancing for these past fifteen years and more. A censurable abandonment of vaccine lies clearly at the root of the disaster. The frequent mention that is found in the Spanish medical journals, and chiefly in that which appears at the head of the present article, has had the natural effect of enlisting our attention to the subject, but above all our notice has been engaged by the appearance of a series of papers in this particular journal from Dr. Bonifacio Montejo, a distinguished medical officer of the *Sanidad militar*, the medical branch of the army. To this gentleman we are immeasurably indebted for the disinterment of records and very remarkable data essential to the history of vaccination, which are indeed of very highest interest in a national and professional point of view. In these are beheld to advantage the strength and directness of purpose, the zeal, and ardour and success which animated the Spanish monarchy, the chosen instrument, as it would appear, which Providence herself had appointed for the world-wide diffusion of vaccine over the largest part of the globe at least. However much our pride may feel a hurt that a power, even then on the decline, whose maritime influence and wealth has paled before that of Britain, should have taken so leading a part in bringing into use and operation this product of an English soil, we deem it both right and just that the truth should not be withheld, that a monarchy too unhappily discredited and ruined by subsequent disaster may receive its due share of praise, that the lofty may be stirred to emulation in other seats of dominion, and that in the dispensation of her favours fame for once may follow desert.

The application of Jenner's discovery encountered, as is very well known, remarkable opposition in this England, which ought to have received it with acclaim. Certain interests felt themselves intruded on, the whole thing seemed wanting in a basis to men who were well-nigh complete in another path of experience, and who looked to no better results in tempering the malignity of smallpox than what they had already achieved. Vaccination came on them unawares, it lent itself easily to ridicule under constant efforts at detraction, in an age that was studious of point, far more than expert in observation or curious of natural phenomena. The ground was already taken up by a class of professional inoculators who had then the ear of the public, and these in the dawn of the discovery were enabled to offer resistance to a wider adoption of the method, and to nullify, or at least restrict by reasons that appeared well founded, the immediate benefit of the discovery. Our country in this

conjuncture compares with little advantage with other European communities. In the end, perhaps, it was not ill that this opposition had been raised; both science and humanity are beholden to these graceless enemies of vaccine; it is in great part owing to them that a long succession of tests were applied to the novel discovery, so as to leave beyond a shadow of a doubt its positive and blameless efficacy, and also its incontestable superiority to all and every kind of means that the heart of man could conceive to stay the devastations of variola. As a consequence of these envies and these jealousies, the effect more immediately was that this country fell somewhat in arrear compared with great part of the Continent. When once the glorious news reached into Spain across the Pyrenees from France, no such jealousy was there experienced, none such at least assumed the upper hand. On glasses, on points, in crusts the matter was eagerly procured, while, following the few first attempts and almost contemporaneous with them, certain treatises issued from the press, some original, some translated, on vaccination and its discoveries, which assisted the fair intention of those who first stood forward as its advocates. Piquellen translated into Castilian the French essay by Colon, 'L'Essai sur l'Inoculation de la Vaccine,' Paris, 1800, with letters by the same author. The translator was of all perhaps, within the Catalonian territory, the most zealous and devoted propagandist of the newly introduced ideas. Pedro Hermandez issued in translation, and also annotated a work called 'Origin, Discovery, and Progress of the Inoculation of Vaccine.' Francisco Cano gave to the press, 'An Answer to Objections that are made to the new Inoculation of Vaccine,' and D. Vincente Martinez gave early publication to a work that bore the following title: 'Historical and Practical Treatise upon Vaccine.' Though nothing with certainty is known of the earliest attempts with vaccine matter, thus much at least we may affirm, that in the year 1801 the uninterrupted succession of vaccination as practised from arm to arm was maintained by several professors. Every prejudice rapidly disappearing, as if by the effect of magic, from all Spanish society, as indeed in other parts of Europe, by a rapid transition all at once from suspense to unflinching trustfulness, vaccination was received with welcome in every province of Spain. In the year 1802 indeed it was very generally sought for. We may not pass over without mention a circumstance of this very date. The question of identity of vaccine with *grease* or *sore heels* in horses, which Jenner had already resolved to his own individual satisfaction was submitted in this same year at Madrid to the Royal Veterinary School for renewed investigation at its hands. Whether or not it lay beyond their force, or from want of means at their

disposal, the members of the commission appointed arrived at no settled conclusion. The fact, nevertheless, is on record as evidence of the high amount of interest which was then predominant in society, or among the scientific in Madrid.

We are now on the threshold of those facts which declare the zeal of the Spanish Government in the direction of public health. Corporations, no less than individuals, through all the Spanish peninsula, had lent a willing co-operation to those philanthropic endeavours which had for their immediate intention a wide diffusion of the discovery. But Spain at this particular period was rich in spacious colonies too distant and too far removed, it was then fearfully opined, to admit their ever participating in this so priceless immunity, which at home the poorest man might claim against the havoc of smallpox. All attempts which were early made to carry as far as the Canaries the product of the vaccine vesicle had fallen short of the intention. Some examples, however, of short voyages and experience gained upon land left yet a hope in many breasts, in all probability to be realised, as regards these neighbouring islands, but how with more remote possessions, would they ever possibly be reached when success on adjacent shores was scarce, if at all, attainable? It is here that we have to admire the spirit of the Spanish Court evinced in so admirable a direction, and also of that society which, Christian or philanthropic, lent to Government the degree of support which is ever necessary to its initiative, no less than to the constancy of its resolutions, in things which are wholly without precedent and of a wholly uncertain result.[1] Our meaning will be better understood from the terms of the royal proclamation, as we find them in the 'Gaceta de Madrid,' 5th August, 1803, reproduced by Dr. Montejo:—

"The inestimable discovery of vaccine, accredited in Spain and Europe, in by far the greater part at least, as an efficacious protection from smallpox, has moved the paternal solicitude of the King to extend and propagate the same in all his Indian dominions, where commonly a vast number of victims succumb to this hideous disease. It, therefore, has pleased him to command, after hearing the opinion

[1] The empire possessed over the mind of Charles IV, by the graceless and incompetent Prince of the Peace, has very unfortunately for the monarch, caused all transactions of the period to be attributed to him. Godoy was not averse to science and arts, nor indeed, indisposed to acts of general utility and beneficence. As Southey very properly has said, "if Godoy had not thought and felt like his master, how could he so entirely have obtained his confidence?" The influence he had, may be much more favorably contrasted with the monstrous usurpation of the French, than the profligacy of Buckingham with the wholly despicable hypocrisy and unsparing tyranny of Cromwell. See Southey's 'History of the Peninsular War," vol. i, chap. ii, p. 80, 81.

of his council and other well-instructed persons, that there be formed a maritime expedition, composed of several of the faculty selected for such an occasion under D. Francisco Javier de Balmis, Honorary Physician of the Household, appointed director of the same. The whole of this expedition to be at the charge of our royal treasury, *without sparing cost or fatigue;* to carry also a number of children *of a sufficiently tender age* to keep up successive inoculations during the entire course of the voyage, so preserving in all its efficacy by this and other means the vaccine, it may be possible upon their arrival to vaccinate from arm to arm, and using the same method all along, both at sea and also on land, to arrive at both the Americas, and further if it be possible, afterwards, in the Philippine Islands, taking note of all such anomalies as are liable to be produced, no less by variety of climate than by differences of race and caste, with the object, as much as possible, to advance so singular a discovery and of such main importance to humanity, and also with a view of publishing, as opportunity may afterwards dictate, all results and all observations of this philanthropic expedition."

The departure was from Corunna on the 30th day of November, of the year 1803, by the Corvette "Maria Pita," sailing *en route* first for the Canaries, having on board the above-named Director, Don Francisco Javier Balmis, with a medical staff of ten persons of special aptitude for the service; they had twenty young children (*niños*) on board, selected for this expedition, of altogether faultless constitution, and in present fair condition of health, and along with these went their mothers and nurses, indispensable for their proper maintenance and the better care thereof; supplementary service was in no sense spared for their comfort, refection, and accommodation. The interval before the departure was turned to advantage by Balmis in spreading vaccination in Corunna, St. Jago, and elsewhere in Gallicia. This afforded him a direct and most abundant supply, and also gave him a starting-point for his future vaccination. On the moment of raising the anchor four children of those that were to sail had the vaccine matter inserted, by quite immediate inoculation, from vesicles of faultless type, and in a fit period of development on children of unexceptionable constitution of those left behind in Corunna. These were destined to be the first link in a chain of successive vaccinations which stretched to the furthest ends of the globe, has subsisted to the present hour, so binding the future to the present, and affording a lasting proof to possessions far remote in space and lying so wide apart, of the constant solicitude felt at home for their wellbeing, health, and happiness. The director was also well stocked with lymph of the most unexceptionable quality, under every aspect and contrivance for its better and safer preservation; every hitherto suggested plan for the transportation of vaccine (glasses, points, tubes, pins, threads, linen

folds, &c.) passed under experiment anew, so as to determine how far it was possible, and also by what particular means, to convey the lymph over sea during long or shorter voyages, and also by land in long travel.

On the 9th of December following, at the hour of 8 p.m., the corvette made land at Teneriffe, where, for reasons which are quite unexplained, they were not immediately expected. Thanks to the zeal of the Captain-General, and to that of the Director Balmis, in spite of the darkness of the night, and also of a heavy sea running, within an hour of coming to anchor, vaccination was immediately commenced on children of the first families in the island, from the fluid of twenty-two vesicles of incontestable perfection upon the body of the infants which were vaccinated at Corunna at the very point of departure, in whom the vaccinia displayed and followed its regular course exactly as seen in Madrid, in spite of those bodily derangements that so commonly happen at sea. On the next day after arrival a public reception was given to the individuals employed and chosen by the Spanish Crown for this humanitarian expedition, the ecclesiastical, military, and civil authorities, assembling to do them honour, under presidency of the Captain-General, the Marquis of Casa Cajigal. On the 6th of January following, the "Maria Pita" once more set sail, this time for Puerto Rico, the best part of a month having been spent by the Director and officers of the expedition in distributing the protection of vaccine through all the whole group of the Canaries.

It will be proper here to use a short delay in pursuing the current of our narrative, so as opportunely to describe the methods that were now introduced in the colony for distribution and preservation of vaccine, and also to make known the effect produced in the mother-country by this first successful attempt on the part of the Spanish Government to distribute vaccination in her colonies.

Made welcome by all classes of the inhabitants in these once more Fortunate islands, or rather worshipped, it might be said, by their greedy and impassioned admiration, during his stay of twenty-seven days, Balmis took every kind of pains in instructing all those in authority, and all persons susceptible of intelligence in the use of this common preservative. Medical men arrived from all sides to the cities of Santa Cruz, Laguna, and some other central places which were favorable for these demonstrations. At the last-named of these cities he held three general vaccinations for persons of all age and sex with the most unsurpassable results. With a view to bring within reach of all inhabitants of the islands the immunity afforded by the procedure certain partial expeditions

were planned by the Marquis of Casa Cajigal with children vaccinated in the capital; every hand was open to contribute for what seemed a natural expense in sharing an indispensable possession, and even a means of existence; but what seems chiefly worthy of remark is the establishment at this conjuncture, and under the circumstances aforesaid, of a vaccine establishment of station for due preservation of the lymph, and also for securing a succession and a certain order and due limit in the performance of vaccinations as pursued from arm to arm, that the inhabitants in future years might never fail in the supply, independent of the mother-country. This was due in its original conception to the Captain-General of the Canaries, in concert with the Director Balmis, and it seems to have been as novel in intention as fortunate in subsequent applicability and in approved imitation.

The completely successful issue of this expedition to the Canaries, produced a most favorable effect upon the population at home. The earnestness seen in the Government, its unprecedented initiative, its undissembled tutelage in this single point of public health, affected the lower class of society as well as the educated and wealthy. Nor here terminated the action of the Court. All over Spain, as in the Canaries, there vaccine stations became established. Moreover, a royal schedule, delivered at Aranjuez, and profusely distributed through the Peninsula, bearing date 21st April, 1805, made known to all the provinces, and every small village in the kingdom, the will and purpose of his Majesty, and his trust in this means of protection against the assaults of variola. The following extract will serve to show the bearings and intent of this royal proclamation, which, both in its purport and design, considered as a single act, could not fail to recommend the king, and also his means of government, to the intelligent appreciation of all Spaniards.

"Our paternal affection towards our subjects (vasallos) being more than commonly excited by what has already been effected on arrival in the Canary Islands of an expedition intended by us to convey beyond the seas and propagate the discovery of vaccine, with the admirable fruits thereof, in all our Indian dominions; being informed that it is apt to perish, and that the fluid may become extinct, I have committed the preservation of it to certain professional persons, who seem best equal to the task. I have now further resolved that there be in all Spanish hospitals—that is to say, of the chief towns of Spain—set apart and reserved in each a special ward for vaccination, to preserve and communicate vaccine to those who shall there present themselves (tandas) to benefit by the advantages of vaccine, and that to the poor it shall be gratuitously given; the operation to be performed by succession (tandas) periodically, and

in such limited number as shall hold proportion to the births that occur in each of these capitals."

Of the aforesaid Royal Schedule, for the better execution of the behest, it is provided in the Rule No. I—

"that there shall be an obligation on the surgeon of each hospital to perform vaccination gratuitously to all who shall present themselves in the ward reserved for this purpose, *having with them their medical attendants*, with recognition on the surgeon's part of fitness for vaccination, and with gratuitous assistance from him in any violent symptoms that may arise from thence."

By Rule II there is established a register for vaccination, of which there is a model in Rule III. Rule IV contains the advertisement to be put into the hands of the vaccinated or parents or relations accompanying them, in order that the course of the vaccination shall be seen and taken note of. Rule V obliges the physicians or surgeons to have a diary, with clinical history of accidents and anomalies observed by them throughout the course of the vaccination; every two months they shall surrender at head-quarters a report identical with the same, with a view to such publicity as may conduce to the public interests and instruction of the medical profession. By Rule VI the above-named physicians or surgeons are engaged to collect and make known such information as may serve for warning and instruction to their fellows of less experience, and also they are invited to place themselves in relation with competent authorities for removal of all obstacles and shortcomings. In Rule VIII there is an announcement that fathers of families and strangers shall have a claim to vaccination, to be gratuitously performed if they fall in at the proper hours and are of the poorer class. By the IXth the medical officers are enjoined to give notice in each hospital to the Junta or administrative faculty of each of their hospitals respectively, as to any defect or impediment in the special service of vaccine, for early removal of the same. In fulfilment of the Xth Rule, the surgeons of the hospital are obliged to instruct their practitioners (their staff and pupils) in the practice of vaccination.[1] In Rule XI and XII there is a warning to the Captains-General to see that vaccination is attended to, and also to the ecclesiastical and judicial or administrative authorities, that they should exhort and give assistance, as far as ever in them lies, for the general propagation and success of this important means of public health.

[1] It is a pity that vaccination in England is not brought home to the hospital student in the wards, or in a ward of the hospital, for some never once saw it done till called upon to perform it.

Lastly, in Rule XVII there is an appeal to the rich and well-to-do, whose children have received the benefit of this inestimable discovery, that they should contribute somewhat to the expense that is quite necessarily incurred by establishments which have this new function superadded to their onerous duties. There is a command besides to all in authority that they "give support and furtherance to vaccine, each one in his proper domain, agreeably to the general tenor and intention of the schedule."

From henceforth vaccination was established in Spain upon an administrative footing as a principal means of public health; the next thing the Government had to do was to find a convenient centre among those already existing for regulating and advancing to the utmost the progress that might shortly be realised. Such a centre it hoped to find in the Royal Supreme Governing Junta of Medicine, the higher authorities of which had striven to promote officiously, and in their individual capacity, the propagation of vaccine throughout Spain. To this corporate body, exclusively medical in its institution, by the terms of the royal schedule a sufficient authority was entrusted by the Junta, and by the zeal and sincerity displayed in carrying out the provisions of the schedule, it appears to have been worthy of the the trust.

"From this epoch (says Señor D. Felix Gonzalez, writing in the year 1814) the Royal Junta first began to interest itself much in the expedition that had been dispatched to the colonies that lie beyond the sea, its progress in several points, its chances and hopes of success; establishing a correspondence with the viceroys, captains-general and governors of the Americas; in this way it soon acquired a considerable amount of information from the least accessible points, and the same as regards the Peninsula. Having thus the fullest knowledge of the subject at command, in all its breadth and extent, it was able to lay before his Majesty the general results of vaccination, pointing out the probable means of giving perpetuity to this preservative until the much-to-be-desired extinction of small-pox in all regions and countries."

The whole of which correspondence, as also the sum of the vaccinations, was to remain in the secretariat of the Junta Suprema Governativa de Medicina, "all which precaution has been paralysed and made of no effect," continues Señor D. Felix Gonzalez, "in these six past years or so, unhappily swallowed up in war." This gentleman was household physician (*medico de camara*) at court; and in that way, by right of privilege, a member of the said Junta, so that he is entirely to be depended on in all that concerns this matter. The provisions of the Royal Schedule, 21st April, 1805, passed

immediately into execution and became established on a permanent footing through a very great part of Spain; as elsewhere, albeit, sloth, and popular prejudice and ignorance, to a certain limited extent made difficult its exact fulfilment. The said Royal Junta turned to profit all kind of information it received, no less from the kingdom than the colonies, and it left besides no means unemployed to diffuse the benefits of vaccine, and to bring into favorable notice individuals who aimed at its advancement; at this time an unlooked-for event, than which nothing indeed could be more opportune, came to give a considerable support to the already advantageous experience which had been obtained throughout the Peninsula. On the 15th of August, 1806, there arrived in the port of Lisbon, Señor D. Francisco Javier Balmis, after making the circuit of the globe, and propagating with much success the inestimable boon of vaccine to the distant colonies of America, and also those parts of Asia subsidiary to the Spanish monarchy, and to other countries and dominions which lay external to them; the self-same Balmis indeed of whom notice has been made as starting from Corunna with such purpose, November, 1803.

It is impossible to estimate too high the beneficent and favourable impulse which this magnificent success, both immediately and for some time after, imparted to public opinion in rendering vaccination more general and indispensable to the requirements of society.

Following the plan of Dr. Montejo, we shall here avail ourselves of a supplement attached to the 'Gaceta,' of Madrid, 14th October, 1806, to describe as fully as possible the impact of this expedition upon the public mind. Below are the words of the supplement:—

"On Sunday last (7th September, 1806) had the honour of kissing the King's hand, Señor D. Francisco Javier de Balmis, honorary surgeon of the royal household, who has just made the tour of the world with the sole object of carrying vaccination to those of the Spanish dominions which lie beyond the seas: his Majesty has gathered information, with a very lively interest, concerning the occurrences of the expedition, being very exceedingly gratified that the results that were expected from the same are very far surpassed by what is already known of the event at the present time of writing. Composed of professional men and other non-medical officers, and besides of twenty-two children who had never yet suffered from smallpox, which last were especially intended to keep active the vaccine fluid by transmitting it from arm to arm, this expedition departed from Corunna on the 30th day of November, 1803, entrusted to the direction of Balmis; it first broke its voyage at the Canaries, a second time at Porto Rico, and a third time at the Caraccas.

"On quitting this last-named province at the port of Guayra it divided into two branches: the one was destined for South America, under the charge of the sub-director, D. Francisco Salvani, while the other proceeded to Havannah, and thence to Yucatan, under Balmis, director of the expedition. In Yucatan this last subdivided, the professor, Don Francisco Pastor, departing from the port of Siral for that of Villahermosa, in the province of Tabasco, passing by Cuidad Real de Chiapa, to carry vaccine as far as Guatemala, and thence to return by the difficult and lengthy route to Oaxaca; whilst the remainder of the expedition, which arrived happily at Vera Cruz, not only traversed the vice-royalty of New Spain from one end to the other, but also the internal provinces; after which it turned back on Mexico, which was to be the point of reunion.

"Having furnished to all North America, to the shores of Sonora and Sinaloa, and even to the Gentiles and Neophytes of Primera Alta, this effectual talisman against smallpox, establishing in every chief town a junta composed of the authorities and heads of the medical profession to keep it as a sacred trust, for which they must answer to posterity and also to our lord the king, the director now proposed to take his departure from America with this section of the expedition, crowned as it was with brilliant success, and wholly with the blessings of the people. Having exercised all perseverance in the removal of preliminary obstacles, he now proceeded to embark at Acapulco for the Philippines. The great and pious wishes of the king in the performance of this lengthy transit were seconded so far by Divine Providence that Balmis was detained scarce longer than two short months in the route. He had taken on board twenty-six children (niños), obtained by him from New Spain, to vaccinate them one after another in like manner as he had done upon the former occasion, before his arrival in America, and, since some of these were very young, they were confided to the Lady Superintendent of the Foundling Hospital in Corunna, as in the preceding navigation, who showed great tenderness in her charge.

"No sooner arrived at the Philippines, in concert with the Captain-General, the director of the expedition, Balmis, set to work to extend the specific in all the several islands that were subject to the power of his Majesty, as being the main purpose of his commission, after which he undertook the duty of extending the beneficence of the king and the glory of his august name to the furthermost confines of Asia. In point of fact, he diffused vaccination through all the vast Archipelago of the Visayas,[1] a group of islands whose kings, in eternal war with Spain, now laid aside all hostile intent in pure admiration of an enemy who brought them succour, and health, and life at a moment

[1] Visayas or Bisayas, a common name for the Philippines and all this archipelago. They were first called Islands of St. Lazarus by Magellan, their discoverer, and afterwards Western Islands or *islas de pintados* (painted Indians), and subsequently (from Philip II) were called the Philippines. The enemies of Spain intended in the text are chiefly, no doubt, the cruel and indomitable inhabitants of the Sooloo Islands, towards Borneo, the Algerines of those parts and other hostile races.

when an epidemic of variola was committing the most terrible ravages among their population. Of no less virulence was that which prevailed in the Portuguese possessions and throughout the vast empire of China, when Macao and Canton were reached. On his arrival in both these place he introduced the vaccine fluid in all its freshness and activity, observing the same method throughout, of arm-to-arm vaccination. The English had every way failed, on the many occasions they had attempted it, to introduce the vaccine matter, transporting in the vessels of their company, under many forms of contrivance, dry and isolated portions of the same, which was always found to be inert. After extending vaccination in Canton, so far as was possible at the time, and so far as the political circumstances of the Chinese empire allowed, committing it further to the care of the physicians of the English factory in the aforesaid port of Canton, Balmis now returned to Macao, and there, on board a Portuguese vessel, he took his passage homewards for Lisbon, arriving in the latter port on the 15th of August last. On his voyage he touched at St. Helena, in which island he endeavoured, as elsewhere, with repeated prayers and exhortations to prevail on the English residents to adopt this wondrous amulet of their own countryman's invention, now despised by them for more than eight years, though on their own shores discovered by Jenner, and committed to them as an heirloom. As to that part of the expedition which was destined for the service of Peru, under the especial charge of Salvani, it is known to have undergone shipwreck on the banks of the river Magdalena; but finding ready succour from the natives, and in the immediate justiciaries, and from the Governor of Carthagena, the subdirector, Salvani, and all three medical officers with him, had the singular good fortune to escape, as well as the whole of the children, with the fluid in unexceptional preservation, which was extended in that port and province with all industry forthwith, and with the most complete success. From thence to the Isthmus of Panama, and then undertaking, with all necessary equipment, the lengthy and difficult navigation of the river Magdalena, they remained on either bank so long as was required for their purpose. They penetrated the interior of the country, pursuing dividedly their plan of distribution in the towns of Teneriffe, Mompox, Ocaña, Socorro, San Gil, and Medellin, in the Valley of Cucuta, and in the cities of Pamplona, Giron, Tunja, Velez, and places of any consequence in their neighbourhood, meeting again at Santa Fé. In all these parts they were at pains to leave the faculty well instructed, and to establish here and there certain regulations conformable to the model of those laid down by the Director Balmis for the better preservation of the fluid. According to the affirmation of the Viceroy, transmitted to the Court of Madrid, vaccination was communicated by them to 50,000 persons or more, with no infelicitous result. In the last days of March, 1805, they prepared to continue their task, again choosing separate routes in order to bring within their reach certain other territories of the vice-royalty situated in the way of Popayan, Cuença, and Quito, as far as the city of Lima; and in the month of August following they found themselves

in Guayaquil. Not only had the expedition succeeded in spreading vaccination abundantly through all the quarters of the globe, among friends and enemies alike, the Moors of the Visayas and the Chinese, securing to posterity in the king's dominions the perpetuity of this inheritance not only by means of central juntas that Balmis took care to establish, but yet more by the discovery that he made of cowpox or variola of the cow, which he found in the Valley of Atlixco, near the City of Puebla de los Angeles, in the immediate neighbourhood of the City of Valladolid de Mechoacan, where it was pointed out by the Assistant (Ayudante) Don Antonio Gutierrez; and in the district again of Calabozo, of the Province of Caraccas, where it was once again found by the medical man of that residency, Don Carlos del Pozo. The multitude of observations, which will speedily have to be published, concerning the development of vaccine in a great variety of climates, and of its rare and singular efficacy, which is hardly restricted indeed to the cure of natural smallpox, but acting in the direction of cure, simultaneously takes effect upon other various ailments, all serve to crown with success and prove the importance of an expedition which certainly is without a parallel throughout the whole course of history.

"Although it had in truth for its main object vaccination from arm to arm everywhere throughout the globe, and to teach the practice of vaccination to professors of medicine everywhere, and to establish rules for its perpetuation, the interest of science and agriculture have also been heartily attended to in the course of this expedition. A considerable number of exotic plants have been brought to Spain by the director; he made drawings, and took ample notes of objects of natural history, with data, which he thought of importance; and among other titles which deserve our gratitude, the least of them is certainly not his valuable collection of fruit-bearing plants (frutales), and other useful productions, which was brought over in a living condition, and which propagated in analogous climates of the Peninsula, will make this undertaking no less memorable in the annals of agriculture than it is certainly destined to be in the history of medicine and humanity. It is to be hoped that the subdirector, together with his three companions who had Peru for their destination, after fulfilling their primary object of distributing vaccine through the viceroyalty, and from Lima to Chili and Charcas, will be able to meet at Buenos Ayres, and that they too will equally succeed in collecting objects of natural interest, and observing scientific data according to the recommendation of the director, while no ways departing from, or neglecting, the main object of the expedition which has been so propitiously designed by our monarch for the general good."

So far the 'Gaceta de Madrid:' in a following number we shall show how strenuously and at what sacrifice vaccination was spread with much success throughout the southern Continent of America, and also what became of it in Spain.

Review V.

Guy's Hospital Reports. Edited by C. Hilton Fagge, M.D., and Arthur E. Durham. Third Series. Vol. XIV, pp. 524. London, 1869.

The present volume of 'Guy's Hospital Reports' contains twenty-seven papers, together with numerous illustrative plates and woodcuts; and the whole collection is calculated to maintain the reputation which has been achieved by the preceding volumes. The following is a brief abstract of such of the papers as admit of condensation or analysis:

I. *Cases of Transfusion; with some Remarks on a New Method of Performing the Operation.* By Dr. J. Braxton Hicks, M.D., F.R.S.—In this paper Dr. Hicks records the particulars of six cases, the majority of which occurred in the Maternity Charity of Guy's Hospital; and although the results were unsatisfactory on the whole, yet suggestions for improving the operation may be derived even from the failures which have been experienced. Dr. Hicks observes that it appears surprising, at first sight, that the operation of transfusion has not been more extensively employed, and yet nearly a century has elapsed since Dr. Dashwood recommended it in cases of extreme hæmorrhage. But the general want of success, and the various impediments which occur during the performance of the operation, are the principal reasons which have prevented its frequent adoption. The want of success, however, is partly to be attributed to the postponement of the measure till too late a period, and partly to causes connected with the operation itself. Dr. Hicks finds one of the most trying hindrances to success in the tendency of the blood to coagulate at all stages of the proceeding and in all parts of the instruments, and hence arise not only the difficulty of injecting the blood, but also the danger of driving a small clot from some portion of the instrument into the venous circulation. This is particularly the case with the use of all complicated instruments, and in four instances, in which Dr. Hicks used blood alone by the aid of the old funnel and syringe, he found the greatest inconvenience and detention from the coagulation. Dr. Hicks's proposal for an improvement in the mode of performing transfusion has for its objects the simplification of the instruments and the prevention of the fibrillation of the blood. The latter object is attained by certain saline solutions, which are, moreover, tolerated by the system when intro-

duced into the veins. The salt which is found to possess this double property in the greatest degree is the phosphate of soda, as suggested by Dr. Pavey to Dr. Hicks. The latter physician believes that it is possible, by the help of this salt, to delay the transfusion of the blood until proper arrangements can be made for the operation; for the want of success is often due to the hurried manner in which the plan is adopted, and some experiments on dogs seem to prove that blood mixed with phosphate of soda, and kept out of the system for some time, can be injected back into the animal without detriment.

II. *Some Remarks on the Nature and Causes of Disease.* By Samuel Wilks, M.D.—Dr. Wilks adduces the well-known division of the causes of disease into the predisposing and exciting, as an example of the conviction existing in people's minds that disease is of a twofold nature, namely, extrinsic and intrinsic, one kind arising from without and another from within. Thus typhus fever is excited by contagion in a person predisposed to its reception by bodily or mental fatigue, and chorea is excited by fright in a child predisposed on account of its nervous temperament. But the term cause in these cases is used very differently, for in the one it is meant that the disease is itself implanted like a seed in a soil prepared for its growth, and in the other we simply refer to an influence developing the innate tendencies of the child to a particular morbid action. Thus, too, smallpox and consumption have nothing in common, except that they are both diseases, the one being a deranged condition of body due entirely to an external agency, the other arising from a cause which is altogether within.

The tendency of Dr. Wilks's argument appears to be to prove that diseases really originate in some peculiar condition of the body itself, and that they are, as it were, the manifestations of some long-standing constitutional disturbance. The subject of predisposition was the most important branch of medicine studied by the ancients, among whom exact diagnosis was unknown; but among modern physicians the improvements made in the physical investigation of particular organs have tended much to narrow men's minds to a localised pathology; but this tendency, carried out as it has been in the present day, appears to be founded on mercantile rather than on scientific principles. Dr. Wilks would, therefore, resist this tendency to the unnecessary localisation and subdivision of diseases, and would desire that more attention should be paid than is done at present to the different diatheses or constitutions of patients. The ancient writers divided civilised man, for several generations, according as he had a superfluity of blood, of phlegm, of yellow bile, or of black

bile, or, in other words, he was designated as sanguineous, phlegmatic, choleric, and melancholic; and these terms are sometimes used, even in the present day. But more modern writers, as Dr. Laycock, have divided men into other diathetic categories, as the arthritic, the strumous, the nervous, the bilious, and the lymphatic. Some of these terms are appropriate; but with respect to the *strumous*, Dr. Wilks agrees with the writers who believe that two very different conditions have been included under that name, and that the unhealthy-looking children with large heads, narrow chests, and protuberant bellies, are very unlike in constitution to the tall, handsome, and often vigorous-looking subjects, who become in adult life the victims of consumption. Dr. Wilks proceeds to offer a number of ingenious remarks upon other temperaments, as the arthritic, the nervous, and the bilious; and he suggests that the physician should carefully study these peculiarities of constitution, with a view of obtaining correct notions of the nature and cause of disease, and, consequently, of the best methods of treating it.

III. *Contributions to the Physiology of Binocular Vision.* By Joseph Towne.—This paper is in continuation of a series upon the same subject, and is illustrated by an engraving and woodcuts, without which, and without reference to former contributions, it is impossible to present a clear statement of the views advanced by the author.

On Rupture of the Ureter. By Alfred Poland.—Rupture of the ureter is an injury of great rarity; but the late Mr. Stanley has recorded two cases of the kind in one of the volumes of the 'Medico-Chirurgical Transactions,' and Mr. Poland now publishes another, which presented, moreover, some remarkable and unusual complications. The patient was a woman, aged 33, who was in the fifth month of pregnancy, and who sustained a severe injury by a fall when getting out of a railway carriage. There was a wound above the umbilicus, the urine was not passed, there was vomiting, premature labour came on, and terminated in the delivery of a still-born fœtus, and death resulted in 135 hours after the accident. The post-mortem examination showed that the external wound led into a hernial space in the subcutaneous tissue on the outside of the rectus muscle and its sheath, but in the sac were coils of small intestine. The spines of the lumbar vertebræ were broken off; two of the ribs were broken, and the transverse processes of the three upper lumbar vertebræ were also broken off. The right ureter was torn quite across, just below the pelvis of the kidney, and the left kidney had its vessels blocked up with ante-mortem clots. The rupture

of the muscles was apparently caused by the extreme tension of the muscular fibres at the moment of the accident, and the rupture of the ureter by the rolling of the body, when in an erect position, between the step of the railway carriage and the platform. The symptoms of the lesion were, as they must be in such cases, very obscure and unsatisfactory.

V. *Two Cases of Thrombosis of the Renal Vessels through Injury to the Lumbar Spine, with general Remarks on Thrombosis.* By W. Moxon, M.D.—One of the cases here described is that of Mr. Poland, just adverted to, and in which Dr. Moxon conducted the post-mortem examination. In Mr. Poland's case the ureter of the right kidney was torn across, but the left kidney (although there was no sign of direct violence to it) had its vessels entirely occluded. In the other case, which fell under Dr. Moxon's own notice, and which was also one of severe injury by a railway train, the kidneys were both diseased. The right was larger than the left and looked swollen, and its colour was dull and opaque with a yellowish cast. All its vessels, arteries as well as veins, were obstructed by ante-mortem clots. The left kidney was affected like the right, but only in a part of its structure. The microscope showed that the inter-tubular stroma of the diseased parts of the kidneys was charged with finer or larger fat-molecules. In this case, as in Mr. Poland's, there was fracture of the lumbar vertebræ. Dr. Moxon draws attention to the fact that obstruction of the renal vessels was found in two cases accompanying injury to the spinal column in the region corresponding with the position of the kidneys, and he then discusses the probable cause of the obstruction under these circumstances, but remarks that an extensive disease of the kidneys from such a cause is exceedingly rare, and even where it does occur, it is almost always as an accident in heart disease, due to embolism of the artery by fragments from ulcerating cardiac valves. In the cases mentioned in the paper the pathological condition was *thrombosis*, and not *embolism*, and Dr. Moxon draws a distinction between these two conditions, which he thinks are sometimes confounded with one another by some writers.

VI. *On Homicidal and Suicidal Wounds of the Throat.* By Alfred S. Taylor, M.D., F.R.S.—This paper is founded upon and explanatory of the case of a man named Wiggins who was convicted and executed for the murder of a woman with whom he lived. On the part of the prosecution it was suggested that he cut the woman's throat in the middle of the night, and then in the morning when the matter could no longer be concealed,

he made a slight cut into his own throat for the purpose of averting suspicion. For the defence it was maintained, as was stated all through by the prisoner, that the deceased first tried to cut the man's throat, and then, after the man had escaped and raised an alarm, cut her own. Dr. Taylor's paper examines carefully all the medical facts of the case, discusses the power of locomotion or struggling after wounds of the trachea, the common carotid artery, and the internal jugular vein; and also treats of the question as to the time when cadaveric rigidity sets in. If the man's account was true, the body became stiff almost immediately after death, for all the witnesses agreed as to the fact of the rigidity, but inasmuch as numerous observations have shown that this rigidity does not supervene in general until about four hours after death, the wound must have been inflicted long before the alarm raised by the prisoner. The blood, also, on the deceased's shift was dry, as was also that on some parts of the prisoner's dress, another fact inconsistent with the story told by the latter, which moreover was told at different times, the relation being inconsistent with the medical and other facts of the case, and inconsistent with itself when the story told at one time was compared with that told at another. Dr. Taylor's conclusions all point to the guilt of the prisoner.

VII. *Further Remarks on the Structure of the Growths within Ovarian Cysts.* By J. Braxton Hicks, M.D., F.R.S.—In the Reports for 1864 Dr. Hicks described the minute structure of the so-called proliferous disease of the ovary, indicating its close resemblance to that of gland-tissue, and particularly of adenocele of the breast. The plate which accompanies the present paper shows the minute anatomy of two growths of a similar nature, and they are briefly described.

VIII. *On Accumulation of Mucus within the Tympanum, and its Treatment by Incision of the Membrana Tympani.* By James Hinton.—An excessive secretion from the mucous lining of the tympanum and its retention within the cavity of the ear is a very frequent condition, and is not difficult to treat; but there is another class of cases in which the secreted mucus is neither absorbed nor escapes through the Eustachian tube, nor finds its way through the membrana tympani, but remains for an indefinite period within the tympanic cavity, producing great deafness and general suffering. Although these cases have long been recognised, it is only lately that their great frequency has been understood, and the facility with which they may be cured by incision of the membrane has been appreciated. Mr. Hinton describes particularly the appearances presented in this affection, and he relates the particulars of four

cases which were treated by the plan described. He states that his remarks apply only to cases where *mucus* is retained within the tympanum and not to suppuration, in which latter case the matter should be promptly evacuated by incision of the membrane, as has often, if not yet often enough, been insisted on.

IX. *On Acupressure and Torsion.* By J. Cooper Forster.—The present remarks of Mr. Forster are in continuation of a former paper published in the Reports, and are founded upon fourteen cases from his own practice, together with two others. In five of them Mr. Forster used torsion alone, and in one case it was partially adopted, and in all successfully. One of the undoubted advantages of torsion is the absence of a foreign body of any kind in the wound, but Mr. Forster thinks that there are cases when the use of both torsion and acupressure may be advantageous. Although surgeons in general consider that the ligature is the safest plan for arresting hæmorrhage, yet it must not be forgotten that there is danger of hæmorrhage arising when the ligature is separating, and this danger is probably as great as the removal of a pin. Mr. Forster states that for the last two years he has in no case used a ligature where any attempt has been made to obtain adhesion in a wound, or where he has been able to practise torsion; and thus he finds it difficult to see in what cases ligatures need be used at all.

X. *Clinical Therapeutics.* By S. O. Habershon, M.D.—The object of Dr. Habershon in this communication is to show that in treating disease the whole history of each case should be studied, and more especially the antecedent conditions of the patient, for the existing malady may be only the result of some latent organic mischief, or of some constitutional taint, which may either impede the cure, or even render a cure impossible. Dr. Habershon sums up his views under a few heads, the general conclusions being that successive stages of the same disease are very apt to be mistaken for new ailments; that acute changes in the system are always modified by former diseases; that the intensity of the influence of the former malady lessens according to the interval of time since the attack; that when two diseases concurrently affect a patient, the one modifies the other in an important manner; that a general affection has a more powerful effect than a local one, but that local disease, especially when symmetrical in character, is the expression of a constitutional malady; that when we attempt to relieve organic local disease by diminishing its more prominent symptoms great care must be taken lest the original

malady be increased; that any true antagonism of disease is very doubtful; and that the surrounding circumstances should conduce, if possible, to the restorative process.

XI. *A Case of Epithelioma of the Œsophagus in which Gastrotomy was performed; with remarks.* By ARTHUR E. DURHAM.—Although this was an unsuccessful case, Mr. Durham thinks it right to publish it, and he considers that the performance of the operation was quite justifiable. The patient was an old man who was troubled with continual vomiting and inability to swallow liquid food. The stomach was opened, and made to communicate with the external air, and milk and water was introduced by means of an elastic tube. He soon died, however, and the obstruction was found, as was anticipated, to be due to epithelioma of the œsophagus, and accompanying constriction of the tube. Mr. Durham considers it doubtful whether life has ever been prolonged by this operation, but still he thinks it ought to be performed. It has always hitherto been performed too late, as in the case recorded; but if it were done earlier, and the patient were brought into a favorable condition, it might be the means of lessening suffering and of lengthening life, even if it did not permanently remove or cure the disease.

XII. *On Splenic Tumours.* By C. HILTON FAGGE, M.D.—In this interesting paper Dr. Fagge describes several cases of enlarged spleen, where the tumour not only occupied the left side but extended into the iliac and hypogastric regions. In some instances the swelling nearly filled the whole abdomen. The chief clinical interest in these splenic tumours, and that to which Dr. Fagge was the first to direct attention, is in reference to the possibility of mistaking an enlarged spleen for an ovarian tumour. The sharp outline presented by the tumour, and the notch or notches in it, ought at once to suggest that it is the spleen, and if any doubt should remain it may at once be dispelled by a microscopic examination of the blood, for a considerable enlargement of the spleen never occurs without an increase in the white corpuscles.

XIII. *A Case of Ovariotomy in a Child; with Remarks.* By THOMAS BRYANT.—The patient was a girl, æt. 14, who had never menstruated, and the operation was quite successful. Mr. Bryant is not aware of any other instance of a similar kind having been recorded in which the disease was developed to such an extent in so young a subject, and before the ovaries had commenced their active life; and the character of the tumour

was another point worthy of remark, for it was more like the chronic ovarian tumour found in the middle-aged than any of an acute kind. The rapid recovery of the patient was also remarkable, for the convalescence was steady from the first and was marked by an almost entire absence of pain.

XIV. *Cases Illustrating the Treatment of Suppurating Ovarian Cysts, and some points connected with Ovariotomy.* By Thomas Bryant.—Two cases are here recorded of ovarian disease in which the cysts suppurated, the pus was discharged, and the patients did well. In one case ovariotomy was not performed, or even contemplated, but free incisions were made for the escape of the matter; in the other case, ovariotomy was attempted (though not by Mr. Bryant), but abandoned after the first incisions. The effect of the operation, however, was to discharge a large quantity of fluid, and the patient unexpectedly recovered. The result of both cases proves that much may be done even for patients who are sinking from the irritation of a suppurating and degenerating ovarian cyst, the best plan being to lay open the cyst, evacuate its contents, and wash out the cavity. Mr. Bryant records two other cases, one of which relates to the treatment of the peduncle in ovariotomy, and the other is an instance of menstruation from the peduncle of an ovarian tumour. With reference to the treatment of the peduncle after ovariotomy, Mr. Bryant thinks that the practice of dropping into the peritoneal cavity the end of the divided peduncle with the ligatures cut off close, is not free from special risks, and that some simpler or better plan for treating the peduncle should be sought for, although he is not yet prepared to decide what that plan may be.

XV. *Case of Hydatid Tumour of the Abdomen, Simulating Ovarian Disease, treated successfully by operation; with remarks.* By Thomas Bryant.—The subject of this case was a lady aged 35, married, but without family, and the tumour was at first thought to be ovarian, but on careful examination being made with a view to operation a suspicion was raised that it might be of a hydatid nature. An incision was therefore made about two inches long in the median line of the abdomen, midway between the umbilicus and pubes, and a large hydatid cyst was eventually opened, and the contents discharged.

XVI. *A case in which Aneurysms of the two Popliteal Arteries were cured by Digital Pressure, the one in twenty-four hours by Students, the other in four hours and a half by the Patient; with remarks.* By Thomas Bryant.—The title of

this paper explains its chief features. The patient was a policeman, who was cured of an aneurysm of the left leg by the means described, and after he had left the hospital and had resumed his duty he became the subject of another aneurysm in his *right* leg. As he had gained experience in the hospital by observing the means taken to cure the former aneurysm, he determined to try the same means himself, and by alternately pressing with his right and left hand for four hours and a half he succeeded in effecting a second cure. Mr. Bryant remarks that digital pressure, when well applied, is better than instrumental, but that what is wanted in the former case is steady, equal pressure, made by persons well acquainted with anatomy, and who press only the artery itself, and not the surrounding vessels and nerves. He thinks that three men might readily take charge of such a case for four hours and a half without fatigue.

XVII. *On the Morbid Anatomy of Elephantiasis Græcorum.* By W. Moxon, M.D.—In a previous volume of the Reports is an account of this case of elephantiasis Græcorum, by Dr. Owen Rees, and Dr. Moxon made a post-mortem examination of the patient, who died at the beginning of the year 1868. The immediate cause of death was amyloïd or lardaceous disease of the alimentary canal, liver, kidneys, and spleen, with marasmus in the most extreme degree. Dr. Moxon is not aware that amyloïd disease has before been noticed as occurring in leprosy. Contrary to expectation the nerves were found quite natural, and some nodules felt during life, and supposed to have their seat in the nerves, were found to belong to the veins. On the whole, Dr. Moxon observes, this case shows the excessive slowness with which leprosy advances to a fatal termination, and indeed if the disease killed more speedily it would lose half of its horrors, which it owes to the tedious and protracted suffering it entails on its victims.

XVIII. *Toxicological Cases.* By Thomas Stevenson, M.D. —Of these cases one was an instance of poisoning by prussic acid, one of death from the inhalation of chloroform, one of poisoning by extract of nux vomica, one of belladonna poisoning, one of acute alcoholic poisoning, and one of poisoning by hydrochloric acid. The last four cases terminated in recovery. In the case of death from the inhalation of chloroform the patient was a farm labourer, aged 33, a powerful, muscular man, who had always enjoyed good health. He was suffering from old distortion of the ankle joint, for which it was proposed to divide the tendo Achillis, and to straighten the limb. The chloroform

was administered at his own earnest request, although it turned out after his death that he had nearly died eight years before from the effects of that anæsthetic. He died from asphyxia, and different solid and fluid parts of the body were submitted to analysis in order to detect chloroform. The process consisted in employing Duroy's method, by which the chloroform is decomposed into chlorine, hydrochloric acid, and other products, and the two first-named substances are absorbed by nitrate of silver, giving rise to white chloride of silver. Dr. Stevenson observes that this is the only English case that he knows where chloroform has been detected in the human body after death by its inhalation.

XIX. *Intestinal Obstruction.* By C. Hilton Fagge, M.D. —This long and valuable paper, which includes an abstract and classification of the cases of fatal intestinal obstruction which have occurred in Guy's Hospital during the last fifteen years, was suggested to Dr. Fagge by some instances of the same affection presented to him in his own practice within the last eighteen months. Out of the 4,000 autopsies at the hospital, fifty-four were instances of intestinal obstruction, or about 1·4 per cent. Dr. Fagge distributes the cases of intestinal obstruction under six heads, namely—1. The cases in which the gut is plugged by its contents; 2. Intussusceptions or invaginations; 3. Strictures; 4. Contractions: 5. Volvuli, including folds and twists of the intestine; and 6. Internal strangulations, properly so called. He then examines the symptoms which denote an affection of the small intestine, as distinguished from that of the large, and agrees with the late Dr. Barlow that suppression of urine is characteristic of the disease in the small intestine, though the explanation offered of the fact by that physician may be open to question. Dr. Fagge then passes in review the main features of the disease under the six heads above referred to, basing his remarks partly on observations made within the walls of the hospital, partly on the reports contained in the post-mortem records, and referring also to a few cases which have come under his notice elsewhere.

XX. *Two Cases of Colloïd Cancer of the Large Intestine.* By J. Cooper Forster.—Mr. Cooper Forster relates these cases of colloid cancer on account of the rarity of this form of carcinoma. Colotomy was attempted in one case and performed in the other, but both patients died. Mr. Forster thinks, however, that in the case in which the operation was performed the distress from distension of the bowel was relieved, and life was prolonged for some time.

XXI. *On Erectile Tumours of the Foot.* By Alfred Poland.—A case occurred in Guy's Hospital under the care of Mr. Poland, in which there was an "erectile" or cavernous vascular tumour occupying the dorsum and sole of the foot in a young woman of 19. For this affection the dorsalis pedis artery and the posterior tibial were successively tied, with only partial success, and on a return of the affection the anterior tibial was tied in its lower third with temporary relief; but eventually it was necessary to remove the leg, and the patient made a complete recovery. Mr. Poland appends to this case several others which he has found recorded, and which, though under different titles, he believes to be similar in character to his own. He regards the tumour in his patient as being a vascular, cavernous, erectile, new growth, developed in the vasa vasorum of the coats of the deep venæ comites in the sole of the foot, as well as of the communicating veins between the sole and the dorsum, these tumours and their contained spaces communicating directly with the veins, and subsequently receiving blood from the arteries.

XXII. *The Anatomy and Microscopic Structure of Mr. Poland's Specimen of Erectile Tumours of the Foot.* By H. G. Howse.—This paper is a kind of appendix to the last, and contains a description of the dissection of the foot, and of the microscopical appearances presented by the morbid structures, and it is accompanied by two plates, one of which is coloured, illustrating the description.

XXIII. *On the Early Indications of Nephritic Irritation.* By G. Owen Rees, M.D., F.R.S.—Dr. Rees pointed out many years ago that in albuminuria the extractive matters of the blood always accompanied the albumen, that under some other conditions the extractives of the blood appeared in the urine without albumen, and that the presence of the abnormal ingredient was determined by testing with tincture of galls. But the points left undetermined were, whether the extractives remained in the urine after the albumen had entirely disappeared, and whether the extractives might not be present *before* albumen appeared? If the latter point should be answered in the affirmative, then an important warning might be given of the approach of Bright's disease. Dr. Rees now gives three cases in which the presence of extractives was ascertained by the test of tincture of galls, and in one of which albumen was afterwards discovered. In the other two cases, although the general symptoms pointed to albuminuria, no albumen was found in the urine, and probably the warning given averted the supervention of serious disease. Dr. Rees suggests that the urine

should also be tested for blood extractives in Addison's disease, and he hopes to make some observations hereafter on that subject.

XXIV. *Notes of Abnormalities observed in the Dissecting Room during the Winter Sessions of* 1866-7 *and* 1867-8. By James Bankart, M.B., P. H. Pye-Smith, M.D., and J. J. Phillips, M.D.—It appears that 158 bodies were dissected in the school of Guy's Hospital between October, 1866, and April, 1868; and as two out of the three observers were constantly in the dissecting-room, no important abnormalities could well be overlooked. These deviations from the usual anatomical relations are arranged by the reporters under the different heads of the osseous, the muscular, the arterial, the venous, and the nervous systems. The most important visceral abnormality observed during the last two winters was complete transposition of all the thoracic and abdominal viscera, together with the great vessels.

XXV. *The Human Eye in Health and Disease, as seen with the Ophthalmoscope. Third Series. Plates, illustrating Morbid Changes in the Optic Nerve* (*Optic Disc*). By C. Bader. —Certain forms of cerebral disease are accompanied by visible anomalies of the optic nerve, where it passes through the tunics of the eyeball. Among the most conspicuous of these anomalies are disturbances in the blood-vessels in the retina and changes in the connective tissue of the optic nerve. Fibro-plastic tumour of the brain is, as proved by post-mortem examination, the disease usually found in connection with certain changes of the optic nerve depicted in the coloured plates which accompany the paper; and other appearances, also shown, are indicative of inflammation of the optic nerve. The plates are very beautifully executed.

XXVI. *On the Structure of Two Forms of Tooth Tumour.* By S. J. A. Salter, M.B., F.R.S.—In a paper lately read before the Academy of Sciences of Paris, M. P. Broca read a paper on a group of tumours produced on the teeth, and to which he gave the name of odontomes. Dr. Salter adopts this term as a convenient and legitimate expression; and in his present paper he describes two kinds of odontome, which were not included in M. Broca's series. These two odontomes differ very materially in practical importance, one being extremely rare but likely, from its size, to entail the necessity of serious surgical interference; while the other is so minute, and apparently so trivial, that the term "tumour" seems scarcely applicable to it, though it really deserves the appellation. Engravings and woodcuts

are given, illustrating the appearances and microscopical structure of both these odontomes.

XXVII. *Contributions to the Practical Surgery of New Growths or Tumours. Series VI. Cartilaginous and Bony Growths (continued).* By JOHN BIRKETT.—In the present series Mr. Birkett describes the cartilaginous tumours developed in the connective tissue, and formed either between the organs of the body or within the organs themselves. Cartilage, besides its development in immediate relation with bone, is sometimes formed upon or within the parotid and submaxillary glands, in the neck, in some other superficial and deep-seated parts of the body, in the testes and the ovary, in the lachrymal gland, and in the lungs. Mr. Birkett describes several cases illustrating this kind of cartilaginous tumour, and then passes on to the subject of exostoses. He alludes to fifty cases of bony growths removed by himself and his colleagues; and after having arranged them according to their situation on the different bones of the skeleton, he proceeds to describe them in detail; and he illustrates the whole paper by engravings representing cartilaginous growths and exostoses.

REVIEW VI.

The Nomenclature of Diseases, drawn up by a Joint Committee appointed by the Royal College of Physicians of London.

Scientific medicine is a plant of slow growth. Years have rolled on while a handful of workers have been trying to give an outline of its present position, to divest it of the offshoots of theoretical imaginings, to cut away the old worn-out hypotheses of the past, and to fix in a definite form the actual facts which the knowledge of the day seems to affirm with all the force of reality and truth. Among the representatives of the different London hospitals who used to meet in Spring-Gardens, under the presidency of the late Dr. Addison, to investigate the subject of erysipelas, phagedena, and their allies, at the suggestion of the Epidemiological Society, none probably had a conception of the time that would elapse before a reply could be given to the request addressed by them to the College of Physicians of London. It is true that the call to set their own house in order, when medical reform was the question of the day, for a time suspended the work which had been already begun, but still a period of six or seven years has been honestly spent in working out an answer to the request of the hospitals' committee.

The point to which that committee directed their attention was the origin and spread of certain forms of disease which tended specially to complicate surgical operations, but which evidently had some independent existence. In the attempt to elucidate this question, statistics were gathered from the various hospitals which sent representatives to the meetings, and it was in the careful scrutiny of the various returns that the want of a scientific basis was so much felt. So long as statistics of such a nature have to be manipulated only by clerks who have no scientific training, the faulty character of the data from which the deductions are drawn escapes observation, and an array of figures can be produced which has all the appearance of truth. When the very same returns are placed in the hands of one who is conversant with disease, their want of uniformity and their inconsistency render the results almost nugatory.

It must be admitted that to no single body of men could the work have been so well entrusted as to the College of Physicians of London. Nowhere could the representatives of so many different schools of thought so readily meet to discuss their differences. No city in the world numbers so large a body of thoughtful, well-educated physicians; and the college has gathered under its wing nearly all who have risen to eminence by their industry, and adds, year by year, all who are known to be devoting their time to the cultivation of scientific medicine. The committee, to whom the work of preparation was entrusted, was not limited to the Fellows of the College; representatives were eagerly sought among all who were likely to be able to contribute to the general stock of knowledge; and special reference was generally had to the branch of study which each had prosecuted in selecting members to serve upon it. Had it been possible to have embraced the whole of the medical profession in a common congress for the purpose of determining a general nomenclature, which would have been acceptable to all, the working committee must still have had its quarters in London, and must have numbered, among its really useful members, the Fellows of the College of Physicians.

To one consideration it is important that attention should be drawn before indicating in detail the plan and purposes of the nomenclature, viz. that it is essentially a compromise of conflicting and sometimes even of opposing views. It is thus alone that in an uncertain science any approach to truth can be attained. The authority of a great name, or the well-devised argument of an ingenious theory, will influence some minds, while it leaves the majority unconvinced. It may contain the element of some unobserved truth—or, it may be, that the truth has been simply distorted in its exposition—but the passive

resistance of a large number of intelligent men must be taken as an evidence that there is something or other which requires modification or correction. The remarkable exceptions to this rule, so often cited of the incredulity with which Harvey's and Jenner's discoveries were severally received, prove that the sentence of the majority is not always to be relied upon. But it is manifestly the function of such a committee as that which prepared the nomenclature to take all such points into consideration, and on the one hand either to receive or reject absolutely any new views that may have been propounded of late years, and on the other so to modify the older statements as to enable them to embrace any development of truth that modern ideas seem to suggest.

The classification of fevers offers a very good example of the action of the committee in such matters. The distinction between typhus and enteric fever is absolutely recognised, as in their opinion it has been fully admitted by all the most competent observers. On the other hand, the term "continued fever," which probably to some will seem to be quite out of date, is retained in deference to the opinion of a large body of practitioners, who find it impossible to class all their fever cases under the more definite varieties. The term, however, has been qualified, as *simple* continued fever, and the definition which accompanies it limits its employment to cases having no specific character. Should it be ultimately proved that there are no such cases, the returns under that head will simply be nil, but until that day arrives, a place in classification must clearly be reserved for those which cannot be otherwise defined.

The same conflict of opinion rendered it impossible for the committee to subdivide into smaller groups the larger divisions of disease which have been adopted. Many will perhaps observe with regret the absence of those classes which have been familiar to them ever since they commenced the study of medicine, when 'Cullen's System of Nosology,' so much in advance of the day in which it was written, was still the safest guide to classification which the student could follow. The time has not yet arrived when, having abandoned the old system, it was possible to substitute another which could be universally followed. "Difficile quidem erit, hanc rem protinus perfectam reddere, nec, ut opinor, nisi tentaminibus repetitis fieri potest."[1] To each individual, and especially to each teacher of medicine, must be left the formation of such groups as may facilitate to himself and to his pupils the study of the science from that particular stand-point which forms the groundwork of his study or his teaching.

[1] Cullen, 'Synopsis Nosologiæ Methodicæ.' Prolegomena.

Thirty years ago a classification was proposed by Dr. Farr of the General Register Office, which recognised four large classes of disease, viz.—

I. Epidemic, endemic, and contagious diseases.
II. Sporadic diseases of uncertain or variable seat.
III. Sporadic diseases of special systems and organs.
IV. External causes, poisoning, asphyxia, injuries.

To the first class was assigned a name which very happily expressed a character belonging to at least a section of the diseases thus grouped together, the fact of the introduction of a materies morbi, which remained for a time unperceived in the system, and after a period of incubation, leavened the whole mass of the circulating fluid. Had it been possible to assert positively of each form of disease that it did or did not owe its existence to such a process of pathological change, the committee would gladly have retained the term zymotic diseases in their nomenclature. Not only was it impossible so to define diseases as to bring them with any degree of certainty within this category, but another and still more important consideration obliged them wholly to exclude it.

The more careful record which has of late years been kept of the causes of death, has naturally led to investigations as to the possibility of their removal, and the deaths or sickness among a population due to what are called preventible causes, has come to bear a significance which was formerly unknown. The zymotic class is that in which the larger number of diseases produced by such causes is naturally placed, and practically the terms have come to be used as being almost synonymous. For statistical purposes especially it is now common to point to a large proportion of zymotic deaths or sickness in any locality as an index of faulty sanitary arrangements. It may or may not be true that alike in typhus, thrush, diarrhœa, rheumatism, syphilis, and others, a principle of zymosis is the true theory of disease; but it must be manifest to any one who has studied the subject that a group made up of such very different elements cannot be taken as representing the existence of any definite or even similar causes.

After a few years greater prominence was given to the section of scrofulous and tubercular disease included in Class II, to which the name specific diseases was now given, with two subdivisions, of which one retained the name of diseases of uncertain seat, the other being called tubercular diseases; and a further addition was made of the diseases of growth, nutrition, and decay. This classification was found by the committee in general use, and it has formed to a great extent the basis of the

nomenclature issued by the College. The general diseases include the original Classes I and II. The local diseases follow nearly the same plan as Class III. And while the committee could not recognise as definite diseases those of growth and decay, they adopted the plan of severing scrofulous diseases from those of the organs affected, in spite of the serious obstacle to correct statistics caused by the still imperfect manner in which their diagnosis is made. Many cases of phthisis will still unfortunately be returned as bronchitis; strumous meningitis will often be returned as inflammation of the brain; and the group, though a necessary one, will for long remain imperfect.

In 1856 a considerable modification of the scheme of 1842 was proposed by Dr. Farr, and adopted at the General Register Office in 1858, after the committee had commenced their labours. In this elaborate scheme of classification the general principles of the old arrangement are still maintained; but an attempt is made to reach a precision which is not only impossible in the present state of science, but almost of necessity defeats itself by introducing glaring inconsistencies, and assuming for truth theories which are more than doubtful. It may not be out of place here to point out one or two of the circumstances which rendered its adoption impossible. The term zymosis has been made to include diseases of which the origin and mode of propagation are wholly dissimilar. The class is described as "Diseases that are either epidemic, endemic, or contagious, induced by some specific body, or by the want or by the bad quality of food." This somewhat incongruous group is subdivided into miasmatic, enthetic, dietic, and parasitic diseases. Such a subdivision is of itself sufficient to show that no common principle can be involved in their details, as, indeed, may be gathered from the definition already given. Still, there is such a general agreement among medical men, as to the main features of diseases due to miasm, that we should have expected that the miasmatic group would have formed, on the whole, a tolerably harmonious one; a few might have been included of somewhat doubtful origin, or perhaps one or two might have been omitted which to some minds presented an analogy more or less marked to the remainder. But the fourth on the list, "miliaria," is a mere accident—a symptom which is seen in acute rheumatism, perhaps more frequently than in fever, and may accompany any febrile state attended with perspiration, and can only be regarded as a cutaneous disorder. Passing on, we find quinsy, a simple inflammation of the fauces, placed next to scarlatina. Erythema, simple redness of the skin, stands as a subordinate variety of erysipelas. Diarrhœa stands between dysentery and cholera, and has no place among diseases of the intestinal canal, though

it is well known that the great majority of cases of diarrhœa are due to disorder of the digestive apparatus. The order concludes with ague and rheumatism, thus ignoring the malarious origin of the one, and the constitutional character of the other—a fact not unreasonably acknowledged in its nearest ally, gout, which stands at the head of "constitutional diseases."

We may pass over the second order of enthetic diseases with the remark, that if inoculation be regarded as its main characteristic, it places them in close relation to smallpox and cow-pox, the great types of inoculable diseases; in fact, we do not know that cow-pox is ever propagated in any other manner.

To the dietic diseases the chief objection is that they have no claim to be associated with the miasmatic diseases whatever, if the term "famine fever" be eliminated; and it would seem that it owes its presence entirely to the necessity for having some one member of the order which should form a link of connection with the febrile diseases. To pathologists its very existence is unknown. That starvation tends to the spread of epidemic diseases and increases their mortality will be at once conceded, but that it confers anything more than a predisposition —that it develops any specific form of fever—is quite contrary to all that we know of the history of epidemics, and the pathology of fevers.

The fourth order of parasitic diseases is so manifestly out of place, that it seems inexplicable how it could ever have been classed among the zymotics.

The term "constitutional diseases" at first sight appears a very natural one, and it was for some time thought by the committee that it might be possible so to define it as to include under it one section of general as opposed to local diseases. Such a definition was found practically impossible, and they were the more deterred from the attempt by finding that the class to which the name had been already applied in the classification of Dr. Farr, contained either too little or too much for their purpose. Cancer and scrofula may be taken as typical instances of constitutional maladies, and it would not have been unreasonable to place them as two distinct orders in this class. On the contrary what do we find? The whole are divided into two orders, to which the names of diathetic and tubercular diseases is given. To the second we have no objection to offer beyond the extreme meagerness of the list, but the first places cancer in association with gout, anæmia, and dropsy. It requires no great amount of medical education to know that gout is just as much the product of high living as scurvy is of a deprivation of fresh vegetables, and yet the one is called diathetic while the other is called dietic. If the fact that acquired

gout becomes hereditary gives it a right to be placed in this class, the same thing is true of insanity. If, on the other hand, it owes its place here to the circumstance that a person once attacked is ever after liable to its recurrence, the same circumstance belongs to severe intermittent fevers. Still more perplexing is the assumption that anæmia and dropsy, as well as cancer, are dependent on diathesis. True that both of them may be attendant symptoms of cancer; but simple anæmia is often the consequence of starvation, which "famine fever" is not, and in no instance does dropsy occur except as a symptom of some other disease, though it may be difficult, or even impossible, in certain cases during life to define its cause with certainty.

Enough has surely been said to prove how utterly impossible it was for a committee, claiming to consist of educated physicians, to adopt the scheme followed in the General Register Office. It was therefore necessary to lay down certain principles for their own guidance. And here it was that the first difficulty was felt. It was very easy to draw the line, with but few exceptions, between those diseases which affected certain organs, and in which when any other part of the body was involved it was so only as a consequence of the primary disorder, and those which more or less pervaded the whole system, and in which any local affection, whether essential or accidental, was due to the previous existence of some general malady. This gave the primary distinction between general and local diseases. But when an attempt was made to subdivide the general diseases, it was found that so many points of contact existed among them that there was no one fact that could be predicated of any number which was not either too wide in its comprehensiveness or too narrow in its exclusiveness, or which did not imply a theory which might have been proved to be true of certain members of the group, but could only be applied theoretically to the remainder. It was not without the most careful consideration, and repeated discussion of the subject in all its bearings, that the committee felt obliged to abandon any attempt at subdivision beyond that of arranging under two sections all that ought strictly to be called general diseases. It was further found to be impossible to give any definition of either section such as would absolutely embrace the whole of its members, and yet serve to exclude those belonging to the other division, and it was felt that the medical profession, for whom the work is intended, would more readily form a conception of the dominant character of each class, by the simple enumeration of its constituent numbers, than by any exposition of it in set terms. In the preface will be found as near an approach as could well be made to rendering in words the idea which is

readily enough conceived of the distinction between the two, when the prominent features of the more important members of each class are compared together.

Section A commences with what are called the specific or miasmatic fevers, a term sufficiently understood, but far from unobjectionable. Next to these are ranged the malarious fevers; then follow epidemic disorders which differ more or less distinctly from the previous members of the group; and those febrile affections are placed last which are either solely or occasionally excited by the introduction of some animal matter in a state of change.

In section B will be found the two typical examples of constitutional disease, scrofula and cancer; and along with these are ranged all those forms of disordered nutrition in which the affection, whether localized or not, has a tendency to invade more organs than one in the same individual, either simultaneously or in succession.

A few examples will perhaps serve best to illustrate the course which has been followed. But first let us stay for a moment to inquire what is meant by terms in common use,—pneumonic typhus and typhoïd pneumonia, and what relation they have to each other as examples of general or local diseases, as they will give us a clue to the distinction between these two classes. Both terms imply the co-existence of two states—local inflammatory action and general febrile disturbance, with depressed vitality; but whereas pneumonic typhus implies that pneumonia is combined with epidemic, communicable typhus fever, typhoïd pneumonia indicates that the inflammatory fever of pneumonia has put on features which give it a certain resemblance to typhus while it is still not typhus, and hence not communicable. And here it may be remarked that in the nomenclature the term typhoid as applied to a specific fever differing from typhus has been replaced by "enteric," and in speaking of typhoïd pneumonia we employ the word in its proper signification of something "like typhus." In the two instances just given we find the contrast strongly brought out between a general and a local disease, although in their first aspect they are wonderfully alike. In the one the febrile disburbance is a consequence of the inflammation going on in the lung tissue, and the typhoïd state only indicates that a change has subsequently taken place in the general condition of the patient, not improbably through the medium of the blood, which has led to the appearance of symptoms analogous to those seen in typhus. In the other the febrile disturbance is the first step in the progress of the disease, and is the evidence of some change in the general condition of the patient, which we are in the habit of regarding as effected

through the medium of the blood, and leading on to the development of a set of symptoms known to us as typhus fever. When pneumonia occurs as part of this disease it is in great measure accidental, and so too is the circumstance that in some cases of pneumonia the inflammatory fever becomes typhoïd in character. It is not meant to justify these terms, or to say they are the best that can be used; they have been cited simply to illustrate the resemblances and the differences between general and local diseases. It must be remembered that many of the symptoms of any form of disease must have reference to the organs affected by it, and the only question for consideration in this aspect of the case is whether such symptoms indicate some form of disease attacking that organ primarily, or whether the affection is only secondary to some other malady. An analysis of all the symptoms present may lead us to one or other of the following conclusions:—

1. That local disease of one organ alone exists.
2. That the local affection is combined with general symptoms, which do not indicate any general disease.
3. That with or without general symptoms, disease is not confined to one organ, but a combination of two or more local diseases is present.
4. That general disease has resulted from the previous existence of some local ailment.
5. That general disease exists with or without some prominent local symptom.
6. That local disease has been engrafted upon, and perhaps partly caused by the general disease, though essentially distinct from it.

When we further analyse the prominent symptoms met with in general forms of disease, we find—

1. That they are either variable or constant in their site.
2. That their presence is sometimes almost the only indication of the existence of disease.
3. That though not invariably present, some one particular symptom is almost an essential part of the disease.
4. That certain symptoms are accidental, but when present are directly due to the disease itself.

Such are the considerations which were present to the minds of those who framed the classes among which diseases have been distributed in the nomenclature of the College of Physicians. It is true that occasionally a general disease seems to be entirely localised in some organ, leaving the rest of the tissues free; and sometimes a local disease presents characters which bring it into close relation to general diseases. Practically there has been no great difficulty in discriminating between the two, and it is confidently expected that when in this respect

it differs from that of the Registrar-General, it will commend itself to the profession at large, as it has been framed on the broadest basis of pathology and experience, and with no reference to theoretical views.

The position given by Dr. Farr to diarrhœa as a zymotic disease depending on miasm is one that could scarcely find support among physicians, and yet there are certain difficulties in assigning to it its true place. It is clearly in many cases only a provision of nature to get rid of some offending material passed on from the stomach in such a form that it cannot be made available for proper digestion and nutrition; the bowel flux simply washes it away. On the other hand, there is a very large class of cases in which the excessive secretion is due to some condition of the mucous membrane, the evidence of which is very distinct after death. In neither of these cases can there be any question that the diarrhœa is dependent upon local causes. Again, an attack of diarrhœa may occur as a consequence of exposure to heat or cold, or from bodily fear; and though in these cases we can only reason from analogy, yet we may fairly conclude that this too only indicates local disorder of a transient nature. But bowel-flux is also one of the great features of the direst plague of modern days, malignant cholera; and it has been observed, that concurrently with its presence, there is a widespread prevalence of diarrhœa, undistinguishable except by this indication from the most ordinary and simplest form of the disease. It is also a well-known fact that during certain seasons diarrhœa is apt to prevail almost epidemically, and when it does so, the character of the discharges is very apt to approximate to that of the eastern malady, so that the name of summer cholera is constantly applied to it. The conclusion arrived at by the committee seems to have been that malignant cholera is unquestionably one of the miasmatic diseases, and that the diarrhœa accompanying its presence, in so far as it differs from the ordinary diarrhœa of the same season, ought to be classed as choleraic diarrhœa, and to be regarded as subordinate to malignant cholera; that summer cholera, though not miasmatic, is something different from a mere bowel flux, dependent on local conditions, and is to be regarded as a disease affecting the individual in his entirety, and not limited to the mucous membrane of his intestinal canal; in fact, that it is a general and not a local disease: and finally, that all other forms of bowel flux are to be regarded as local diseases. The subject is one about which it is impossible to dogmatise at present, but it is quite certain that the majority of cases of diarrhœa are in no sense miasmatic, and that their being placed in this group only leads to confusion.

It might, perhaps, have been possible to have defined more clearly the limits of the several groups, had not the committee felt that their recognition really depended on correct diagnosis, and that any attempt to enter more fully into the pathology of the disease was foreign to the purpose of a nomenclature. In the explanations at the beginning of the book it is stated that the definitions given "have been framed for the purpose of *identification* only, not as explanations of the phenomena of disease." Diarrhœa serves, perhaps, better than any other disorder to illustrate the mode in which diseases have been classified. It is to be regarded as being either a symptom of some other malady, or as in itself the only ailment under which the patient is labouring. It is in this sense that the name is included among diseases of the intestinal canal, for it is to be observed that in the nomenclature the ordinary note directing that when the cause of the affection is known it should be registered under the primary disease, is omitted in the case of diarrhœa. This seems to indicate that, in the opinion of the committee, when diarrhœa occurs as a symptom or a complication only of some other disease it is not to be registered even as a secondary affection. In the presence of bowel flux we have, therefore, first to eliminate all those cases in which the affection is symptomatic, and to relegate to the class of diarrhœa only those which are due to local causes. But again these local affections of the intestinal canal include several which are in themselves sufficiently definite to demand separate classification; such, for example, as ulceration of the mucous membrane. And here we find that the local disease may be due to several circumstances. First, in enteric fever, we find an example of a general disease, attended with a necessary localisation in the small intestine. Secondly, it occurs in the progress of tubercular disease, in which local development is an essential element of the disorder, but the position of the scrofulous deposit is more or less accidental. Thirdly, the ulceration may be a purely local affection.

These three varieties give us a very clear idea of the distinctions drawn by the committee between the three great divisions of disease, viz., the two sections of general diseases and local diseases. In the first, taking into consideration the mode of origin and propagation of the fever, and the general symptoms which accompany its progress, we feel no hesitation in assuming that ulceration of the intestine is only one among a number of phenomena which serve to mark this as a different form of fever from any other, but that the disease itself is one affecting the whole individual. We believe that it is brought about by blood-change, and if we had regard only to those

presenting similar phenomena, there would have been no difficulty in grouping such diseases together under one head, although the local development of each be different, occurring, for example, in the throat in scarlet fever, in the small intestine in enteric fever, to say nothing of the differences in the cutaneous affections in each. But when it is found that other diseases originate in a somewhat similar manner, and yet present during their continuance a series of phenomena wholly dissimilar, the impossibility of the formation of such groups becomes apparent. For example, no one doubts that hooping cough is propagated by infection, and belongs to epidemic diseases, and yet its symptoms may be occasionally reduced to those belonging only to its local development, and the febrile symptoms of blood-change become imperceptible. That it is not a local malady is certain, that it is epidemic is equally clear, and yet it cannot be classed as a fever. It was consequently found to be almost an unavoidable necessity to group together in one section without subdivision those general diseases which occupy the first few pages of the nomenclature.

The ulceration of the intestines, which accompanies tubercle, is equally part of a general disease, but its character is wholly dissimilar; it presents none of the peculiarities of epidemic and infectious diseases, and though there must be blood change prior to the deposit of scrofulous matter in any organ, it does not reveal itself by symptoms upon which we can positively rely until the local development has taken place. And further, the local affection may be limited to one organ, or may be developed in several at the same time, or in succession, no one of them being essential to the existence of the disease. With one or two exceptions, this combination of constitutional disturbance and local development is true of all the affections which form the second section of general diseases. Diabetes, anæmia, chlorosis, and dropsy, when its cause cannot be ascertained, have been also placed in this class, because it was found impossible to refer them to the very varied local diseases which give rise to their presence.

By the term ulceration of the intestines, among intestinal diseases, is meant a distinct local lesion, which, whatever may have been its origin, is, at the time of observation, not necessarily associated with any other form of disease. It consequently finds its place there only, and it is not repeated either as the result of tubercle, or as the concomitant of fever; it is no longer the symptom of some general disease, but is itself the circumstance which diagnosis has to recognise and nosology to classify. The nomenclature takes no note of causation, it deals only with the pathological fact. The arrangement is really in its main

features anatomical, the organs are viewed as portions of tissue, which have deviated from the healthy standard.

In a rude manner, general diseases may be classed as the first section of local diseases, the blood itself being regarded as the organ affected. To such a proposition no doubt many objections at once occur, and therefore the committee decided wisely in not attempting to form two classes of acute and chronic blood-diseases, as is so often done. The position of the malarious fevers with reference to blood change is so little understood that they would alone have formed an insuperable difficulty; they, as well as many other members of both sections, though clearly separated from the local diseases which follow, could not have been grouped together in any classes or orders defined in such a manner. It is only by the extreme comprehensiveness of the classes adopted by the committee that anything like unanimity was at all attainable.

It will be observed that a considerable number of synonyms has been given, and it is hoped that it will be clearly understood that their introduction is not intended to sanction their employment; but that in the registration of disease, whenever they occur, they are always to be rendered into the corresponding term sanctioned by the College. The committee had a twofold object in mentioning them. First, there are several diseases which are commonly designated by an objectionable name, and when a preferable term could be found, the other has been given as a synonym to indicate that exactly the same disease was meant by the new name, which had been long familiar to all under its old appellation. A good instance of such a change is found in the substitution of "enteric" for "typhoïd" fever. Secondly, the enumeration of synonyms in common use seemed likely in many cases to give precision to the term adopted by the committee, and in many instances served to identify it, and obviated the necessity for giving a definition, a matter always of considerable difficulty, and sometimes almost impossible in the compass of a few words, such as seemed suitable for a nomenclature of disease. As an instance of such an employment of synonyms, may be cited the subdivisions of Bright's disease, where a definition of the generic name having been given to avoid misapprehension, the simple addition of the names applied by different observers to each form of the disease seemed quite sufficient for the purpose of identification.

Having thus considered the general scheme as it developed itself gradually in the committee, let us now take into consideration some of the details.

In section A it will be observed that the varieties of small-pox are much more elaborated than those of other similar

diseases. This has been done chiefly to meet the wants of public institutions for the treatment of smallpox. For the same reason the diseases of the eye, and those of the female organs of generation, are given in a later part of the work at considerable length. It was thought desirable that the nomenclature should be made sufficient for the uses of such special hospitals as are generally recognised, in order that they might not be prevented from adopting a uniform classification by finding the official list inadequate for their requirements. Varieties may be introduced under any heading by persons using the nomenclature, and with those few exceptions it was deemed sufficient by the committee to insert only one or two of the more prominent, leaving it to individuals engaged in the study of any particular form of disease to add such others as they think desirable.

Only the more determinate forms of disease known in the tropics have been introduced; a better acquaintance with their pathology seems to show that the majority of them have their analogues in temperate regions, and it is not improbable that ultimately they may all be classed simply as varieties of known diseases. The committee had the assistance of the representative of the army medical department in the consideration of this question, and it is hoped that in the hands of intelligent army surgeons the nomenclature may serve as the basis for a more careful and correct enumeration of tropical fevers and blood-diseases. It was with this view that the definitions of yellow fever and remittent fever are given at some length, but throughout this section the definitions are more numerous and more detailed than in any other part of the book.

In section B the varieties of rheumatism have obtained some prominence in consequence of its relation to disease of the heart. The term rheumatic gout has been omitted. It is regarded by the most competent observers as one conveying altogether an erroneous impression of disease; and it has not been mentioned as a synonym, because it was found that scarcely any two members of the committee were in the habit of hearing it applied to the same form of affection.

At p. 15 will be found a list which is intended to apply to all local manifestations of constitutional diseases. There is no reason why this should be preferred to any other arrangement beyond that which is after all really the chief value of classification, viz., uniformity. The list is uniform with the classification of local diseases in the nomenclature, and this again is in harmony with that of the registrar-general. To those who do not study the book with care, the occurrence of a list of non-malignant growths in a section of general diseases is liable to

cause confusion. They are in no respect constitutional in the sense in which cancer is constitutional, and do not belong in any way to this section. The attentive reader will observe that no number is attached to them, and an explanation of the circumstance precedes the list. Of late years much attention has been paid to the subject of tumours, and an attempt is here made to give a complete summary of the varieties which have been established up to the present time. In all cases they are to be regarded as local diseases, and classed under the organ in which they happen to exist.

The several lists of local diseases are formed of groups belonging to the several systems of organs, the nervous, vascular, respiratory, digestive, &c. They are prefaced by an arrangement of local diseases applicable to each group, however minute; and while it does not claim to be the best possible order in which the various forms of local disease can be enumerated, it will doubtless be regarded as tolerably exhaustive. It is simply a scheme by which the committee thought uniformity in classification might be readily maintained, while it obviated the chance of important affections being omitted. In addition to this, in its principal outlines it does not differ materially from the sequence in which diseases are practically enumerated in the local classes adopted by the Registrar-General, and it serves to point out the exact place in which any disease should be introduced which may have been omitted either purposely or accidentally by the committee.

The grouping of diseases of the nervous system is attended with considerable difficulty. The close harmony existing between the various parts of the system, renders it impossible in some instances to define the exact seat of a disease, and to determine in which of them its symptoms are primary or secondary. In other cases, although the disease is known to belong to the common centre, yet the loss or alteration of nervous susceptibility may be easily ascertained and classified, while there is no means of determining with any certainty the character of the deep-seated disease on which the nervous affection depends. The first three groups are therefore formed of pathological conditions, which have been severally recognised in the brain, the spinal cord and the nerves, though many of them are such as can barely be guessed at during life. These are followed by the various forms of paralysis, which are only admitted into the nomenclature because of the extreme difficulty which often arises in attempting to define their cause. The next group consists of "functional diseases of the nervous system," a term employed in its most comprehensive sense to embrace all affections of which the cause is either undefined or

variable, whether its probable seat be the brain, the cord, or the nerves. It must be admitted that it is of a rather heterogenous character, when it includes under the same head such discordant elements as hydrophobia, epilepsy, and neuralgia. We may hope that at some not very distant period, greater precision in classifying diseases of the nervous system may be attained, but for the present, in the absence of any pathological indication, no other course seemed possible.

The last group consists of what are called "disorders of the intellect." The conditions included under this head are universally acknowledged, and easily recognised, although pathology has hitherto failed in giving any distinct explanation of their relation to disease of the brain. The place here assigned to them is in conformity with the general belief of alienists, that the mental condition is due to the state of the brain, although it has been impossible hitherto to associate it with any special lesion. The classification adopted was framed in conjunction with two of the Commissioners in Lunacy, and it was thought desirable to reduce the number of recognised varieties to a minimum, in consequence of the extreme to which subdivision has been already carried, and it was thought best to leave to each individual the determination of the extent to which he would break up the classes accepted by the College into subordinate varieties.

The diseases of the nervous system are most naturally followed by those of the special senses, the eye, the ear, and the nose. The list of diseases of the eye has been greatly elaborated, as already mentioned, to provide for the exigencies of an ophthalmic hospital. They are regarded by most persons as surgical diseases, and are generally treated by ophthalmic surgeons. At first sight it may appear that the College of Physicians departed from their proper functions, and assumed to themselves a duty, which would have been much better discharged by others, when they attempted to prepare a classification for the use of ophthalmic hospitals. A little consideration will show that the distinction is purely arbitrary, and that it would have been folly to attempt to divide diseases into medical and surgical. The nomenclature, if it is to be of any practical value, must contain the name of every known disease, or, at least, must adapt itself for the reception and classification of all, quite independently of any separation which may have been adopted by various sections of the profession for mutual convenience. Hence it was only necessary, after an arrangement of local diseases had been agreed upon, to obtain a list from the hospitals of the varieties which they were in the habit of distinguishing and recording, and place them in the order already

agreed upon. The care of arranging such a list for the committee devolved, indeed, on two surgical members, but the scheme was discussed by the whole committee, and each member is more or less responsible for its adoption.

The very same principle applies to the diseases of the jaws, which are, perhaps, unnecessarily elaborated to suit the convenience of dental surgeons, two of whom attended to represent that section of the medical profession, when the subject was under discussion. It was also felt that the diseases of each organ would be very imperfectly represented if its injuries were not enumerated; but it was found better to place them in a section by themselves, because in most instances the region in which the injury occurs does not correspond exactly to the organ which is the seat of some local disease, especially when a whole system is included under one head, while in truth it extends to every region of the body. Injuries are regional; diseases, though local, are necessarily more or less systemic in their classification.

The next group is formed of diseases of the circulatory system, in connection with which stand the diseases of the absorbents or lymphatics, with their glands, and also those of the ductless glands. It is a common practice to take the diseases of the nostrils along with those of the lungs and air passages, while affections of the mouth are grouped with those of the digestive system. These two form the two next groups of disease, the latter, including the whole of the abdominal organs, with the exception of those belonging to the urinary and the generative system, which have been kept distinct, so far as it was possible to do so.

It was not without some hesitation that the name Bright's disease was selected as a generic term to include certain forms of kidney disease, which all have some well-marked features in common, though separated from each other by very broad lines of distinction.

It is well known that the great discoverer of kidney disease, whose name has been thus employed, formed an erroneous conception of the origin and progress of the diseases to which he gave so much attention. But though modern pathology has pointed out his error, it has not yet succeeded in tracing the whole progress of the disease with any certainty. It is not meant to revert to Dr. Bright's views in preference to those of more recent observers, but to indicate that there is some relation between the diseases, of which four distinct varieties at the least should be discriminated from each other. The only other term of general application is albuminuria, but while in some cases of chronic disease the presence of albumen may from time to time

escape detection, it is also to be found in the urine when it is not dependent on disease of the secreting organ at all, but is merely derived from an admixture of blood or pus in some other part of the apparatus. It was therefore thought best to employ the name which is in such constant use on the continent, though less frequently employed among ourselves, because it referred to the existence of disease and not merely to the presence of the symptom. A definition is appended to the generic name, in order that it might be understood that all the various forms of degeneration of the kidney should find their place here, and that the name was not limited to one or two varieties. In the subordinate classes, on the other hand, it was felt that the enumeration of the synonyms by which each form was mentioned by various observers, would better serve to discriminate them than any definition in the present state of pathological knowledge and experience.

A very large space has been devoted to the diseases of the female generative organs. This was felt to be absolutely necessary, both in consequence of the great importance of the diseases in themselves, and also because there is no department of practice more clearly separated from that of the physician or surgeon than those connected with childbirth; and by implication as well as by actual practice, all the affections of the female generative organs follow the same custom. They have been divided into four chief classes: diseases of the unimpregnated state; affections connected with pregnancy; affections connected with parturition; and those consequent on parturition.

By the last is meant those conditions which are the immediate consequences of childbirth, while the female may still be regarded as in the parturient state. The lasting effects of parturition, though sometimes traceable from the very period when the passage of the child has caused some damage to the organs, will be found mostly in the first class, as they are not necessarily due to this cause.

Among the affections connected with pregnancy a list of disorders is inserted, to which no numbers have been prefixed, because they have no direct connection with the generative system. They are merely symptomatic and secondary, and belong to other systems of organs, to which they would naturally be referred if their importance were such as to require special enumeration. They derive their special interest from the fact of their association with the puerperal state, and are more or less to be regarded as indications of pregnancy.

No system of cutaneous diseases was found to be sufficiently accurate, or so generally received as to suit the purpose of the

committee. It was considered that the most prudent course was, to make the list as complete and comprehensive as possible, and to rest satisfied with placing in juxtaposition those usually classed in various sections, without defining in set terms the characters by which each sub-division is to be recognised. They will be found, on examination, to follow in a general manner the classification of the best authors, and it will be seen that the papular, squamous, vesicular, pustular, and other groups, have been in fact, though not in name, adopted by the committee. The remainder of the list is meant to follow as closely as was practicable the arrangement of local diseases given at p. 29.

A list of injuries, general and local, concludes the nomenclature. It is unnecessary to repeat here the reasons already given for the introduction of this section. It is only necessary to add that it has been framed in such a manner as to give ample room for the addition of any injury which has not been enumerated. On examination, it is believed that the list will be found tolerably exhaustive.

An appendix is given in which are placed lists of surgical operations, of human parasites, and of congenital malformations. Reference to each of these classes must constantly be made by any one compiling a register of disease, and it was thought that uniformity of description would be best ensured by adding to the nomenclature a complete list of each.

Review VII.

The Annual Museum of the British Medical Association. Oxford, 1868, and Leeds, 1869.

The meetings of the British Medical Association have of late years increased greatly in importance. They have been largely attended, and by many of the best workers in the profession. Their social attractions, although still large, have admitted those of science into something more like equal competition than was at one time the case. The subdivision of the work into various appropriate sections, so as to allow several meetings to take place at the same time, and enable attenders to select the papers most interesting to themselves, has proved a great help to real business. Even the *conversaziones* have been utilised, and several of the most interesting communications of the year, both at Oxford and at Leeds, were made on

these occasions. We refer especially to Professor Marey's, at Oxford, on the sphygmograph, and to Mr. Tuffen West's, at Leeds, on the cryptogams which attack healthy plants, and their correlations with those which attack the human skin.

Some of the discussions at the recent meetings have been of great interest, and have been sustained with an energy which was restricted only by the time which could be allowed. In particular, we may note those on hospital construction and on hospital evils, at Leeds, as likely to have done much real good in clearing the ideas of the profession on these important subjects.

We hope to see these meetings become of yet greater value and importance. They possess certain facilities for some kinds of scientific work which are not afforded to the same extent even by our largest metropolitan societies. In the first place, the number of those who attend them is large, and all are for the time completely at leisure. The subject of a discussion in one of the sections is the subject of conversation in private afterwards, and may probably be taken up again at another meeting. Those who meet are comparatively strangers to each other and free to express their opinions openly, and those opinions have been formed by observation in very different and distant spheres, and often under the helpful influence of very different tendencies of thought. We may add that the meetings attract, not only the leaders of the profession from London, Dublin, and Edinburgh, and many a provincial metropolis, but are not unfrequently attended by foreign *confrères*, and occasionally by scientific men not members of the profession.

Our object in these introductory remarks is to prepare the way for a notice of a new feature which was introduced at Oxford and repeated at Leeds, and which, from its success, will no doubt become a constant one. We allude to the formation of an Annual Museum or Exhibition for the display of new instruments, new books, designs for hospitals or sick-room use, pathological preparations, drawings, photographs, casts, &c.; in fact, for anything having reference to professional progress which can be made by the help of an explanatory label to tell its own tale.

In passing, we may perhaps be allowed to suggest that the word *museum* is not the most fortunate, since it implies something representing rather the past than the present, and that it might be conveniently substituted by that of *exhibition*, which would certainly sound more attractive.

We have watched the two experiments which have been made with much interest, and shall now endeavour to give some brief account of them.

The Oxford collection was, we believe, got up very hurriedly,

the Association having only determined on the plan about a fortnight before its execution. The room allotted to it was also inconveniently small, and was at a distance from the meetings. It contained, nevertheless, some very interesting objects.

The collection of drawings, most of them coloured to nature, was extensive, many of them unusually good. We may particularly mention—

A series of drawings showing syphilitic deposits in internal viscera (liver, &c.), exhibited by Dr. Weber. These were very instructive, and especially in contrast with another shown by Dr. Hughlings Jackson from the London Hospital Museum, and illustrating the same pathological condition.

A number of drawings exhibiting aneurysms of the heart at various stages of their formation, were shown by Dr. Peacock.

A portrait of a boy, the subject of Morphœa lardacea (Addison's keloïd), which was sent by Mr. Erasmus Wilson, attracted much attention. It showed the diseased condition abruptly limited to one side of the face. A line extended vertically down the forehead, nose, lips, and chin, and all on one half of the face was atrophied (scleriasis cutis), whilst the other side was quite healthy. The great value of such an Exhibition as this was well demonstrated in this instance. Side by side with Mr. Wilson's portrait was placed another, brought by Mr. Hutchinson, showing the same exceedingly rare disease, and showing also precisely the same peculiarity, exact limitation to one vertical half of the face. No one, looking at the two portraits, could fail to feel convinced that this coincidence was no matter of accident. The inference that the change in the condition of the skin is secondary and due to change in nerve trunks (in this instance the fifth nerve), would seem warranted; and thus a very important step is more than half taken in our knowledge of the pathology of this very curious malady. Mr. Hutchinson exhibited also two excellent wax models (by Tuson) from patients suffering from the same disease. In one a single patch existed on a girl's shoulder (scapular region), and in the other the right leg of a young child showed patches from the hip to the ankle and toes, the growth of the limb having also been arrested. Both illustrated the non-symmetry of the disease, and thus favoured the suggestion which the two half-faces just mentioned so unmistakably implied.

A splendid collection of coloured drawings, by Dr. Türck, showing diseases of the larynx, some of them executed by aid of the laryngoscope, and others taken after the post-mortem removal of the specimens, was shown by Dr. Morell Mackenzie. Mr. Hinton exhibited an extensive series of drawings of the

human tympanum, &c., in various stages of disease, as seen by the otoscope.

A group of drawings, &c., illustrating the eruption which, under the name of *Herpes frontalis seu ophthalmicus*, or Shingles of the forehead, has recently attracted much attention, was also of great value. The delineations were from various sources—a lithograph of Professor Boeck's, a photograph of Mr. Bowman's, the New Sydenham Society's portrait, and several supplied by Mr. Hutchinson;—and, placed together as they were, an opportunity was afforded for studying the features of the disease such as could have been had nowhere else.

The same remark might be made respecting Molluscum contagiosum, Molluscum fibrosum, the eruptions caused by pediculi (pedicularia), some of the rare forms of Eythema, and several other skin diseases, which were illustrated by beautiful drawings.

A group of wax casts, by Tuson, the accuracy of which it would have been impossible to surpass, illustrated Scabies Psoriasis plantaris, Morphea, and Lichen cornutum.

The late Dr. Maurice Collis, of Dublin, showed a collection of photographs, taken before and after operations for hare-lip; and a second series from patients the subjects of tumours of the upper jaw. With the latter were also some casts and specimens.

Mr. Vincent Jackson, of Wolverhampton, showed drawings, &c., from an important case of tumour of the shoulder.

Several of our leading instrument makers exhibited numerous improvements in their branch of art, and amongst these Mr. Ferguson, Krolme, and Seseman, and Meyer, and Meltzer were especially to be noticed. Wooden legs and similar contrivances were well represented; and the ingenious contrivances for the adaptation of artificial palates, which are going far to supersede staphylography, were well illustrated by casts, &c., brought by Mr. Sercombe.

Amongst the inventors of the new or modified instruments which were shown were Mr. Thomas Smith, lithotomy instruments, mouth-opener, &c.; Mr. Teevan, lithotomy instruments, bougies, &c.; Dr. John W. Ogle, various; Dr. Richardson and Mr. Gay, spray producers; Mr. Hutchinson, lithotomy instruments and a new measure for fractures, &c.

Amongst the pathological preparations, which were, for obvious reasons, not very numerous, were some of great interest. We may mention an adult skull, perforated by a stab with a pocket-knife (Mr. Curling); and a base of skull fractured by the articular process of the lower jaw (Mr. Waren Tay). A large artificial tooth plate, with projecting angles and several

teeth in place, which had been swallowed during sleep, and afterwards safely voided per anum, offered a lesson of much value to all who may in the future have to advise in similar accidents.

The recent acquisitions of medical literature were well represented by series of new books exhibited by their respective publishers.

It is not our present object to attempt any sort of catalogue of the contents either of the first or second Exhibitions. We wish merely to allow our readers an opportunity of judging of the extent and kind of usefulness to which such a "Museum" is capable of being put. We have said that the first Exhibition was got together at short notice and hurriedly, and that it had to encounter several disadvantages as to want of room, &c. We cannot praise the Association for its share in the management of the second. The Leeds Committee did all in their power, and took care to provide good rooms and every convenience. There were indications, however, that the burden of the work had been too much left on their shoulders. The number of specimens selected from the Leeds Hospital Museum suggested ominously that it had been found needful to fill up space. Many of the objects shown, contrary to an express and excellent rule, had no adequate descriptions appended to them. If the Association wishes its undertaking to really prosper, it ought to take means to have each succeeding exhibition larger and better than its predecessor; and to do this a central committee, a liberal distribution of circulars in good time, and the appointment of a paid curator to write labels, arrange objects, and keep a catalogue, will probably be found indispensable. The recent derangement of the editorial staff may perhaps account for these essentials to success having apparently been neglected this year, but we commend them to the attention of the Council for the future. It is a matter which needs much pre-arrangement.

We have no wish to speak disparagingly of the Leeds Exhibition, it was very good and very instructive, but had more pains been taken it might have been much better.

Our own visit was but brief. We will mention almost at random the objects which chiefly attracted our attention. On entering the room a series of photographs illustrating the process of vaccination from heifers to young ladies, by Dr. Blanc, claimed inspection by their conspicuousness. These, it appeared to us, were of no earthly use excepting as advertisements. One of them was supposed to show a heifer tied down for the operation, and another did show unmistakably the bust, face, arm, and neck of "Mrs. H., aged 18," undressed, rather pretty,

and recently vaccinated. It is manifest that for a scientific purpose a coloured drawing of the vesicles, or a wax model, would have told the tale infinitely better, or a photograph showing the affected part, and this of full size, might have been of some use. As it was, the lady's face and arm attracted attention, and the poor little vesicles were nowhere in the competition. It may have been no one's fault, but we certainly failed to get much instruction out of these showy productions; we failed even to gain the belief that they were intended to instruct us.

Near to these lay a number of photographs shown by the learned author of the 'Address in Surgery' of the year, Mr. Nunneley. They illustrated at different stages the case (ultimately fatal) of a man who was covered with ulcers, of a peculiar character and attended by severe cachexia. The diagnosis of Leprosy had been suggested, but was, perhaps, a little questionable.

Mr. Vincent Jackson (Wolverhampton) showed two very valuable specimens of recent injury to the carpal epiphysis of the radius. One of these from an old woman, a very small bone, showed a transverse crack across the bone about three-quarters of an inch from the articulation. There was but little displacement, and it appeared that the periosteum had been but partially torn. (Colles' fracture.)

Mr. Jackson's second specimen showed a transverse separation across the line of epiphysal junction, with a vertical split detaching the base of the styloïd process. The carpal fragment was broken into three nearly equal parts. The displacement was, as usual, of the carpal fragment backwards, but it was incomplete, and the periosteal fibres were, probably, not wholly torn. Unfortunately the ulna and carpus had been removed.

There were a series of excellent anatomical preparations put up by Mr. Teale and Mr. Wheelhouse, for the Leeds School of Medicine. Dr. Clifford Allbutt showed some interesting preparations of tumours and other diseases of the brain. Mr. Teale exhibited several calculi of unusual character, amongst them the fragments of a cystic oxide stone from a man now under treatment in the infirmary, and a very large and curiously shaped one excised from the prostatic urethra.

Amongst the most interesting of all the specimens shown was one supplied by Mr. Teale, which had the advantage of a long life-history. It was from a case in which perfect recovery followed a fracture of the spine with displacement. The patient, an adult man, had been under the care of the late Mr. Teale in the infirmary twelve years ago. His accident had been caused by a beam falling across his back, and when admitted all the

usual signs of fracture, with displacement, were present. He was unable to move his legs, and for three weeks afterwards he required the use of the catheter to empty his bladder. Sensation was not at any time wholly lost. At the end of three weeks he became able to pass his urine, and could walk across the floor with the aid of a stick. Six weeks after the accident he could walk well, and was discharged recovered. A projection of the spinous process of the first lumbar vertebra had been felt from the first, and was present when he left the hospital. After twelve years' good health he was again admitted (under the care of a physician) with typhus fever, of which he died, and the specimen was then obtained. It shows an obtuse bend forwards in the upper lumbar region. The body of the second lumbar has been crushed, and at its anterior border is not more than half its normal thickness, anchylosis between the first and second has occurred.

The Leeds Museum is rich in calculi, and a large well-arranged series described and analysed by the late William West, F.R.S., was shown with laudable pride.

Messrs. Mayer and Meltzer were the largest exhibitors of instruments, and had an excellent collection.

Messrs. Krohn and Seseman showed on behalf of Mr. Rendle the form of inhaler with which the bichloride of methyline is now so commonly and successfully given.

Mr. R. T. Leeming showed an ingenious modification of the long splint for the treatment of fractures, designed to secure extension without injurious pressure.

Clinical thermometers were in abundance, and Messrs. Harvey and Reynolds (Leeds) exhibited also a number of other instruments of research and observation.

Mr. Ernst exhibited some admirable orthopædic instruments and other forms of apparatus.

Obstetric instruments were shown by Dr. Kidd, Dublin; Dr. Protheroe Smith, London; Dr. Watson, Edinburgh; Dr. Meadows, London; and Dr. Matthews Duncan, Edinburgh. Dr. Archer, Warwick, showed an improved endoscope, Dr. Ransome a stethometer, and Dr. C. B. Fox thermometers and stethoscopes combined.

Mr. Henry Greenway, an ingenious inventor, had a leg suspender, a bed guard, and an ophthalmoscope.

Upstairs, in the library, there was a splendid collection of new foreign books, sent by Williams and Norgate. This collection numbered some 160 volumes, and offered an unrivalled opportunity to the book buyer for inspection before ordering. The German medical press is at present most prolific. Many of the works were beautifully illustrated. To any one not resident

in close proximity to our great London libraries a few hours in this room must have been most instructive, and must have tended to exalt to a high point his estimate of the energy of our German *confrères*.

Mr. Churchill's contributions reflected great credit on our home workers, but they were not so extensive. Several other publishers also exhibited books, especially Messrs. Longmans and Macmillans, each of whom had a valuable series.

In the Library were also a large series of drawings illustrating the important subject of syphilis, and exhibited by the well appreciated syphilographer, Mr. De Meric. These were enclosed in huge folio envelopes, of which there were a dozen at least, and to which was appended a label requesting you to put them carefully back into their places after taking them out. Now, this request, on a hot July day, with thunder in the air, made to men who had just escaped from section-meetings or were just going to them, struck us as being refreshingly cool. We do not reflect on Mr. De Meric; we criticise only the managers of the Museum when we assert that every one of these drawings ought to have been displayed on the walls, with a suitable label. There is a limit to human energy even in pursuit of professional knowledge, and ours failed here. We should exceedingly have liked to see Mr. De Meric's drawings, but the idea of taking out the contents of twenty envelopes, and putting them back again, in vulgar phrase, "stumped" us. At the conclusion of the Exhibition we inquired of the custodian as to whether any one had gone through them, and he replied, "Yes, one gentleman looked at them all!" We did not learn the gentleman's name, or we should be tempted to immortalise him. Was it Mr. Holmes Coote, or Mr. J. Hutchinson, or Dr. Falconer? We can but guess. Was there favoritism in the executive, or is it possible that Mr. De Meric's drawings were thought too indelicate for exposure? It certainly struck us as curious that, whilst the latter gentleman's drawings were carefully secluded, those shown by Mr. Hutchinson were in good places along the wall.

These latter were numerous, and illustrated various subjects. They were all done by Mr. Edwin Burgess, and in the most finished style of pathological art. We observed with pleasure that to each one was appended a concise description of what it showed, so that the observer was enabled at a glance to learn his lesson. Some very delicate ones from the ophthalmoscope illustrated Retinitis pigmentosas, Syphilitic choroïditis disseminata, in different stages (with full histories); albuminuric retinitis; and lastly, a matter of great interest, the stage of acute Optic Neuritis in connection with lead poisoning.

Amongst miscellaneous subjects were Lupus of the palate;

malignant disease of the tongue following syphilitic fissures; Encephalocele (stereograph); and an immense tumour in the neck.

The portraits of skin diseases shown by Mr. Hutchinson comprised three from a case of Pityriasis rubra (Hebra), one of vesicating Erythema, and a series of five illustrating the Hydroa of Bazin. In connection with the latter, the exhibitor had, in thoughtful consideration of the fact that possibly some might not be well posted in the facts as to the reason for inventing this new name, appended the following statement, which we copy in full:

"*Hydroa.*

"M. Bazin has given the name *Hydroa* to an eruption which presents certain peculiar features.

"1. Consists of vesicles or bullæ.

"2. Occurs symmetrically.

"3. Comes out suddenly (like an exanthem).

"4. In many cases affects the mucous membranes.

"5. Is attended by very little constitutional disturbance.

"6. Disappears, after a short but variable duration, spontaneously.

"He has described three forms:

"Hydroa vésiculeux.
Hydroa vacciniforme.
Hydroa bulleux.

"Other observers appear to have met with a few cases of this kind. Hebra, especially, has figured a case under the name of Erythema multiforme. There can be little doubt that M. Bazin's observations are correct, and that the disease in question is a very peculiar and interesting malady."[1]

The diagnosis of Hydroa would appear to be of great importance, since, to judge from the portraits, it might easily be mistaken for a syphilide. Its distinctive feature of spontaneous curability will, in the end, clear up the diagnosis, but possibly not until too late to prevent the expression of awkward suspicions, and perhaps serious errors in treatment. We shall look with interest to the record of similar cases by other British observers. M. Bazin's writings on the subject deserve our best attention.

It will be seen from what we have said of the Leeds Exhibition, that, instructive as it was, it could not claim to be anything like a complete exposition of the year's accumulations.

[1] *Vide* 'Leçons Théor. et Clinic., sur les Affections Génériques de la Peau,' 1862, p. 128.

Most of our large metropolitan and provincial hospitals were unrepresented by a single article, probably because they were never specially invited to contribute. In some instances it may be that the possessors of valuable casts, drawings, &c., may not like to lend them, but we trust that this feeling will diminish when the arrangements are well organised, and when the exhibition has grown, as we trust it will, into one of national importance. If, however, the Council of the Association aims at this result, it must bestir itself and organise the thing much more completely. Above all, in order to give permanent value to each exhibition a catalogue with considerable detail ought to be published at its conclusion. If this took up even an entire number of the Society's Journal we should not regret it, nor, we think, would the members generally.

Review VIII.

1. *A Treatise on the Diseases of the Eye, including the Anatomy of the Organ.* By Carl Stellwag von Carion, M.D., Professor of Ophthalmology in the Imperial Royal University of Vienna. Translated from the Third German Edition, and Edited by Charles E. Hackley, M.D., and D. B. St. John Roosa, M.D.; with an Appendix by the Editors. Illustrated by Ninety-six Wood Engravings and Eighteen Chromo-lithographs. 8vo, pp. 774. London, 1868.

2. *A Treatise on the Diseases of the Eye.* By J. Soelberg Wells, Professor of Ophthalmology in King's College, London, &c. 8vo, pp. 741. London, 1869.

3. *A Manual of the Diseases of the Eye.* By C. Macnamara, Surgeon to the Calcutta Ophthalmic Hospital, Professor of Ophthalmic Medicine and Surgery in the Calcutta Medical College. Small 8vo, pp. 571. London, 1868.

4. *Diseases and Injuries of the Eye: their Medical and Surgical Treatment.* By George Lawson, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, &c. Small 8vo, pp. 327. London, 1869.

5. *On Long, Short, and Weak Sight, and their Treatment by the Scientific Use of Spectacles.* By J. Soelberg Wells. Third Edition. 8vo, pp. 248. London, 1869.

6. *The Theory of Ocular Defects and of Spectacles.* Translated from the German of Dr. Hermann Scheffler by Robert Brudenell Carter, F.R.C.S. With Prefatory Notes and an Appendix of Practical Instructions. 8vo, pp. 240. London, 1869.
7. *Lectures on the Theory and Practice of the Ophthalmoscope.* By Henry Wilson, F.R.C.S., M.R.I.A., &c. 8vo, pp. 148. Dublin, 1869.
8. *Du Diagnostic des Maladies des Yeux par la Chromatoscopie rétinienne; precédé d'une étude sur les lois physiques et physiologiques des Couleurs.* Par X. Galezowski, M.D., &c. 8vo, pp. 264. Paris, 1868.

The Diagnosis of Diseases of the Eye by Retinal Chromatoscopy; preceded by a Sketch of the Physical and Physiological Laws of Colour. By X. Galezowski, M.D., &c.

9. *Transactions of the American Ophthalmological Society. Fourth and Fifth Annual Meetings.* 8vo, pp. 143. New York, 1869.

The reproach so long familiar to us, that the English language afforded no comprehensive work containing a fair view of the doctrines and practice of modern ophthalmology, has been at length completely removed. The two ponderous tomes, the titles of which stand first at the heading of this article, present a bulk of matter about eye disease in which we are certainly entitled to expect a full account of all the maladies incidental to the organs of vision, and of all the remedies by which these maladies either have been or should be controlled. We may say at once that both these books fulfil all the reasonable requirements of the purchaser; that they are generally careful in description and sound in teaching; that each has merits that are wanting in the other; and that it would be very difficult to assign the palm between them. The work of Professor Stellwag v. Carion has long been highly esteemed in Germany, and the third edition fully maintains its reputation. It is, however, not written in the clearest forms of German (the author is a Hungarian), and it has been very exactly translated into American forms of English. Hence it is not such pleasant reading as the scholarly and lucid pages of Professor Soelberg Wells; and on this ground alone we should give to the latter a decided preference. Moreover, there are many questions of treatment that are materially influenced by considerations of race and climate; and on this account the work of an author of English experience is likely to be the more useful to English practitioners. On the other hand, that of Professor Stellwag is very much the more

copious of the two; and the interpolated notes by the translators, although sometimes mere truisms, often serve to illuminate a doubtful point by the light of American experience.

We fear, however, that very much of the labour represented by these books has been little better than thrown away. It is the mischief of a speciality that general practitioners think themselves absolved from all responsibility with regard to it; and we fear that these huge works are sufficient, by very stress of magnitude, to banish and drive away all non-specialists from their vicinity. Men say that if they can only gain a knowledge of modern ophthalmology by the perusal of 800 very large octavo pages, closely printed in small type, they will be content to go without the knowledge, and to seek consultations when they have patients whose eyes distress them. We shall best display the unsoundness of this practice by selecting some common disease, such as iritis, and by contrasting the way in which the two works deal with it. Even non-specialists will then learn, we think, that the books are well worth perusal, and that a moderate acquaintance with their contents could not fail to be an useful and a profitable possession.

Of all the diseases incident to the human eye, there is none so well worthy of particular attention as iritis. In the first place it is very frequent, and it attacks all ages, from infancy to decrepitude. In the next place, although not very often immediately destructive, it is liable to leave behind it a tendency to further and destructive changes; and it is thus one of the most frequent causes of irremediable loss of sight. And, lastly, its course and issue are, more than those of most diseases, subject to the control of skilful and judicious treatment. We have said enough to show that a knowledge of its causes, its progress, and its management, may be fairly regarded as essential to the practitioner. It is a gratifying proof of the progress and scientific position of ophthalmology to find that our authors are in essential accord upon all these questions, and they differ only in the greater copiousness of detail which distinguishes the German treatise. Of this we may find a good example in the directions they respectively give for testing the mobility of the pupil. Mr. Soelberg Wells says:

"The pupil is sluggish and more or less contracted. This generally occurs in all but the very slightest cases of iritis, or in those in which there is a tendency to increase in the intra-ocular tension. This immobility of the pupil is partly caused by the hyperæmia of the vessels, but chiefly by the serous or plastic effusion which has taken place into the stroma, and impedes the action of the circular fibres of the iris. If the inflammation is but partial, the immobility of the pupil may be the same. In testing the mobility of the pupil,

the patient should be placed so that the light falls sideways upon the eye. The other must be firmly closed with our hand or by a handkerchief. The affected eye is to be shaded with the palm of our hand, which is then to be rapidly removed so as to admit the light, and the behaviour of the pupil accurately watched, so that its size, mobility, and the extent of its contractions may be ascertained. It must be remembered that contraction and impaired mobility of the pupil may exist without any iritis; for it may be seen in corneitis, hyperæmia of the iris, or if a foreign body is lodged on the cornea, and is in these cases due to irritation of the ciliary nerves."

Upon the same subject Professor Stellwag and his translators write:

"A further necessary result of the proliferation of tissue is the inability of the iris to react to variations in the illumination., *i. e.*, sluggishness or complete immobility of the pupil. Indeed, there can be no idea of an inflammation of the iris, where its mobility has suffered but little. Even if the muscular elements have preserved their integrity, they must be very much limited in their action in the stroma, swollen by the proliferation of the elements, as well as in the overloaded vessels of the iris. Great sluggishness, or complete immobility of the pupil, is therefore an indispensable requirement in order to enable us to make a diagnosis of the iritis. Still, at the same time, the fact is to be considered, that an iritis is occasionally, and especially in the beginning of the process, confined to a part of the iris, and therefore the disturbance of function may be also partial.

"In the investigation of these symptoms, the greatest care is necessary to guard against deception. In order to test the reaction of the iris, the patient should be so placed that a moderately strong light (ordinary daylight is best) falls obliquely, from one side only, upon the eye. The unaffected eye should be closed, not only with the hand, but also with a folded cloth, so that every trace of light be absolutely excluded from it. The examiner now places himself in such a position before the patient, that, while he throws a very dark shadow on the uncovered eye with his hand, he keeps the pupil in plain sight. Now, fixing his eye upon the edge of the pupil, by removal of the hand a bright light is thrown upon the eye, and then the eye is again shaded, and so on. One or two changes of light and shade will, as a rule, enable us to conclude as to the reaction of the iris, and by attentively following all the precautionary rules, the slightest puckering of the pupillary margin may be detected. Covering the unaffected eye with a folded cloth is necessary, because simple closure of the lids, or covering the eye with the hand, is not sufficient to keep away all the light. A light acting upon the unaffected eye narrows also the pupil of the one that is diseased, and thus considerably weakens the contrast between the light and shadow acting upon the latter, so that with a slight amount of reactionary power, the iris in the affected eye may appear firmly fixed, although it is

still moveable. A strong light and a deep shadow are necessary in order to excite a sufficient contrast, and thereby to produce the strongest possible reaction. The edge of the pupil should be kept in view, as well in the shadow as in the light. If this is not done, when the hand is removed the contraction of the pupil is already over before the examiner has distinctly seen it, so that even considerable contraction may escape observation.

"Where, in spite of all this careful examination in repeated changes of light and shade, no motion of the pupil is seen, we conclude that there is probably loss of reactionary power on the part of the iris. In doubtful cases, a solution of atropine furnishes a means of making one's self certain. Where, after the use of this, the pupil is greatly and regularly enlarged, a severe, complete iritis is certainly not present.

"When partial inflammation of the iris exists, a partial dilatation of the pupil by the use of atropine, or by shading the eye, is naturally not prevented. It should not, however, be forgotten that a want of effect of atropine does not always indicate an iritis, since the immobility of the iris may also have its origin in very many other conditions; in posterior synechia, in paralysis, atrophy, &c. Besides, it is well to consider that very severe conditions of irritation of the ciliary nervous system, such as those which not unfrequently accompany keratitis, may very much lessen the effect of atropine, or even cause it to have no effect at all."

The foregoing extracts, while they exhibit so complete an accordance that the first might have been written as a mere abstract of the second, serve, at the same time, to show the character of the difference between the works from which they are severally taken. Moreover, the care and minuteness of the German admirably illustrates the nature of the steps by which German ophthalmologists have advanced their science to its present high position; and may serve as a contrast to that art of diagnosis, by a "glance" at this or that, which is sometimes written about and advocated by English practitioners. Perhaps it cannot be too strongly impressed upon students, or upon all those whose opportunities of seeing eye disease are not extensive, that the power of rapid and accurate diagnosis can only be obtained in one way, namely, by the most minute and careful examination of a large number of cases. In other words, rapidity may in time be grafted upon accuracy; but accuracy can never be grafted upon rapidity.

As regards the treatment of iritis our authors are also in accord, and speak in very similar language about the uses of mydriatics, of depletion, and of mercury. There is, however, one point which they scarcely notice, and which is, we are convinced, of much practical importance. We refer to the value of constitutional treatment, and of careful supervision of the diet,

the habits of life, and the excretions, in many of the cases in which there is a tendency to the *recurrence* of iritis. We fully grant that this recurrence is often due to the presence of synechiæ. But if we inquire why these synechiæ, after being passive for an uncertain time, suddenly excite irritation, we shall often find the explanation in some preventible vitiation of the blood, due sometimes to depression, sometimes to an excess of animal food or of stimulants. It is in such cases that the mere specialist is at fault, and that his knowledge requires to be supplemented by that of the general practitioner.

As worthy of special commendation in the work of Professor Stellwag, we would mention his general chapter upon cataract, in which he has succeeded in presenting the most complete possible picture of the present state of knowledge of the subject. In describing the operations, however, neither he nor Professor Soelberg Wells are as minute as it would be possible to be with advantage; and in describing v. Graefe's recent operation, the modified linear extraction, or, as he now calls it, the "peripheral linear section," they neither of them dwell upon the point to which v. Graefe is, in fact, chiefly indebted for his great success. This is, that after extraction of the lens, he devotes any necessary amount of time and care to the complete removal of all the cortex, by gentle friction and pressure with the finger, through the lower lid. He will often continue this for as much as twenty minutes; and, as much of the cortex is often so nearly transparent as to be invisible to the operator, he takes the vision of the patient as the test of its complete removal, and does not desist from pressure and friction until the patient can not only count fingers readily, but can distinguish the thumb and the little finger from the others. By this plan, instead of the pupil being found occupied, on the second or third day, by soft semi-opaque substance, it is found clear and black, and the healing of a simple incision is the only call upon the reparative power of the eye.

Mr. Macnamara's manual, although published in London, is mainly intended, we presume, for the use of his pupils at Calcutta. It is well and clearly written, embraces all subjects of much importance to the practitioner, and sustains the reputation which its author gained by the publication of his 'Lectures.' Perhaps the point of most importance in the volume is Mr. Macnamara's account of his manner of extracting cataract without iridectomy. He makes an external incision nearly half an inch in length, and just within the margin of the cornea, lacerates the capsule or leaves it, according to circumstances, introduces a scoop so as to touch the lens, and then gently withdraws it in such a way as to draw back the margin

of the pupil. At a certain point the lens tilts over into the scoop, which is then pushed back to receive it, and gently withdrawn. Except for the use of the scoop, the operation does not appear to differ essentially from ordinary flap extraction. The author has practised it in six hundred cases, and is satisfied with his results; but we have heard that in other hands it has not been equally successful.

The little treatise by Mr. Lawson is of more recent date than the others which we have noticed, but the intervening time has not been marked by any special progress, and there is therefore no feature in the book that requires particular remark. Like everything that Mr. Lawson writes, it bears on every page the impress of careful and conscientious industry, and will be found thoroughly trustworthy as far as it goes. We should be inclined to take exception to Mr. Lawson's classification of iritis according to its (real or supposed) causes, and still more to his defence of this classification on the ground that it bears upon treatment; but on such points as these absolute coincidence of opinion is not to be expected. The student who turns to Mr. Lawson should remember that ophthalmology is too large a subject to be contained in so small a book, and that successful practice often depends in great degree upon a knowledge of the minute details that small books are compelled to omit. We regard works of this class, on all medical subjects, with some feeling of suspicion and dislike, as being intended to meet the wants of people who are content with imperfect knowledge; but we are bound to say, having due regard to its size, that Mr. Lawson's work is of excellent quality, and calculated to add to his already high reputation.

Mr. Soelberg Wells' treatise on long, short, and weak sight, is already in its third edition, and any commendation of it would be superfluous. It is admirably clear, simple, and practical, and each edition has been an improvement upon its predecessor.

Mr. Carter's translation of 'Scheffler's Ocular Defects' is a somewhat abstruse volume, intended to carry out into practical applications the principle of the decentration of lenses, first advocated by Dr. Giraud-Teulon. We think it probable that some progress may be made in this direction, and that certain cases of strained vision, and especially certain cases of dissimilar eyes, may be greatly improved in the manner pointed out. But the applications of the method have yet to be made, and the book in its present form is too mathematical for the majority of ophthalmic surgeons.

Mr. Wilson's lectures on the "Theory and Practice of the Ophthalmoscope" are very clear and correct, and supply a decided want. There are many physicians who wish to use the

instrument for the study of cerebral diseases, and who do not care to obtain their knowledge of it from a general treatise on ophthalmology. The English version of 'Zander' has been for some time out of print, and Mr. Wilson's is the only monograph in the language on this subject that can claim to be at once accurate and tolerably complete.

Dr. Galezowski is a man of much vigour of mind, much originality of conception, and much industry; but his industry does not always lead him to verify the statements that he makes. In the volume before us he has made a valuable suggestion in his idea that colour vision should be carefully studied as an element in diagnosis. This, which is the sole merit of the work, is contained, of course, in the title; and in the letterpress the author falls into the amazing blunder of propounding a physical theory of colour vision, based on a belief about the position of the retinal cones that is the actual reverse of the truth. His theory in no way affects the clinical value of his statement, that certain diseases influence colour vision in a characteristic manner; but it is quite evident that this statement is a hasty one, resting at present on no satisfactory evidence. The question is well worthy of full and careful examination, and Dr. Galezowski merits the thanks of the profession for having directed attention to its importance.

The 'Transactions of the American Ophthalmological Society' is but a small volume, but it contains many excellent contributions, and affords gratifying proof of the earnest work of our transatlantic brethren. We would remark, as especially worthy of commendation, the papers by Dr. John Green upon improved test-types, and upon improved methods of determining the kind and degree of astigmatism. These papers are illustrated by diagrams of test objects, such that surgeons in ophthalmic practice will find it useful to become possessed of the book.

Review IX.

1. *Theoretical and Practical Midwifery.* By P. Cazeaux. Revised and annotated by S. Tarnier. Fifth American from the seventh French edition, by Wm. R. Bullock, M.D. Pp. 1124.
2. *Puerperal Uræmic Eclampsia.* By Arthur Scott Donkin, M.D., Lecturer on Medical Jurisprudence, &c., to the University of Durham. Pp. 8.
3. *A Handbook on Uterine Therapeutics, and on Diseases of Women.* By Edward John Tilt, M.D. M.R.C.P., &c. Third edition. Pp. 423.

4. *Uterine Catarrh frequently the cause of Sterility; new treatment.* By H. E. Gantillon, M.D. Pp. 88.
5. *On Uterine Hydatidiform Disease, or Cystic Degeneration of the Ovum.* By Thomas More Madden, M.R.I.A. Pp. 18.
6. *On the Diagnosis and Treatment of Uterine Polypi.* By George H. Kidd, M.D., F.R.C.S.I. Pp. 32.
7. *Beitrage zur Casuistik der Uterus Fibroide.* Inaugural-Dissertation, vorgelegt von August Hausmann. Pp. 51.

Contributions to the Study of the Fibroid Uterus. By A. Hausmann.

After ten years' interval we again bring to notice the most complete treatise of the day on midwifery. The seventh edition of Cazeaux, revised and annotated by M. S. Tarnier, is the fifth translated edition of Dr. Bullock. The work is, of course, well known to writers on obstetrics, but we think it ought to be placed in every hospital library within the reach of the student.

M. Tarnier has fairly accomplished his task of bringing the original work up to the present time, and without altering the felicitous style of Cazeaux he has, by retouching the text where necessary, given a new direction and meaning to the original ideas.

Some alteration has been made in the plan of the old edition, and M. Tarnier has availed himself of recent researches as to the structure of the uterus and ovary. Thus he refers to M. Rouget's memoir, and describes the erectile tissue of the uterus, the muscular layers in the broad ligament, and in the stroma of the ovary. Following M. Sappey he tells us that—

"The ovary is composed of a central portion and of a superficial, which he calls the ovigenic layer, and which alone contains Graafian vesicles. These M. Sappey calculates are over 300,000 in each ovary, making near 700,000 for the individual. If, therefore, all the ova existing in the surface of the ovaries of a young woman were to be fecundated and undergo all their phases of development, it would require but two women to furnish inhabitants for a capital like Paris, containing 1,600,000 souls . . . . . There are as many ovisacs in the fœtus as there will be at puberty."

In the description of the chorion, M. Robin's essay in 'Le Journal de Physiologie,' 1861, is largely made use of; and his views regarding the placenta are also given in detail.

Three theories are offered as to the cause of the position of the fœtus in uterô—the oldest, viz. that of gravitation, has been lately reasserted with additional evidence by Dr. Duncan.[1] M. Dubois' theory is that—

[1] 'Researches in Obstetrics.'

"The vertex presentation is a consequence of the instinctive will of the fœtus itself; and Cazeaux suggests that, as the uterus being developed during the first six months at the expense of its fundus is spread out superiorly, but, on the contrary, is much contracted below, it is evident that the pelvic extremity which from the folded condition of the lower limbs is much more voluminous than the head, must naturally lie in the largest cavity, that is, towards the fundus, and consequently that the cranium will descend to the cervix. There can be no doubt that the inferior part spreads out in the last three months nearly as much as the fundus, but then the fœtal vertical diameter is too long to permit it to traverse the transverse diameter of the uterus, and hence, with some few exceptions, the child is forcibly retained in the position it first assumed."

M. Tarnier has added to the chapters on the mechanism of labour a brief review of M. Pajot's teaching on the subject.

"The head and body of the fœtus form two masses, the long diameters of which have opposite directions, from before backwards for the head, and transverse for the body. These two diameters are at right angles to each other; whence it happens that when one of the two parts has a direction adapted to its ready exit from the pelvis the other will have an opposite direction.

"We have thus to describe six stages in the delivery:

"1st stage	Compression	of the first fœtal part.
2nd „	Engagement	
3rd „	Rotation	
4th „	Disengagement	of the second fœtal part."
5th „	Rotation	
6th „	Expulsion	

In the treatment of the secundines, the directions are to draw gently on the cord, and wait for an hour or so after the child has passed before taking them away; and no allusion is made to the method much advocated at present in England of taking away the secundines a few minutes after the child, waiting only long enough for the uterus to rest and again contract, and, if needful, introducing the hand while all the soft parts are relaxed. A chapter is added by M. Tarnier on hydatids of the uterus chiefly drawn from Dr. Cayla's thesis. The effect on the fœtus depends on the amount of disease in the chorion. Should all the villi become dropsical, the death of the fœtus would necessarily ensue, and occurring at a period very near that of conception, it might undergo solution in the amniotic fluid and thus disappear. Should the alteration be more recent or less complete, we should have an embryonic mole in which the body of the fœtus would present various grades of development. Most writers who have noticed the subject hold similar

views as to the pathology of this condition of the ovum. Dr. Farre[1] says—

"It is almost needless to observe that the presence of a true chorion structure, which these substances invariably exhibit even in their most degenerated and abnormal forms, constitutes unquestionable evidence of a prior act of impregnation."

Dr. More Madden supports by facts and argument an opposite opinion.

"The numerous theories," says he, "by which the formation of inter-uterine hydatidiform masses have been accounted for, may all be included in one or other of the following hypotheses:—The first and most recent of which is, that hydatid moles are necessarily connected with impregnation, and are the result of embryonic death and morbid growth of some portion of the ovum. The second is, that hydatid moles are not connected with pregnancy at all, but are simply the result of diseased ovarian action. The last, and perhaps the oldest of the theories referred to, is, that these vesicular uterine masses are similar in their structure and development to the true hydatids found in other parts of the body. . . . . The first of these theories is, I think, clearly disproved (as a universal law) by the numerous cases on record in which uterine hydatids were expelled by unmarried women whose chastity was unimpeachable. I therefore think it by no means improbable that some of these instances might be accounted for on the supposition that a morbid action or monstrous growth may occur in one of the Graaffian vesicles which modern physiology has shown are discharged from the ovaries at each menstrual period, and that this hydatidiform disease of the unimpregnated ovum may be in some way connected with ovarian disease."

Dr. Madden refers to five cases, two related by Dr. Ashwell, in one of which the patient was a widow of two years, and of undoubted reputation; in another, a maiden lady, where the hymen was unruptured, and of whose chastity there could not be a suspicion; two cited by Dr. Ashley, one of which was under his own care, and symptoms of hydatid formation appeared a few weeks after delivery, and under circumstances which precluded the possibility of a subsequent impregnation, the other related by Dr. Knoch, of Heilgenbeil; and a case related by Dr. Hamilton, where the lady had been living apart from her husband for two years, and he was satisfied as to her chastity.

On the point of treatment, when the diagnosis is established, Dr. Madden differs from M. Pajot, the present Professor of Obstetrics at the Clinique in Paris. In a case where the patient supposed herself pregnant three months the professor advised

[1] 'Cyc. Anat. and Phys.,' vol. v, p. 698.

"the insertion of a gum elastic catheter through the os internum, and the administration of ergot."

Dr. Madden says—"As cases have occurred where hydatids coexisted with natural pregnancy, interference may run the grave risk of destroying a living fœtus."

With respect to the alimentation of women directly after confinement, M. Le Groux, of the Hôtel Dieu, is quoted as adopting the views now pretty general here, and especially insisted on by Dr. Graily Hewitt, in giving meat and soup.

In the chapter on abortion, repeated small venesections are recommended as a prophylactic, where the patient is plethoric, and powdered savine when she is anæmic.

In contraction of the pelvis, M. Tarnier gives $2\frac{5}{8}$ inches as the least diameter compatible with safe delivery. Churchill states that a living child cannot pass through a pelvis whose small diameter is less than three inches.

In unavoidable hæmorrhage M. Tarnier would plug, and wait; and, secondly, if necessary, rupture the membranes.

Dr. Barnes's views as to the development of the placenta and its zonic attachments, on which he founds his treatment of unavoidable hæmorrhage, are not alluded to, though M. Tarnier seems well acquainted with his uterine dilator, which instrument M. Tarnier uses in conjunction with one of his own invention where premature labour is to be induced.

M. Tarnier's instrument consists of a gum elastic catheter, the upper end of which being made with thin walls, dilates into a ball when filled with water or air. This he passes with a guide into the uterus. The ball prevents its expulsion, and the ovular membranes remain unbroken. As soon as the cervix admits, M. Tarnier introduces Barnes's dilator. The other obstetric operations, as the use of the forceps, vectis, cephalotribe, with M. Pajot's method of 'repeated cephalotripsy without traction,' Cæsarian section, &c., are fully described.

M. Tarnier has most ably put the finishing touches to Cazeaux's description of allbuminuria during pregnancy, and its connection with eclampsia; he sums up the causes of albuminuria as arising from either—1. Super-albuminosis of the blood, for though the albumen is diminished relatively to the mass of the other constituents, there is a marked predominance of albumen as compared with the corpuscles (Gubler); or—2. Over distension of the renal vessels; or—3. Albuminous nephritis, which may be either primary or secondary.

Three cases are published by Dr. Donkin, who draws from clinical considerations the same conclusion as to treatment that Cazeaux, and, in fact, nearly all obstetricians do, that a large

bleeding from an open vein is the first measure to be adopted. We shall conclude our notice by quoting Cazeaux's opinion on the use of chloroform: "We," says he, "formerly proscribed its use in the majority of cases, but facts published by our colleagues, as well as the result of personal observation, have greatly changed our first opinion; so that we are now convinced that when eclampsia comes on, during either pregnancy or labour, the use of chloroform may be of some service. At other times it is in France confined almost exclusively to cases of difficult parturition."

Dr. Tilt wishes his book "to be taken as a protest against the disparagement of a considerable amount of therapeutical wisdom that has been handed down to us for our guidance in the treatment of disease from one generation of medical observers to another."

Therapeutical writing is not synonymous with therapeutical wisdom. Assertions that this or that drug is good for this or that disease are as unserviceable as are proverbs for guidance in particular actions, while the most fatal errors in practice have been committed under shelter of authority. The loss of faith in therapeutics is simply consequent on the discovery that the traditions are not based on fact. Specialism too often trammels the observer. Dr. Tilt (p. 337) says: "A patient of mine has had her back broken, in the literal sense of the word, by *internal metritis*, for the upper dorsal vertebræ formed a right angle with the lower and lumbar vertebræ." Dr. Tilt apparently attributes caries of the vertebræ, and consequent angular curvature, "to the patient remaining in a crouching position for three weeks on account of a severe attack of endometritis. Eighteen months after the metritis," for which the patient was "diligently treated," but no reference made to the spinal disease, "her mother noticed the projection of the vertebræ."

In writing on a given subject care should be taken to warn the reader when danger may be incurred in the use of certain modes of treatment. Dr. Tilt classes bromine with tincture of iodine and nitrate of silver as a topical application, and calls it a powerful detergent, but says not a word as to its violent caustic powers, which are far more unmanageable than potassa fusa. Perforation of the recto-vaginal septum, we are well informed, has taken place, though the application to the cervix was made by skilled hands. Amputation of the uterus in cases of old procidentia can hardly be deemed an easy operation, or the danger slight. We are very incredulous, too, as to the efficacy of applying a white-hot iron to the ear as a cure for sciatica, though Professor Malgaigne is said to have ascertained it; nor is Récamier's prescription for the cure of hysteric con-

vulsions likely to be much used—that of causing the lady's maid to sit on her mistress's belly.

The use of large doses of digitalis in menorrhagia, once tried by Dr. Robert Lee and Dr. Dickenson, at St. George's Hospital, has not found much favour since that time; and Dr. Tilt should have cautioned his readers against the occurrence of unexpected poisoning. But while we thus protest against certain blemishes, we can praise Dr. Tilt's book as containing many useful hints as to conduct in the consulting-room, and also at the bedside. The junior will gladly avail himself of instruction offered by a well-experienced practitioner, and find much information as to the use of douches, topical applications, the substitution of alkaloids for extracts, and of glycerine and starch as a vehicle in place of the disgusting fatty preparations which often make the remedy more distressful than the disease.

The diagnosis and treatment of uterine polypi are now well settled. Still from time to time men of observation make or suggest improvements in particulars, or cautions as to the mode of carrying out principles generally agreed to. Dr. Hausmann, in his thesis for the Doctorat at Jena, tells us the opinions held on the subject in that medical school; but as they present nothing new to those who have access to the many English writers—Graily Hewitt, West, Churchill, M'Clintock, Hutchinson, and many others—we may pass it over, merely noting that Dr. Hausmann gives the details of four cases of fibroïd. In one the ligature, now nearly discarded in England, except, we are informed, in the Hospital for Women at Soho-square; in two others, scissors; and, in the fourth, a ligature was applied for a few hours, and then the mass was removed with the knife.

Dr. Kidd divides uterine polypi into fibrous and mucous, the latter being subdivided by a cystic or glandular variety. As his object is merely to relate his own experience, he does not go into pathological or histological details of other varieties; and the points worthy of notice in his essay relate to treatment.

Four cases of ordinary fibroïd are detailed. Dr. Kidd prefers the tangle tent to the sponge, but the chief objection to the latter—its offensiveness—has been removed by preparing it with carbolic acid[1] and cacao butter. On the suggestion of Dr. Ringland, Dr. Kidd, in sundry cases of uterine polypi, applied strong nitric acid to the uterine cavity, and approves of the application. He seems to have no fear either of this bold treatment, or of mopping out the uterus with a saturated solu-

[1] "Carbolised Sponge Tents." Robert Ellis, Esq., 'Obstetrical Transactions,' vol. ix, 1868.

tion of perchloride of iron in glycerine. In treating cases of mucous polypi, Dr. Kidd found, as Marion Sims pointed out, that the pressure of the tent was often sufficient to remove the growth; so that on exploration no tumour was perceptible, and there was no recurrence of the former symptoms.

Dr. Gantillon's brochure, somewhat pretentiously put forth, is suggestive of puff:

"Uterine catarrh," says he, "is one of the principal causes of sterility, because when young women are affected with it all the tissues are in a flaccid state, and do not sufficiently oppose the passage of liquids contained in the vagina; and if some spermatozoons should penetrate the cavity of the cervix the liquid in which they are carried would soon flow back again, for the orifices, instead of being closed, remain wide open in almost every case of uterine engorgement. Besides this unfavorable mechanical condition, the reaction of the uterine upon the spermatic liquids (in leucorrhœa) is one of the principal causes of the sterility of young women."

Dr. Gantillon's new (?) treatment is to inject, with a graduated syringe and a tube of small diameter, a solution of nitrate of silver. We need simply remark that the treatment is no novelty, but many practitioners are in the habit of using a uterine porte caustique, both in cases of catarrh and in metrorrhagia.

Review X.

On Pyæmia, or Suppurative Fever. Being the Astley Cooper Prize Essay for 1868. By Peter Murray Braidwood, M.D., L.R.C.S.E., late President of the Royal Medical Society of Edinburgh. London. Pp. 287.

In modern times, when rapid change is the most prominent feature of the age, to a generation which has seen a complete revolution in medical practice, anything definitely and absolutely settled would be a relief, and perhaps a novelty. We live in that painful and unpleasant interregnum which lies between the reign of ignorance, even when concealed under the garb of unusual knowledge, and the more perfect science of modern times, whereby, with absolute certainty, the future may be foretold from our knowledge of the past. The science which strikes us all as the most perfect embodiment of human knowledge is astronomy,

wherein the universal laws of gravitation are so thoroughly understood as to enable an Adams or a Leverrier to sit down in his study and to calculate the exact position of an unknown planet. And yet, as it has been aptly said, medicine as a science is very much now in the position astronomy occupied before the days of Kepler and Newton, just before the fundamental laws which have made all clear were discovered; and there are signs that similar discoveries in medicine are not very far off. In medicine we want the universal law, or expression of fact, which is to explain things of which we are now in ignorance. But the tendency is unmistakable. Every fresh advance is in the direction of substituting physical for vital laws, of removing phenomena from the region of the unknown and unknowable to that presided over by laws intelligible to all men of science, and which prevail alike in the organic and inorganic kingdoms of nature.

Now of diseased conditions pyæmia is one which at present rests on as unsatisfactory a basis as any with which we are acquainted. Opportunities for its study are unfortunately only too frequent, and its symptoms are only too well known; but its physical basis, so to speak, remains unknown. Perhaps it is a matter for regret that this morbid state has been more studied by surgeons than by physicians, for the phenomena associated with its course and modes of termination are more closely connected with those which come under the notice of the physician than with those which appertain to the province of the surgeon. Unfortunately, the causes which give rise to it would seem to be more prevalent in the domain of the latter than in that of the former. It was not, therefore, by any means without interest that we looked forward to the appearance of this volume as to that of an essay to which had been awarded one of the most considerable as one of the most honorable prizes open to English medical men. Nor can we help confessing that we are disappointed with the result. We looked for more than a mere average school-boy kind of production, but the work before us is essentially mediocre. We had a right to expect, if not some new and original views by way of an attempt to explain the phenomena of the disease (which would have been exceedingly acceptable), at least such a work as would give us a fresh starting-point, embodying all that had been done, and at least showing what remained to do; but even this has not been attained. The work is thoroughly commonplace.

The treatise begins in the conventional way. We have the history of the disease, from the days of Hippocrates downward. We think we may say this was *not* wanted. The actual work may be said to begin with the second chapter, wherein the disease is defined as a fever which attacks persons of all ages,

is generally sequent on wounds, acute inflammation of bone, the puerperal state, surgical operations, or other sources of purulent formation, and septic infection. The author selects for this disease the title of suppurative fever, and says that as a fever it has no fixed duration, but that it exhibits certain stages, and generally abates or becomes intensified on the seventh, eighth, fifteenth, twenty-first, twenty-second, or twenty-eighth days.

It is at all times easy to take exception to definitions, especially when descriptions are given, as is here the case, in their places; but the above is especially obnoxious to criticism. Dr. Braidwood assumes that pus is necessary for the production of pyæmia, or, at all events, that some form of septic infection should usher in the disease. This, as is well known, is by no means invariably the case. Then, again, as to the febrile nature of the disease. Although we do not greatly care to call the assertion in question, having in the meantime nothing better to offer in its place, we might be permitted to point out the extreme uncertainty or irregularity of the course and termination of the disorder—occurring within from one to two, three, or four weeks. This is not in accordance with our notions as to either periodic or continued fevers, and it is certain that chronic pyæmia does not bear striking resemblance to any of our known continued fevers, although in certain respects it may resemble malarial toxæmia. One of the reasons given by Dr. Braidwood in support of his view is certainly extraordinary. He says: "This view" (that of the febrile nature of the disease) "is further confirmed by the only treatment which has as yet been followed by success. A liberal and properly regulated use of stimulants and of nourishing diet has alone been found efficacious in averting that serious issue which has hitherto compelled surgeons to view a rigor after an operation as a death-signal." This is too much for us altogether, as it must be for any one who will take the trouble to put the proposition in the form of a syllogsim. That the fact that stimulants and nourishment do good should be received and adopted as a proof of the febrile nature of any malady, is certainly stretching the rules of evidence further than they can bear. Will stimulants and food alone cure malarious fever, to which pyæmia is most allied? or will any malady of an enfeebling character, whether febrile or not, be treated successfully without their employment?

The various names which from time to time have been applied to the disease are next enumerated: these are given as phlebitis, purulent diathesis, metastasis, purulent infection, yellow fever, constitutional irritation, purulent pleurisy, multiple abscesses,

purulent absorption, surgical fever, thrombosis and septicæmia, suppression of suppuration, &c., and with the omission of some of the most important of these the chapter closes.

Next follows the only original portion of the book—a narration of cases, most of which are of no very extraordinary interest, although serving fairly to illustrate the course of the disease. The first given is that of a weaver, aged 46, admitted into hospital (where, when, and under whom it is not recorded), suffering from the effects of stricture. A catheter was ultimately passed. Next day he complained of difficulty in breathing; by and by symptoms of pneumonia were observed, and he spat blood. He died on the sixth day. The left lung contained vomicæ and fœtid pus; there was pus in the kidneys and in the prostate. The temperature is nowhere recorded, and there is no account of the man's previous history or habits. In case ii the patient, age not stated, was injured at the railway, and his arm was amputated primarily. He did well for a month, when rigors occurred. He sank twelve days after. Only the root of the limb amputated was examined, and pus was found. There is no account of the surroundings of the patient, nor any hint at the cause of the disease. The third case occurred in the person of a boy aged 15, whose arm was amputated at the shoulder-joint for what is vaguely termed a medullary tumour. Fifteen days after rigors occurred, with bleeding from the stump; the case was markedly one of pyæmia, and he sank twelve days after. No post-mortem was obtained. Nitric acid was applied to the stump, but without avail. Case iv. A railway labourer, aged 26, of intemperate habits, suffered a very bad fracture into the ankle-joint. On the third day rigors occurred, and by this time he was suffering from the delirium which follows injuries in the intemperate. There are no further symptoms of pyæmia recorded. He died on the twenty-first day after the rigors. The lungs contained abscesses. There were abscesses in various parts of the body, none communicating with a vein. The abdominal organs were not affected. In case v, a labourer, aged 44, suffered from disease of the wrist joint. The man was much reduced, when the hand was amputated. Seven days after a rigor occurred, unmistakeable symptoms of pyæmia supervened, and he died on the fifth day after the rigors. No post-mortem. In case vi, a healthy Irishman, aged 35, was admitted with anchylosis of the elbow-joint. Four days after operation a rigor occurred, and there was pain in the chest; there was a blush of redness round the wound, which extended to the trunk. He died sixteen days after. The lungs contained abscesses, and the spleen showed them in an early stage. The ends of the bones were

bathed with a fœtid pus, and showed signs of necrosis. In case vii, a boy, aged 14, had his urethra and perinæum severely ruptured; he had to be carried many miles to hospital. On the third day he had a cough, with symptoms of pleuro-pneumonia, but the wound was healthy. Six days after admission he had a rigor; still the wound looked healthy, but he died on the eighth day after the occurrence of the rigors. The body was too late in being examined, so that the wound was putrid; the lungs contained many abscesses. No other organs were examined. In case viii, a labourer, aged 36, had a compound fracture of the left leg. The day after admission there were lung symptoms, and the wound began to look bad. After this he improved again till three weeks after admission, when profuse perspirations began, and the wound looked unhealthy. The limb was amputated, and three days after there were rigors; he again somewhat improved, but the rigors occurred again, and he died fifteen days after the first rigor. No post-mortem. In case ix the patient also had a compound fracture of the leg, laying open the ankle-joint. He had at one time been intemperate. The limb was amputated. Four days after he looked anxious, and perspired profusely; the wound was sloughing. Delirium set in, and there was distinct phlebitis in the thigh. By and by the stump felt boggy, and was discoloured. He died on the seventh day. No post-mortem. Case X. A man, aged 40, said to be previously healthy, suffered from disease of the ankle-joint. The limb was amputated. On the third day a slight rigor followed, there was oozing from the stump, and the wound speedily became unhealthy. Secondary abscesses formed in various parts. He died nearly a month after the operation. No post-mortem recorded. Case XI. A joiner, aged 30, was admitted into hospital for a wound in the knee-joint, caused five weeks previously. There was much suppuration. Thirteen days after admission a rigor was experienced. He died six days after. There were abscesses in one lung, none in the abdomen. The bone was extensively diseased and the femoral vein plugged. The twelfth case was that of a man suffering from hepatic abscess, which terminated in cerebral abscess and death. The lungs contained abscesses. The course of the disease was very slow. Case XIII. A sailor, aged 45, was admitted with a carbuncle on the back, which was sloughy. More than a month after admission he became worse, but had no rigor, and four days later he died. The symptoms were not well marked. There was an incipient abscess in the liver, several in the kidneys, and some were threatening in the spleen. Case XIV. A female, aged 50, was admitted with an abscess on the dorsum of the foot. She had been living poorly.

Other abscesses formed, but she improved till the eleventh day, when rigors set in; they subsequently followed regularly for four days at noon. Marks of phlebitis also appeared. She died on the sixth day. There were no internal abscesses. Case XV has an imperfect history; the patient had suffered a fracture of the ulna, which was surrounded by pus. He had been brought far and was greatly exhausted, and there was much pain in the joints. He sank. Abscesses were found in both lungs and kidneys. There was nothing in the joints, and no signs of phlebitis. Case XVI was a railway smash, necessitating amputation of the forearm and leg. Four days after the patient had a rigor. From this period, for thirty-four days, he turned sometimes better, sometimes worse, until both stumps healed, yet he sank, chiefly owing to an abscess of the shoulder-joint. There were no internal abscesses, but certain white bodies and a bridge-like cicatrix were found in the lung. This is, perhaps, the best recorded case in the volume, but the account of the post-mortem appearances is imperfect. Case XVII was that of a boy, aged 12, admitted on account of disease of the shoulder-joint. He had been ill six months when the joint was excised. Four days after he had a rigor, and five days after another, three days later another, and there was now pain in the lower part of the arm. Pneumonia also occurred, but after a time the boy rallied, notwithstanding that all the symptoms of pyæmia had supervened. In case XVIII the patient was aged fourteen, and had disease of the left tarsus. The limb was amputated at the ankle-joint, after which erysipelatous reddening appeared. Five days after the operation rigors came on, with cutting pain in the chest. Nine days after he died delirious. There was an abscess inside the skull, and others in the lungs and spleen. There were many abscesses in the leg, and the bones of the stump were much affected. Case XIX was that of a man aged 31, who had certain internal hæmorrhoids ligatured. Two days after he had rigors; two days after there was pain in the chest; ten days after he died. No post-mortem. The last case recorded is that of a sailor, aged 19, with acute necrosis of the femur. The limb was amputated. Thirteen days after he had a rigor, and he died five days later. There were abscesses in the lungs, but none in the abdomen. The femur was necrosed, and pus surrounded the vessels.

Most of these cases are imperfectly recorded, the only exception to this rule being case XIV, which is tolerably well done in a rough sort of way.

The symptomatology of suppurative fever is next considered, and here Dr. Braidwood seeks to distinguish between an acute and a chronic form, inasmuch as the latter, he says, is commonly

connected with typhus, scarlet fever, empyema, rheumatism, and dysentery, the former ensuing after operations, injuries, and parturition. He speaks of the physiognomy, the appearance of the skin, the temperature, the digestion, the nervous system, the circulatory system, the condition of the urine, and the local phenomena. Of the countenance he tells us that it is often flushed, but this is only at the beginning of the disease, although he does not say so. A much more characteristic phenomena is the appearance of marked dejection, which generally accompanies this disease. So common indeed is it, that Mr. Solly would seem to have been led astray by it, so as to look upon it as the cause of the pyæmia. The appearance of the skin later on is certainly peculiar, the sallow icteric tinge being quite characteristic.

Dr. Braidwood here also alludes to the subject of temperature. We have been quite surprised to find no allusions to it hitherto, and here it is put aside as of no consequence, the author only pretending to have employed the thermometer in one case, that already alluded to, viz., case XVI. No record of a case of fever would now be considered complete without a registration of the temperature morning and night; and so, also, ought it to be with pyæmia. The results obtained by Heubner have been quite enough to show the value of this mode of investigating the disease. Other particulars as to the skin are mentioned, such as the peculiar erythematous, or rather erysipelatous blush which extends from the wound not unfrequently over the greater part of the body. The author suggests, as a cause of this, plugging of the superficial capillaries, by which means he would also account for the purpuric patches sometimes seen in the same disease; but we cannot accept the explanation as quite satisfactory. Undoubtedly the phenomena are consecutive, but we cannot on that account look on the one as being the cause of the other.

Associated with the respiratory organs in pyæmia are two conditions, both important and characteristic; the one is the peculiar feeling of oppression felt in the chest, a feeling associated with difficulty of breathing in all cases, and which, if we are to accept the doctrine of embolism, is in this disease caused by plugging up of the pulmonary capillaries. It is only the precursor of more decided signs of pneumonia, and is one of the first untoward symptoms the surgeon has to look for. The other peculiarity alluded to is the curious and characteristic odour of the breath, which is now generally recognised as one of the most patent signs of pyæmia. As to the digestive organs, Dr. Braidwood tells us that constipation is the rule, diarrhœa the exception; we conceive that he here does not exhibit the true position of

matters quite fairly. There is an intermediate condition between constipation and diarrhœa; and if the cases wherein the bowels are normal be eliminated, it will be seen that diarrhœa is much more common than is constipation. If we mix up together, as Dr. Braidwood has done, all kinds of blood poisoning, septicæmia as well as pyæmia, this is especially the case; but if we separate septicæmia from pyæmia, then we find that diarrhœa is one of the most prominent characteristics of the former, less so of the latter. It is well known that surgeons not unfrequently become the subjects of septicæmia after unpleasant operations, and that other patients surrounding one with unhealthy sores are liable to the same. Even in the case of students and demonstrators of anatomy, when the subject on which they are at work has become much decomposed, an attack of the same kind may be anticipated. All these disorders are allied one to the other, and to pyæmia, and in all of them diarrhœa is one of the most prominent and characteristic symptoms of this kind of poisoning. Dr. William Hunt has given a curious and interesting experience of septicæmia in his own person in the first volume of the 'Pennsylvanian Hospital Reports.'

Among the nervous phenomena Dr. Braidwood enumerates the rigors; these are highly characteristic, and in themselves constitute an important link between pyæmia and the malarial fevers. They, along with the degree of periodicity sometimes observed in the disease have induced some, as Roser and Guerin, to reckon pyæmia among this group of diseases, and to lead them to treat it with quinine, as in agues.

The pulse in pyæmia is variable, but generally very rapid. Mr. Callender says it rises to 100 or 120, but Dr. Bristowe, with greater accuracy, reckons it at 140, 160, or even 200 per minute in the worst cases. With regard to the blood itself the very name of the disease is descriptive of the popular opinion as to the changes it undergoes, but this idea is abandoned by many men of the most opposite opinion. In Dr. Braidwood's single case (16) the red corpuscles were found to have a tendency to disintegrate, exhibited first in their serrated and crenated edges, afterwards by more decided disruptive changes.

Of all available fluids, or solids, the urine is that which affords the best evidence of the changes going on within the body, and its examination in all cases of disease is of corresponding importance. By the examination of the urine we do not mean that, comparatively speaking, superficial investigation which takes cognizance of the specific gravity, the reaction, the colour, and the nature of the deposit only, for, although these be important in many ways, what is of most value is the determination of the constituents by careful quantitative, as well as

qualitative, analysis. Yet in this prize essay we do not find details of a single examination of this kind. In case 16 the particulars alluded to above are recorded from day to day, but there is not a word as to the presence or absence of albumen, the relative proportions of uric acid and urea (it is said the urea was slightly diminished); in short, none of those facts which would give us some notion of what was going on within the body. We are only told that "it (the urine) is not in the least indicative of the amount of pathological lesion which occurs."

Passing next to the chapter relating to the progress of suppurative fever, Dr. Braidwood describes the stages as those of incubation and invasion, the typhoïd stage and that of convalescence. He says he omits that of crisis, as "a sufficient amount of observation has not yet been collected to enable us to define such a period as the crisis." The language is not very intelligible, but the meaning is clear, and for the very same reason he should have omitted the stage of incubation, about which we know nothing; for, says the author, "the incubative stage of suppurative fever is a latent, indefinite period which doubtless exists, but cannot be specified." Now, this kind of stuff is not what is wanted in a prize essay; if we know nothing about a thing whose existence indeed is purely hypothetical, its actual existence need not be insisted on. In short, Dr. Braidwood starts off with the notion that the disease is a fever, and he would augment the parallelism by inventing stages, the existence of which has not been proved in the case of those diseases to which pyæmia is most allied. We need not say much of the complications of pyæmia; they have already been alluded to when dealing with the concurrent morbid conditions of the disease; but we may remark that, as he has placed the treatment of the disease in a separate chapter, Dr. Braidwood might as well have relegated to it the treatment of these complications as being more appropriate to his scheme than discussing them here.

As to the treatment of suppurative fever, Dr. Braidwood separates that into prophylaxy and remedial measures. Apart from the technical objection as to the inclusion of the former under the heading of treatment, the plan is judicious enough. Of what the author says on prophylaxy, a good deal is sound enough, but some of it nonsense. There cannot be the slightest shadow of doubt but that in the collecting together into one ward a number of men with suppurating sores there is infinite danger to all. This has been clearly shown in military surgery by the results of recent wars, especially in America and in Prussia. Still Dr. Braidwood thinks otherwise. The results of these wars have been decided enough to satisfy any one that for wounded men safety lies in isolation; and the same may be said

of those who have been operated on. Again, when Dr. Braidwood tells us that he "has been unable to trace any deleterious influence to the interchange which constantly takes place in the surgical wards of our hospitals," he may speak from his own experience only. If so, he should say so. If he means his observation to apply universally, we know that it is nonsense.

Of remedial measures the author deals with the hygienic, the pharmaceutical, and the operative. As to the first nothing need be said, except that Dr. Braidwood does not belong to the antiseptic school. As to the second he, of course, in accordance with modern notions, advises stimulation, and of tonics he seems to think iron best. We can only say that in all cases this should be combined with large doses of quinine, which, in the hands of Binz and others, has done wonders. He, in accordance with most others, denies the efficacy of the sulphites as recommended by Polli. Their use is, indeed, we suspect, almost entirely given up. As to operative measures the most important is amputation, as suggested by Professor Fayrer. He, as well as certain American writers who have seen much pyæmia during their civil war, hold that it is generally associated with or dependent on osteomyelitis. No doubt this is so in many cases, but, as undoubtedly, pyæmia may occur without any inflammation of bone whatever. And again, with regard to the proposal to amputate higher up the limb, that has been done, and has failed.

We shall not enter into Dr. Braidwood's description of the pathological anatomy of pyæmia, but we must refer to his notions as to the formation of secondary abscesses in the lung; the views have, at least, the merit of novelty. He holds that the mischief depends primarily on an increased coagulability of the blood. "These secondary abscesses," he says, "commence with congestion of the capillaries in a limited portion of tissue as a lobule. The already coagulable nature of the blood tends to stagnation in such overloaded veins, and probably embolia or minute capillary coagula are developed. The exudation of serum (which is generally the immediate result of such an arrestment or retardation in the circulation) is the next stage, and passes quickly into that of an effusion of lymph, or of the formation of pus." This constitutes one of the most extraordinary *melanges* of old and new views we have ever met or could even have imagined. We should also have fancied that a man who undertook to write on pyæmia would take the trouble to know the difference between embolism and thrombosis, which Dr. Braidwood evidently confounds. We leave the above passage to speak for itself, and pass on to the chapter which treats of the etiology of suppurative fever.

Of the causes of pyæmia the author recognises two sets—the predisposing and the exciting. Of the former set nothing need be said; but the latter is one of the most interesting topics connected with this most interesting disease. It may be at once said that there are two great theories appertaining to the mode in which pyæmia is produced—the miasmatic and the material. The advocates of the former, men like Roser and Guerin, maintain that pyæmia is essentially similar in its nature to malarial fever, and they treat it accordingly. On the other hand, we have the views of Lee, who advocates the idea that phlebitis is at the bottom of the mischief; of Virchow, who holds by thrombosis and embolism; and of Billroth, who partially inclines to both. In each of these instances, however, something material is held to exist in the blood, whether we denominate them pus corpuscles or leucocytes. Again and again throughout this volume we are told of distinctions between white blood corpuscles and pus corpuscles, while nothing is clearer now-a-days than that the one cannot be distinguished from the other. What the bearing of Cohnheim's views as to the production of pus by the extravasation of white blood-corpuscles may have in pyæmia yet remains to be seen; and the curious investigations of Neumann and Bizzozero as to the white corpuscle-forming powers of the bony marrow may also have an important influence on the doctrines which connect osteo-myelitis with pyæmia.

We shall not follow the author in his subsequent chapters relating to the diagnosis and prognosis of suppurative fever, but we shall at once proceed to criticize one of the principal features of the book entitled the "Bibliography of the Monographs and Essays Referred to." What this exactly means we cannot say. If it means that these essays are referred to in the pages of the work itself, we can only say we have not seen these references on a careful perusal of the book. If it means that they have been referred to by Dr. Braidwood himself in the composition of his essay, we can only say it does not look like it. The book is mostly made up of scraps from Lee, Savory, Paget, Callender, Bristowe, and other British writers. Of course the cases are original, and the commentaries on them; but what we complain of is ignorance of the writings of continental, especially German, authors. Let us take one instance. Billroth is universally looked upon as the first author of the present day on the subject of pyæmia. His monograph is one which deserves the attention of any man who undertakes to write on either septicæmia or pyæmia, were it only for the eighty-three cases of true pyæmia he records. It has been published in Langenbeck's

'Archiv für Klinische Chirurgie,' commencing in Band ii, and continued in Bd. vi and Bd. viii, yet it is to the first of these only that Dr. Braidwood refers. No mention is made of the subsequent papers, but had the writer referred to the 'Archiv' itself (it is quoted as having been referred to) he could not have failed to find this and other papers, especially with regard to pyæmia in the Danish campaign, which would have well repaid his trouble, and added value to his work. To the numerous writings of Roser only a very scanty reference is made. H. Fischer's contributions, both to theory and to practice, are entirely overlooked. Only one paper by O. Weber is mentioned as given in abstract in the Sydenham Society's 'Year Book.' Virchow is quoted, where he says nothing on the subject, and no reference is made to his treatise in the 'Abhandlungen.' Nothing is said of Maisonneuve's 'Intoxications Chirurgicales.' Griesinger on "Leukæmia and Pyæmia," is not mentioned. Lückes' 'Contributions to Military Surgery' are unheard of; so also of those of Pirogoff and Stromeyer. This kind of thing might be multiplied *ad nauseam*. Now, we candidly admit that had Dr. Braidwood limited himself to his cases and his comments on them, we should have had no right to criticize him thus. As it is, having attempted to give his work an exhaustive and encyclopædic character—having, above all, given a bibliography in all languages, we contend we are perfectly justified in exposing its defects. As a work, it will not for a moment compare with one which is not a prize essay, but merely a short treatise on the subject of septicæmia and pyæmia, written for Pithu and Billroth's 'Surgery,' and recently published. This subject was allotted to the lamented O. Weber, of Heidelberg, but after his untimely decease it was handed over to Hüter, of Greifswald, who has done his work well. To that treatise we would refer our readers for a good account of the disease, from a Continental point of view.

PART SECOND.

Bibliographical Record.

ART. I.—*Molestias venereas y syphiliticas: exegese das doutrinas que a esse respeito interressam, seguida de uma summula pathologica e therapeutica e de um formulario especial pelo Dr. J. A. Marques.* Lisboa, 1868.

Venereal and Syphilitic Complaints: an Exposition of the Doctrines which most interest on the Subject, followed by a Pathological and Therapeutical Summary, and by an especial Formulary. By Dr. J. A. MARQUES. Lisbon, 1868. Small 8vo. Pp. 1052.

THIS work is in a compact form. It contains the pith of all that has been written of late years upon the subject of venereal. The industry of the author has been extraordinary, and it is seconded by a thorough acquaintance with the subject. All of English literature is done justice to, but the leaning is rather French as to doctrine,—more especially to the school of Lyons, as represented by Rollet rather than by Diday, whose crotchets of many varieties or several kinds of syphilis have received no measure of assent.

The non-identity of syphilis with simple sore or chancroïd is maintained throughout the work. The author is dualist *quand-même*. But then again he is a declared unicist in all that regards specificity of that particular disease that bears now the name of syphilis. Blenorrhagia, too, he holds to be distinct, and quite another morbid entity. He fully embraces the idea that this disease of syphilis came over to Europe from America as a consequence of its discovery by Spain, and certainly a voice from the Peninsula deserves some share of attention as opposed to other conjectures less founded on local history. From what has been already stated, it follows, almost of course, that the author insists on twofold inoculation as explanatory of certain phenomena that result from the *chancre mixte*. All such questions are treated with acumen, and a prolixity that might be called tedious, were it not for the reigning interest which now surrounds such questions. What we especially

have to praise in the work is its truly scientific cast, and the amount of space that is given to pathological discussion.

The book is a compilation of a very severe and close character. It would bear translating as such into our language very well, and still better, perhaps, into German, since the English part, though exhaustive, comes familiar to the English reader, whereas in German hands the subject might even yet bear extension, and some small further illustration. It is only just to assert that the Germans are not ill represented. There are parts, we are apt to fancy, which might have been honoured with less of attention, and others that are treated too slightingly; but, altogether, we are free to assert that few books have been better made. There are reflections and numerous passages which prove the writer to be a nice and very distinguishing observer, as well as an experienced physician. Amongst other parts we select his description of the mucous tubercles (p. 239), as a good sample paragraph, and as showing quite original views:

"Corresponding with these are the *mucous plaques*, more often called humid or flat tubercles, lesions that bear a strong analogy to the tegumentary papules, and the former, indeed, have been the cause of many doubts and discussions. They are, if well diagnosed, much like the papules just mentioned, a secondary symptom of the epithelium in regions where we chiefly find them; in the margin of the anus, in the vulvar region in woman; while in man the scrotum, the perinæum, the glans, the internal surface of the prepuce, are chiefly affected by them, and they may be sometimes seen in the buccal cavity, in the nose, on the lips, the tonsils, and between the toes, &c. We speak elsewhere of the particulars that serve for the diagnosis of this lesion, oftentimes confounded with others that are of a different character, probably by reason of the forms they are liable to assume in certain cases, and also of the varieties that are discernible in them by syphilographers and physicians, and this in spite of their common shape, which is very easily distinguishable by those of small experience as practitioners. There are, however, two circumstances that are specially worthy of note in the mucous papule, where it occurs near the natural apertures, and again upon the integument. We see it principally developed in parts where there is most of sweat, and also a higher temperature. They have, besides, a nauseating smell, which is often sufficient to characterise them; so that without speaking of flat tubercles which happen on the mucous membranes, where there is a very abundant secretion, and where the temperature is more raised than in other parts of the body, this secondary symptom seems to represent the common papule under circumstances of heat and humidity, and, perchance more than all, as modified by the natural alcalinity of the sweat in the scrotal and vulvar regions, between the toes, &c. It is thus that originate these rounded shapes of a dark red colour, humid and well defined, which are wanting in places where the sweat is frankly acid, that is to say, on the greater part of the cutaneous superficies."

The author is an unhesitating advocate for mercury in control of morbid phenomena. We trust this represents his opinion mildly, and also correctly. Let him speak, however, for himself (p. 704):

"Without troubling ourselves to repeat reflections once again that are made elsewhere, it is yet necessary to affirm that conditions for the cure of syphilis depend much more upon the disease itself than on the specific treatment, although in many cases the omission of this last is influential as to the prolongation of accidents, in which, indeed, we have to recognise one of the most signal characters of syphilis when it is left to its own course."

Dr. Marques does not consider the iodide of potassium to be an anti-syphilitic at all, or at least not in the same sense as mercurials, or, to speak plainly, it is not as a "specific" against syphilis that he uses it, for it is far from being able to secure, in the same manner as the mercurial preparations, "the prolonged suspension of the syphilitic symptoms, or the cure that sometimes appears to result from the use of mercurial preparations." Unless for some pressing urgency, he begins with small doses of this iodide, 30 centigrammes or so, to be increased to 1½ gramme during the day. Never more than 2½ grammes are to be exhibited during the space of twenty-four hours.

Dr. Marques does not strongly recommend the use of mercury in the stage of primaries, excepting in the following conditions: when there presents itself a persistent induration, or a very rebellious ulceration, accompanied with what Mr. Henry Lee has called adhesive or specific ulceration, or when there is a repetition of the ulcerative process in the primal seat of chancre, which seems to indicate that the coming syphilis has great persistence and intensity. In other circumstances he approves the expectant practice of Diday during the primary stage, which may be advantageously used in fortifying the patient. He is an advocate for the use of mercury in small dose or proportion to be extended over a lengthened period of time. He considers the proto-iodurct as "generally preferable, and of a most happy result when mercury has to be taken by the mouth." He approves of the use of the mercurial bath; but, after all, he adds his opinion to that of Bazin, "when the syphilitic symptoms do not yield to one preparation of mercury, they are very apt to do so to another."

After discussing various preparations, he says: "Very seldom selection will be made of others than the chlorurets, iodurets, and the metallic mercury" (the oxide).

In answer to those who profess that mercury is capable of producing not dissimilar evil effects to syphilis, he says (p. 661):

"In conclusion, we shall observe, in answer to the antimercurialists, that, even if the thing were proved that mercury affected

the bones, and thus determined lesions that were liable to be mistaken for syphilis, not even then could such results be judged of or possibly be confounded with what we know of syphilis. Analogies of site, in various conditions, are so little profitable as means of diagnosis, that it is mostly to such we owe great errors, such as that which has entangled and confused syphilography for so many successive generations before the revival of dualism. And, as well said by our compatriot, Sr. D. B. A. Gomes, in his 'Elements of General Pharmacology,' "diseases are not to be termed special from the organs they are seen to affect, but they are special from their mode of affection, and by the diathesis that is their motive;" and in this consists, as it advances, the true doctrine of pathological specificity, which cannot fail to suggest a certain therapeutical formulary consisting of a proper medication by certain medical agents which we are taught by experience to prefer for the cure of these specific affections.

ART. II.—*Traité de la Lithothlibie: Nouvelle méthode d'écrasement des calculs vésicaux.* Par J. J. DENAMIEL, &c. Paris, 1868. Pp. 104.

On Lithothliby: a New Way of Crushing Stone in the Bladder.

THIS little book is the production of a country surgeon in France, whose experience in the treatment of stone has been very restricted. He commences with an amusing and naïve description of the neglect which his brochure met with when submitted to the Académie des Sciences, and of the incomprehensible laziness of the reporters to whom it was referred by that learned body, some of whom utterly refused to take any notice of it, and others promised, but never performed.

Then follows an appreciation of the value of lithotomy, lithotrity, and "lithodialysis," with the unquestionable conclusion that all are of dangerous execution, and that only a few surgeons have the experience necessary to give them confidence in performing the usual operations. M. Denamiel then states and illustrates the three propositions on which the method which he recommends is founded, viz.: 1. There are many stones so soft as to be crushed by the least pressure. 2. Alkaline waters have the property of softening stones, disintegrating them, and rendering them friable. 3. The fundus of the bladder, whither free calculi gravitate, and where encysted calculi are usually situated, is accessible to the fingers introduced into the rectum, and the sound passed into the bladder will furnish a point of counter-pressure to the fingers to crush the stone.

It is to this procedure that our author gives the name of "Lithothlibie." He lays down minutely the supposed indications and contra-indications, describes the operative proceedings, and lays down

rules for the choice of the proper alkaline waters which are to be re-recommended in each case. Finally, two cases are related in which small stones were treated successfully in childhood by crushing them between the finger and the sound.

We perfectly admit the feasibility of this operation in childhood —of which, indeed, Mr. T. Smith recently published an example— and before undertaking lithotomy in a case of a small stone in a child, it may perhaps be desirable to endeavour to crush it in this way, though we can hardly say that the evidence is sufficient to justify a definite opinion of the superiority of the practice. In adults, and in stones of any considerable volume, the question will obviously occur—supposing that the stone and the lower wall of the bladder can be embraced in the way described, between the finger and the sound, which of the two is the more likely to be crushed? It would seem, to say the least of it, quite as probable that grave injury would be done to the bladder, as that the stone would yield, even assuming that the stone could be so caught; but our own experience leads us to believe that this could only rarely be done in the adult bladder, at least, we have often examined calculous patients per rectum without being able to fix the stone. Nor does M. Denamiel's experience reassure us on this point. Again, it is only in friable stones that the plan could be successful, and, according to our author's own admission, lithotrity generally succeeds in such cases; whilst, if the friable stone should conceal a hard nucleus (and this is very common), it would be found impossible to crush it with the fingers, while the lithorite would easily pulverise it.

On the whole, we believe that the plan will sometimes succeed in childhood, and it may be worth trying in more advanced life, but we do not entertain any great hopes of its success. In females it would appear more feasible than in males; but here again the motives for its adoption are less cogent.

ART. III.—*Lectures on the Preservation of Health.* By CHARLES A. CAMERON, Ph.D., M.D., &c. &c. London, 1868. Small 8vo, pp. 182.

The above title does not convey the exact nature of this small treatise. In the preface a more correct indication of its scope is conveyed by the expression "a course of lectures on public health," for indeed the subject of the preservation of health is not commensurate with that concerned in the examination of the conditions of public health with which this book is occupied.

The lectures were delivered before the Dublin Royal College of Surgeons, and, as it seems, before a mixed audience, including ladies.

They consequently deal with many rudimentary, chemical, and medical facts, and may be read with advantage by non-professional persons. However, notwithstanding their popular character, they are well deserving also the study of medical men, as conveying a good digest of the teachings of public hygiene,—a subject daily acquiring increased importance and consideration.

It is satisfactory indeed that the proverbial truism, that "prevention is better than cure," is now gaining recognition as applicable to communities as well as to individuals. Legislation on matters affecting public health during the last thirty years has been marvellously prolific; but unfortunately the measures enacted are as marvellously heterogeneous, and in several instances abortive, or nearly so.

Since 1848 Dublin has been brought under the control of some dozen Acts of Parliament intended to improve its sanitary state; and for the last six years a very satisfactory sanitary staff has been in operation. Dr. Mapother is the medical officer of health, and the author, Dr. Cameron, the city analyst. Much has been effected by this sanitary organisation, but more remains to be accomplished. The death-rate has not been reduced in Dublin; and it is an extraordinary fact that the number of births in the city is less than that of the deaths. Dr. Cameron attempts a partial explanation of this objectionable state of things (p. 175). The actual death-rate is not so high as in several English towns, being 27 in every 1,000 of the population; and even this figure is rendered much higher than it would otherwise be by the large proportion of deaths in public institutions for the sick poor. Thus "no fewer than 31 out of every 100 deaths occurred in the hospitals, workhouses, lunatic asylums, and prisons," a circumstance to be duly taken into account in contrasting the mortality of the Irish capital with English towns.

The first lecture is introductory and historical. It contains a few paragraphs open to criticism. For instance, the following propositions are too broadly put:—"Those who devote themselves to the study of public hygiene require a more extended knowledge of science than the mere physician or surgeon, who occupies himself solely with the curative treatment of disease," and "there are thousands of medical men who . . . . . do not understand the use of the microscope, could not perform the simplest chemical analysis, nor properly explain the principles of ventilation." Such statements we consider loose—ill-advised—not capable of substantiation, and unjust to practitioners.

Elsewhere, in other lectures, dogmatic assertions are made, as if incontestable. We do not quite apprehend the fact as stated, that "the mobility of the body is chiefly due to the large amount of water contained in it" (p. 21); nor, again, do we subscribe to the doctrine that goître and cretinism "are produced by the use of

water containing large amounts of lime and magnesia salts." We are personally well acquainted with a limestone country, where the water is strongly impregnated with such earthy salts, and yet goître is well-nigh unknown; and, on the contrary, with another district, also of millstone grit and red sand-stone, in which goître is very prevalent. How desirable is it to moderate dogmatic assertion!

Great attempts have been made to shake the confidence of the public in the protective power of vaccination, and just now, when the recent compulsory Act is being rigorously applied, many foolish people, including, we are sorry to say, two or three medical men, are exposing themselves to prosecution by their obstinate refusal to have their children vaccinated. Dr. Cameron furnishes an argument for its efficacy which cannot be gainsaid or too widely known. It is that by careful vaccination, carried out thoroughly by the dispensary and Poor-law physicians in Ireland, smallpox has been stamped out from the country. "In the decade ending 1841 no fewer than 58,006 persons died in Ireland from smallpox, and many thousands suffered disfigurement. During the next ten years the number of fatal cases of the disease fell to 38,275, and from 1851 to 1861 the number decreased to 12,727. In 1866 187 deaths occurred, and last year only 20 persons fell victims to this disease. During the current year (1868) I believe no cases of smallpox have occurred in our country" (p. 158).

The several lectures following after the introductory one are devoted to the consideration of the hygienic relations of water, of the atmosphere, of ventilation, of exhalations from manufactories, &c.; of food and diet, and of the adulteration of food; of digestion and indigestion; of ablutions, clothing, and exercise; of the sanitary condition of towns and dwellings; of contagion and disinfection; and, lastly, of vital statistics and sanitary organisations.

Under these headings a large amount of useful information is presented; and although, as stated before, there is much rudimentary matter with which every tyro in medicine is familiar, there are also, on the other hand, many notes and memoranda worth attention not met with in ordinary treatises on medicine and therapeutics.

Dr. Cameron rightly judges that if sanitary reforms devolve naturally upon local authorities, a great central organisation is wanting to guide, assist, and sometimes to force those local powers into action.

As public analyist for Dublin, Dr. Cameron receives a salary, and for each analysis made for the public a fixed fee of half-a-crown—"a purely nominal charge, merely intended to render the transaction *bonâ fide*." He points out how usefully his appointment has operated in suppressing adulteration and the sale of unsound meat; and he ends his lecture on food by advocating the abolition of all

private slaughterhouses, and the erection of public abattoirs in their stead, so that, among other advantages, meat could be properly inspected before being introduced into the market.

We are also glad to find him an advocate for making the registration of births and deaths a medical duty. The present system, particularly in country places, is, he asserts, a failure, and a waste of public money.

At the present moment, when the institution of public dispensaries for the metropolis, chargeable to the rates, is much mooted, it is satisfactory to read Dr. Cameron's account of the Irish poor law medical service, and of the dispensaries administered under its management. It consists of 4 medical inspectors, 788 medical officers, 39 apothecaries, and 97 midwives. There are 716 dispensary districts, and 1042 dispensaries. The dispensary physicians must be twenty-three years of age at the time of election, and must possess a medical, a surgical, and a midwifery diploma. Their election rests with the local boards of poor law guardians; a circumstance open to various objections, and one which the author suggests should be changed. One half the cost of the dispensary doctors (£120,000 per annum) is, at present, charged upon the Consolidated Fund, and half upon the unions. It will have been noticed, however, that by Mr. Gladstone's Irish Church disendowment scheme it is purposed to assign a portion of the spoil towards the maintenance of the public dispensaries.

Lastly, Dr. Cameron desires to have a principal medical officer of health for Ireland, with position and authority like that enjoyed by Mr. Simon in England. The "medical inspectors of the Poor-Law Commissioners of Ireland" are sufficiently occupied, in his opinion, and could not undertake the duties that would arise. One word in regard to these so-called medical inspectors in Ireland, to direct attention to the recent most inconsistent and improper official step, viz. that the medical (?) inspectors need not be medical men. It is time that this official novelty should be prominently brought before the profession, and be inquired into in Parliament.

Art. IV.—*Om Sveriges Folksjukdomar.* Af F. A. G. Bergman, M.D. Första Häftet, Rödsoten. Upsala, W. Schultz' Boktryckeri, 1869.

On the Endemic Diseases of Sweden. By F. A. G. Bergman, M.D. First Part, Dysentery. Upsala, W. Schultz, 1869. 8vo, pp. 114.

In one respect at least our Scandinavian colleagues are greatly in advance of ourselves; an adequate system of registration of disease,

for which the voice of the profession is now with great justice loudly raised in these countries, has for a considerable time been established among them. Since the year 1851, when the Royal College of Health began to publish its annual reports, this system has in Sweden attained a great degree of perfection, and of late years the data supplied to the college by the returns which every medical man in the kingdom holding an official appointment (and those who do not hold such appointments are very rare exceptions) is bound to make, have been utilised by the Brothers Wistrand in the comprehensive and valuable reviews of the morbility of Sweden from time to time published by them in the pages of the 'Hygiea.' Dr. Bergman appears to be about to make still larger use of the rich material at his disposal, and deriving his information for the years prior to 1851 with praiseworthy diligence from various sources, he has constructed an elaborate table, extending from the year 1748 to 1867, exhibiting for each year during that long period, at a glance, the mortality from dysentery, the quality of the harvest expressed in numerals, and the mean temperature at Upsala of the months of July, August, and September, being those in which the disease in question usually prevailed.

It appears that of all the epidemics which since the last devastation of the plague have visited Sweden, none, not even excepting smallpox, cholera, or typhus, has occasionally caused such an excessive mortality as dysentery. This disease, moreover, presents these peculiarities, that in contrast to both typhus and cholera it has chosen most of its victims from among children at an early age, and that unlike cholera in particular, it has predominated in the rural districts, especially in those where the population has had to endure severe privations in its conflict with a niggardly soil. In a sanitary point of view too, the study of its etiology is of great importance, as tending to throw some light, however obscure, upon those hygiènic defects which unfortunately prevail in Sweden as well as in other European countries, among the rural population.

The first mention of dysentery as an epidemic in Sweden is in the year 1452.

"Since that the severest and most widely spread invasions have been those of the years 1597-98, 1649-52, 1697-98, 1736-43, 1749-50, 1770-75, 1779, 1781, 1783 and 1785, 1808-11 and 1813, 1818-19, 1838-39 and 1853-59. And it is remarkable that several of these epidemics occurred contemporaneously with extensive diffusion of the disease also in other parts of Europe, as in the year 1652 in Denmark and Ireland, in 1736 in Holland, in 1739-41 in Thuringia, in 1743 in England and Italy, in 1749-50 in France, in 1779-83 in France, Belgium, Holland, England, Germany, Denmark and Finland, in 1807-11 in Germany and Switzerland, in 1818 in Ireland, in

1854-57 in certain districts of Southern Germany, Switzerland and France." (p. 20.)

The epidemics of dysentery seem to have been more frequent in Dalecarlia than in any other province in Sweden. Ahlstedt, Blom, Gravander, and other writers, look upon the disease as endemic in that district. Dr. Magnus Huss[1] says: "The only place in the kingdom where dysentery occurs endemically, is in this region." Latterly, however, Dalecarlia seems to have lost this unenviable pre-eminence. Thus J. M. Bergman, in his official report to the College of Health says in 1839: "During a decennium dysentery has not appeared [in Dalecarlia] except in 1834." It is true, that in 1839, the province was visited by a destructive epidemic, to which 2043 fell victims, and that the disease was again epidemic, with 475 deaths, in 1857, but during the present decade dysentery seems to have occurred only sporadically in Dalecarlia.

Wermland, Halland, and parts of Scania, are also mentioned as localities frequently visited by epidemic dysentery. Norrland and Gottland, on the contrary, enjoy comparative freedom from its invasions.

As to the *season* at which dysentery is met with, a tabular synopsis given at pp. 11—19, and extending from the year 1452 to 1864, shows that the epidemic occurs usually in July or August, lasting often until late in the autumn; sometimes it continued sporadically during the winter, but almost always, at least on the approach of spring, entirely ceased. Occasionally it has manifested itself even in June, or still earlier. It is remarkable that this has occurred chiefly in the more northern provinces, as in Dalecarlia, Wermland, and Helsingland. Sometimes the disease has broken out in winter or early in spring, but it then never attained any extent, but soon ceased. It seems probable that in such cases it had been in the preceding autumn more or less prevalent in the locality.

It may be observed here, that *sporadic* cases occur yearly at any season, though in greater number during the summer and autumn months. The tables of the College of Health exhibit the maximum of cases in August, and in the next place in September, and the minimum in April, and after that in May.

The table of the mortality from dysentery in the several districts very distinctly shows in some instances a progression of the disease from place to place, both month by month and year by year. Sometimes the disease ceases during the intervening winter, to return in the following summer, or, if circumstances should be unfavorable to its

[1] 'Om Sveriges endemiska Sjukdomar.' ('On the Endemic Diseases of Sweden,') Stockholm, 1852. See a review of this work in the 'Dublin Quarterly Journal of Medical Science,' for November, 1852, p. 425.

development, after the lapse of one or two years, still evidently constituting one great "dysenteric period." Such was the case in 1783 and 1785, when it again broke out with great violence, after having been, if not entirely absent, at least much milder in the cool summers of 1782 and 1784; also in 1808-11 and 1813, having diminished considerably during 1812, &c.

The *morbility*, *mortality*, and *pathological character* of the disease may exhibit considerable variations, not only in different epidemics, but also in the same epidemic, whether we consider the latter with reference to its commencement, progress, or termination, or to its occurrence in different places and among different classes of people. Thus in a table of the comparative morbility and mortality from dysentery in 1854 in six different localities, the percentage of fatal cases varies from 29·5 in Skaraborg to 10·5 in Ostergötland; while in a similar table for 1857, embracing fourteen different localities, the fatal cases vary from 37·8 per cent. in Bohuslän, to 3·6 per cent. in the city of Stockholm.

Some remarkable examples of the tendency of dysentery to spare the towns are given. This peculiarity is clearly exhibited in a table of the comparative mortality of dysentery, cholera, and smallpox in town and country given at page 40 :—

	In the towns.	In the country districts.
Died of dysentery in the years 1851–60 . . .	1,268	24,805
„ cholera in 1834 and 1850–59 . . .	21,253	10,626
„ smallpox in 1847–60	2,923	13,850
Of 100 fatal cases of dysentery, were . . .	5	95
„ „ cholera „ . . .	67	33
„ „ smallpox „ . . .	17·5	82·5
The proportion between the numbers of inhabitants in 1850 was	10·1	89·9

A table of the comparative mortality from dysentery, and from some other diseases for the quinquennial period 1861-65, is next given :—

Died in 1861-65, of—	In the towns.	In the rural districts.	Of 100 deaths there occurred in—	
			The towns.	The rural districts.
Dysentery . . .	180	2335	7	93
Ague	58	891	6	94
Typhus	1759	4106	30	70
Diarrhœa	856	480	64	36
Of 100 inhabitants belonged to . . .	...	...	11·3	88·7

The author proceeds, in the next place, to consider the morbility, mortality, and pathological character of dysentery in the several classes with reference to age, sex, nationality, and occupation.

The great preponderance of *children* among those carried off by dysentery is a subject which, in Dr. Bergman's opinion, has not sufficiently attracted the attention of writers in other countries, and he quotes a number of authorities, at various dates between the years 1739 and 1860, which fully establish the fact. The aged and the indigent also supply numerous victims of the disease.

As to the influence of *sex*, after making allowance for the greater mortality from dysentery among males which often takes place in war, and for the greater proportion between men and women in the country, where the epidemic chiefly prevails, than in the kingdom at large, it does not appear to be great. Still the author concludes that the mortality from the disease is decidedly higher among males than among females. He mentions, however, some remarkable exceptions to this rule.

With respect to *occupation*, it follows almost as a corollary from what has been already stated as to epidemic dysentery usually raging most severely in the country, that the agricultural population is most exposed to this disease.

Several pages are devoted to quotations from various writers, commencing with Benedictus Olaui, Stockholm, 1578, descriptive of the changes in the *pathological character* of the disease which often occur in the course of epidemics. The principal varieties have been the inflammatory, the adynamic, the catarrhal, and the diphtheritic. Among the severer complications we have diphtheria of the throat and mouth, suppression of urine and albuminuria, "on which the dropsical accumulations in the subcutaneous areolar tissue and the peritoneal cavity, so often occurring as sequelæ, seem to depend" (Græve), retention of urine, and lastly, "spots over the whole body" (? petechiæ), which were remarked by Westberg (1806) "in many in an advanced condition of the disease."

Dr. Bergman next directs attention to the close connection between diarrhœa and dysentery, diarrhœa being usually contemporaneous with or preceding epidemics of dysentery. Physicians frequently report that the prevalent diarrhœa gradually assumed a more serious character, became bloody, and finally passed into dysentery.

"These diarrhœas contemporaneous with dysentery are undoubtedly referable to two different classes; on the one hand, they may be the ordinary catarrhs of the colon occurring in summer, whose epidemic development is promoted by the same physical conditions which favour dysentery (high summer temperature, &c.); on the other hand, many of these 'troublesome' or painful diarrhœas are to

be considered as abortive forms of dysentery, in the same way as the so-called choleraic diarrhœas may be regarded as such forms of the true Asiatic cholera. Often, too, it is stated, that almost every one during the more severe epidemics of dysentery had some feeling of the disease, most frequently in the form of diarrhœa, with more or less griping and tenesmus. For example, in 1806, Westberg wrote from Halland: 'Such was the state of the affected districts, that all the inhabitants had premonitory sensations.' "—P. 73.

As to the origin and mode of extension of the disease, certain littoral localities have not unfrequently been its starting points, and its dissemination has been clearly traceable to contagion. On the other hand, persons coming from infected districts have, in numberless instances, not conveyed the disease; and various reports show that the epidemic has suddenly appeared in different places at once, without any connection being discoverable between them.

With respect to the possible influence of atmospheric pressure, of the winds, and electricity upon the epidemics of dysentery, it is impossible, from the observations available, to draw any conclusions as to the etiology of the disease.

Hot summers, poverty, and scarcity and unwholesomeness of food have each a marked influence in predisposing to epidemic dysentery. Still all may be present, and the disease may not prevail. Similar discrepancies with respect to other occasional sources of the malady indicate that much still remains to be done in the investigation of its etiology. Meantime, Dr. Bergman has contributed a most elaborate volume on the past history of this scourge of his country, and has laid a firm foundation for future researches. We trust that life and health may be spared to him to enable him to complete the series of works he seems to have proposed to himself upon the endemic diseases of Sweden. Should he carry it out upon the exhaustive plan of which we have a specimen in the work before us, he will have earned the thanks of his fellow-countrymen and of the profession throughout the world. In any case, he has set an example well worthy of imitation in other lands.

ART. V.—*Fondements et Organisation de la Climatologie Médicale.* Par M. le Docteur ÉD. CARRIÈRE. *Paris:* 1869. 8vo, pp. 93.

THIS volume, small in respect to size, is also limited in the extent of tangible, positive information. It sins, as too many French books do, by diffusiveness; and if the reader should look for the basis and organisation of medical climatology, promised by the title, he would be sadly disappointed.

The basis of climatology, so far as here shown, consists in the recognition of the fact that meteorology is not climatology; that the former science is in itself of small moment medically; and that to give it utility it must be worked in connection with observations on individuals and groups of individuals under various conditions of life, occupation, habitation, soil, and various surrounding circumstances. Again, that meteorological observations be coupled with others on the effects of atmospheric states, as well on the sick as on the healthy, in all climates, and under every geographical and geological peculiarity.

The representation of the distribution of disease on the surface of the globe, and in different geographical areas, he would call pathography; and he much desires the construction of a climatological map of France, the joint work of the state medical officers distributed throughout the empire. To compass this object he advocates the formation of a central society of medical climatology to direct operations, to collect and arrange results, and to be a centre of instruction and information on the matter, providing for the diffusion of knowledge by periodic publications and by lectures.

The author is neither copious nor very accurate in his knowledge of the climatology of England, a country which he considerately enough remarks "deserves not to be forgotten." He tells us we are intrepid explorers, running over the world in search of places of resort, and exhibiting particular wisdom in discovering the merits of Cannes and Pau. But (he adds) we have "only two climatological establishments: one in the waters of the ocean, the other on British territory; the latter, Penzance, of doubtful value; the former, Madeira, of incontestable merit. But there (in England), as in Germany, the subject languishes from the want of observations, and from the failure in deducing practical results. English physicians are unable to pursue the study of climatology in their native land; to cultivate it with success, so far as their taste may lead them, they need emigrate along with their patients."

Here is an odd admixture of French ignorance and of apeing at superiority. We question much whether the author has ever read a single English book relating to climatology, or if he is at all acquainted with the literature of the subject in this country. But we suppose we must be grateful for not being quite forgotten among the nations of Europe in his superficial survey of their merits in climatology. Notwithstanding, however, our national and scientific ignorance, we venture to believe that Dr. Carrière might, in any future treatise on climatology, render his knowledge of the subject much more precise and full if he would condescend to learn our barbaric tongue and study some of our books.

As his treatise at present stands, we do not conceive it will con-

tribute any material information to any moderately instructed English medical practitioner. At the same time, we will give him credit for the scheme of a society whereby an organised system of observations may be arranged and carried out in a country, with great advantage to sanitary science, and to placing climatology on its proper basis.

Art. VI.—*Gheel, the City of the Simple.* By the Author of 'Flemish Interiors.' London, 1869. Small 8vo, pp. 195.

This is a very pleasantly written popular account of the insane colony of Gheel, in the campine of Belgium. In the present state of agitation of the public mind respecting our increasing population of lunatics and the way in which provision is to be made for it, a description of the rise, progress, and present state of the remarkable Belgian institution cannot fail to be read with interest. Moreover, in the case of the small work before us, the interest of the reader will be bespoken for its subject-matter by reason of the manner in which it is presented to him, apart from considerations touching the positive value of the example of Gheel, regarded as the embodiment of a system of treating the insane, unique in its history and character, and largely successful in its operation.

At the same time it is necessary to state that the author views Gheel with intense *couleur de rose*, discovers no blemishes in it, and recommends it as the fitting asylum for all kinds of lunatics. He writes like an enthusiastic non-medical man, attracted by all the surroundings of the place, as well as by its romantic history, but is unable to penetrate deeply into its purely medical conditions, or into all its relations to the insane mind, as a curative agency.

He believes himself to have made a discovery of value, and at once invites the public to make use of it. He supposes he reveals a "secret," after which the friends of the insane must long have yearned. He accidentally hears, during a journey in Belgium, of the wonderful insane colony, and after one disappointed attempt to visit it, succeeds in a future year, and presently returns home to describe this supposed *terra incognita*. This representation of Gheel, as a hitherto unknown region, will cause a smile to medical men, who have had description upon description of the place since the time of Esquirol. Nevertheless, among the general public it will probably bear the stamp of reality to no small extent; for, in England, Gheel has not been popularized by non-professional writers, and has probably not gained much notice.

To the author's want of medical knowledge, particularly with respect to the treatment of the insane, as pursued in our best asy-

lums, must be attributed the unfavorable contrast he draws between the system carried out at Gheel and that in force in our British asylums. He certainly informs us he has personally visited "those abodes of humiliation and misery (*i.e.* asylums) within a range including England, France, Belgium, Prussia, Austria and Hungary, Switzerland, Italy, and Spain." And, doubtless, within that "range" are many institutions too truly deserving the appellation he has employed; yet we must protest against its reckless general application to all the asylums in those several countries; moreover, the inference deducible, on the one hand, from the following sentence, is no nearer the truth with regard to the treatment pursued in well-ordered asylums than that on the other,—or the reverse, is with respect to the treatment as carried out in Gheel. The insane "need not [he writes] be subjected [in Gheel] to incarceration, restrictions, coercion, and, we fear we must add, violence, in order to bring them to conform to 'what is for their good.'"

Now, it is only necessary for an unprejudiced reader to peruse the author's own pages to discover that incarceration, that is, in the same sense as it only can be used in reference to properly managed asylums, viz., as implying seclusion within a building and its grounds, and occasionally within a room, together with restrictions, coercion, and, we fear we must add, violence, are resorted to in Gheel as much, and with respect to one measure, coercion, more than in the best reputed asylums he is so bitter against.

It must be admitted that we cannot point to a township like Gheel, with sane and insane commingled in almost every house, and that, particularly on first appearances, a lunatic asylum contrasts strongly with such a place by the aggregation of a multitude of lunatics within a limited area, and, for the most part, within the walls of one or more buildings, constructed for their special purpose. Yet when the details of classification and management are compared in the two cases, the divergence in their actual operations becomes much narrowed. There may be a close grouping of lunatics together in the asylums by night, but by day there is for the major part of them a wide distribution and large freedom. They are scattered through the workshops and day-rooms, or wander in the grounds, or work in the fields and gardens, and not a few roam the surrounding country, or make excursions to some neighbouring town or village, it may be, to see some gala, or to gaze at a show. Moreover, we apprehend the means for recreation and the scope for reading are quite as extensive, or even more so, than in Gheel. Further, it must not be forgotten that there are asylums in which the system of aggregation is still more surrendered. There are those possessing detached cottage residences; others having detached annexes in the shape of farms; and others, again, where some portion of their inmates are boarded out in the homes of surround-

ing cottagers. The mentioning this last plan of distribution, moreover, recalls the fact of very many insane being scattered up and down the country in cottage homes; and in Scotland this distribution is placed under such regulations and supervision, that it affords those subjected to it most of the advantages claimed as the special inheritance of Gheel.

Now, those cases in which a wider distribution and more extended liberty are accorded in the best asylums of Europe are precisely of the same character, psychologically, as the ordinary lunatics found in the streets of Gheel, and they enjoy, in fact, nearly the same equality in point of liberty with these latter. The asylum grounds are limited, and so is the lawful area for the insane dwellers in Gheel. The latter place is wider, indeed, and more diversified in its dwellings, in its occupants, and in the general conditions of existence; but there is a cordon drawn around each of the several districts into which that area is subdivided, and that cordon is equivalent to the boundary of an asylum in all that concerns the insane inhabitants within its area.

There remains, however, another class of patients, in whose management the divergence between Gheel and ordinary asylums becomes reduced to a vanishing point. These patients are such as cannot have the same amount of liberty accorded to them; they are untrustworthy, violent, or in a state of sickness or of mental imbecility. The weak part of the Gheel system formerly was that it made no provision for such patients; they were rejected as unfit, or dealt with exceptionally, and often very objectionably. But at length a better policy has prevailed. And what is this? The erection of a central building, or infirmary, partaking all the features in construction and management of an ordinary asylum, with common rooms, dormitories, single rooms, and a staff of attendants under the direction of a resident physician.

So much for the question of "incarceration" as between Gheel and asylums on the usual model. But it is more difficult to understand the author's assertion that restrictions and coercion are not resorted to in the Belgian insane colony. As for restrictions, they come before us in every passage treating of the organisation and management of the colony and its inhabitants. Excluding those sequestrated in the infirmary, the other lunatics are subjected to rules, regulations, and discipline, as real and effectual, if not identical in kind, as those enforced in asylums. Fixed hours are required, stated limits assigned to the rovings of some at least of the lunatic villagers, and a perpetual surveillance exercised by the *gardes-des-sections*. The division of the colony into six zones is assuredly as rigorous a system as pertains in the classification and distribution of patients in the wings or wards of any ordinary asylum. In the first or central zone are disposed those whose moral and physical

condition requires special and constant supervision; in the second are placed the idiotic, violent maniacs, and paralytics; in the third are the epileptic; and, lastly, in the fourth—consisting of the most distant hamlets, and which, remarks the author, "must be a mild form of pandemonium—are delegated the violent, the furious, the dangerous, and, in short, all who require special management and enforced discipline."

This term, "enforced discipline," is the synonym for considerable seclusion and mechanical restraint. Recourse to this last is, perhaps, unavoidable under the "patronal system," and will, in the minds of most British psychiatrists, be viewed as a lamentable weakness in that system. Of the 800 insane residents in Gheel, 68 were, at the time of the writer's visit, subjected to coercive measures. Strait-waistcoats are stated to be abolished, and camisoles are not in request, but anklets, fastened together by a slight steel chain, and a sort of handcuffs attached to a belt around the waist, are the mechanical means of restraint that prevail. Resort to such measures implies nothing less than imperfect supervision, and shows where, and in what cases, the "nourricier" system fails.

After all, a comparative review of the condition of lunatics in Gheel, and in well-ordered asylums possessing ample space and diversified and scattered buildings, appears to prove that it is not so dissimilar in the two as might at the first blush be supposed to be. However, at all events, the example of Gheel is of high value if it only show how large a number of insane persons in a chronic state may be allowed to intermingle with their fellowmen, without injury to themselves or others, if only placed under intelligent control with the added supervision of a superior and properly instructed medical officer. It will, as an example, effect a notable reform, if it lead to the conviction that the aggregation of lunatics in large receptacles is an error and an evil—an error in policy and in respect to economy, and an evil both to curable and incurable patients; to the former by merging them in a surrounding mass of chronic insanity, and subjecting them to an unsuited *régime* and routine; and to the latter by unnecessarily cutting them off from the conditions and surroundings of ordinary life, and from the interest and sympathy of relatives and friends.

The ordinary medical reader will derive much pleasure and instruction in this lively notice of Gheel, but it will convey little information to the special practitioner in lunacy who would desire an intimate knowledge of Gheel in its minuter details as a refuge for the insane.

ART. VII.—*Morbid Conditions of the Throat in their Relation to Pulmonary Consumption.* By S. SCOTT ALISON, M.D., &c. London: 1869. Pp. 61.

THIS little brochure will be read with interest and instruction as being the production of a physician of long and large experience in the subject it deals with. It must, at the same time, be confessed that it presents little that is new or unnoticed by every careful observer of disease.

Throat ailments are, in the author's opinion, seldom or never true precursors of phthisis, and the addition of "important throat affections of pulmonary consumption adds seldom to the danger of the patient, but exposes him to grave inconvenience." He, moreover, regards laryngoscopy, when too specially pursued, as a cause of concomitant chest disease being overlooked, and the whole illness referred to the throat affection.

The simulation of consumption by throat diseases is, however, the principal subject of the essay. He passes under review the ordinarily recognised affections of the pharynx, larynx, and trachea causing cough and other general signs of phthisis, adding, indeed, one morbid condition not so well known, viz., "constriction or narrowing of the trachea immediately above its bifurcation.....This narrowing gives rise to difficulty in inspiration as well as in expiration." And, apparently regardless of the active dispute prevailing respecting the causes of emphysema, he adds naïvely: "It is this condition of narrowing which so frequently leads to emphysema of the lungs—a state occasionally associated with tubercle. The expiratory effort is opposed by the obstruction offered to the column of air in course of expulsion, and the tender walls of the air-vesicles give way, dilate, coalesce, and give rise to" the symptoms of asthma. The pathological nature assigned to the black particles occurring in the spectrum derived from the tracheal glands, as being organic productions, carbonaceous corpuscles secreted as such, lays claim, we think, to little more attention than the simple theory of emphysema put forth.

However, whilst the author keeps to facts derived from clinical observation, he may be safely followed, and several excellent lessons in the differential diagnosis of phthisis and throat affections deserve to be borne in mind. For instance, "venous murmur and basic blowing" are, in Dr. Alison's experience, rather phenomena of the anæmia of some throat affections than of phthisis. Again, the absence of "an interrupted or divided friction-like sound or rhonchus" at the apices of the lungs is a very valuable piece of negative evidence of the non-pulmonary tubercular character of the malady.

This sound is "heard best above, between the scapula and the clavicle, at the scapular region, and it is sometimes most audible at the head of the humerus.....It is very inconstant; heard now, it may be inaudible in a few minutes. It may continue for days, then stop for hours, but to return with certainty, and remain with slight intervals until the tubercular deposit shall be absorbed or become softened, and give rise to cavernules and cavities." (P. 30.)

In the diagnosis of the constricted state of the trachea he principally relies on auscultation in the region of the suffering organ. The respiratory sounds are rendered high-pitched by it, and this alteration is most pronounced in the immediate locality of the constriction, although audible all over the neck. The best instrument for arriving at this diagnosis is the author's differential stethoscope, as this instrument obviates pressure on the neck, and allows the employment of its two limbs simultaneously or in succession.

Though dealing with throat affections, he makes no attempt to distinguish or to describe those many lesions of the larynx and adjoining parts, which the votaries of the laryngoscope have so industriously made out as possibly existing. At the same time, however, he pronounces it incumbent on the practitioner to employ the laryngoscope.

The chapters on treatment are sufficient in direction and detail, but do not offer material for extract, or calling for special remark. Considered as addressed to the profession, this book must rank as an isolated chapter in the history of consumption; and, so far as the novelty of the information contained in it is concerned, it might have been compressed within the bulk of an ordinary communication to a medical journal.

ART. VIII.—*Companion to the last Edition of the "British Pharmacopœia," &c., with Practical Hints on Prescribing.* By PETER SQUIRE, F.L.S.,&c. In 8vo. Seventh Edition. London. 1869.

THE arrival of a work as the seventh edition is an argument for its need, and for its having satisfactorily supplied that need. The work before us has attained to this unusual position, and consequently its plan and purpose, and mode of performance, being all so thoroughly well known to the profession no extended notice of it is called for. A book of the sort, forming a sort of dictionary of drugs, would require a very pains-taking reviewer, to discover in it all the changes effected in the details of its composition in each successive edition; and so, out of consideration for the much oppressed class of reviewers, the author has graciously set forth in the prefaces

to the several editions the chief alterations, emendations, and additions he has made. From the preface to the seventh edition we learn that the sixth (of 2,000 copies) "disappeared in the short space of seven months. Several additions and improvements have been made; many of the former lately introduced in the new *Pharmacopœia* of the London hospitals, together with other new medicines brought into use since the last edition, and a tabular arrangement of the organic materia medica for the use of students, has been introduced; and there is also a condensed account of all the Spas of any note in Europe, which is placed as an appendix for the use of medical men" for ready reference.

This appendix of the Spas will be highly appreciated by those in whose behalf especially it has been written. The large and ever increasing number of Spas, particularly on the Continent, are difficult of remembrance, especially in respect of the medicinal qualities and chemical composition attributed to them; and in these days of far and wide travelling a medical man is apt to be puzzled by inquiries of patients for information respecting the merits of some outlandish place of resort for invalids. The brief memoranda Mr. Squire has contributed will just furnish so many particulars in regard to chemical composition and assigned virtues of the various mineral waters, as to enable the medical man to give an intelligent opinion when asked concerning them.

Art. IX.—*The Law to Regulate the Sale of Poisons within Great Britain.* By William Flux, Attorney-at-Law, &c. London. Small 8vo. 1869. Pp. 84.

This little book, from the pen of the solicitor to the Pharmaceutical Society, will make the several enactments relative to the sale of poisons better known and better understood. It is much more convenient to turn over the pages of a well-printed book like the present than those of a clumsily and coarsely printed Act of Parliament coming from Her Majesty's printers. The author shows what are deemed poisons, the formalities to be observed in their sale, and the persons licensed to sell them. Incidentally to his subject he notes the clauses of the Pharmacy Act relating to the registration of chemists, and to immunities and penalties attaching to them, and in the appendixes recites the clauses of the Arsenic Act, and those of the Pharmacy Act, subjoining the schedules. It thus will supply a useful handbook to all concerned in vending poisons.

A useful clause occurs in the Pharmacy Act to provide for a correct register of chemists and druggists by the removal of the names of defunct members requiring registrars of deaths, on receiving notice of the death of any chemist, to transmit a certificate of it to

the registrar under the Pharmacy Act. Our medical lists are sorely encumbered with the names of deceased members, and need a like constant expurgation. Indeed the retention of the names of bygone members of the profession has given opportunity for fraudulent personification, and the appropriation of diplomas by improper persons.

ART. X.—*Holden's Manual of the Dissection of the Human Body.* Edited by LUTHER HOLDEN, F.R.C.S., and JOHN LANGTON, F.R.C.S. Third edition. London, 1868. Pp. 604.

THE third edition of Mr. Holden's well-known work differs in no essential particular from the second edition, but the author gracefully acknowledges that the real work of preparing this edition has been done by his colleague Mr. Langton, one of the Demonstrators of Anatomy at St. Bartholomew's Hospital.

This is as it should be. As the seniors who have done good work, and established the character of their school, become too busy to revise the works on which their reputation is based, it is right that they should find among their junior colleagues those who can carry on their labours, and show themselves worthy to be their successors. No words of ours are needed to aecommend a book so well known as 'Holden's Manual of Dissections.'

ART. XI.—*Reports on the Pilgrimage to Juggernauth, Sanitary State of Pooree, Cholera, and Island Quarantine, in their relations to Pilgrimages, &c.* By DAVID B. SMITH, M.D., Sanitary Commissioner for Bengal. 4to, Calcutta, 1868, pp. 153.

THE subject of pilgrimages in connection with the development and spread of cholera in different localities in India is happily engaging much public attention at the present time. The first part of the work before us is occupied with a description of the holy city of Pooree, in the centre of which stands the great temple of Juggernauth, which has been so long the object of special adoration by Hindoos, and is associated in the mind of the European reader with the dreadful scenes of self-immolation that used to be enacted on high festival days, until they were suppressed by our government. But although direct self-murder has been righteously put a stop to, there is still a terrible sacrifice of human life ever going on there upon every assemblage of pilgrims to the famous shrine, in consequence of the great amount of sickness and death caused by the

temporary massing together of human beings in a locality festering with all the elements of disease in an unhealthy climate. The town is situated in latitude 20° north, on the coast of the province of Orissa, about 300 miles south-east from Calcutta, and nearly 50 from Cuttack. Its ordinary population is from 25,000 to 30,000. The number of pilgrims from different parts of India to this "city of Heaven upon earth," as the priests call it, where one sight of the mighty idol of their God is believed to obliterate all the sins of past life, in 1868 was estimated at about 50,000. Formerly, the number used to be much greater, as high as 100,000 or even 200,000 in a season. It is difficult to imagine a greater concentration of hideous fanaticism, misery, and wretchedness, than has occurred at these assemblages. Nothing can be in a sanitary point worse than the condition of the town and its environs.

"I have now," says Dr. Smith, "in a manner described the different parts of Pooree, and their peculiarities. From the above notes it will be inferred, that I consider the city a very filthy one indeed. It is almost difficult to say what is here most required in a sanitary point of view. Indeed, it is scarcely too much to assert, that everything is required very urgently. The causes of insalubrity are many, and they prevail widely. The houses are horribly overcrowded. The interiors reek with offensive human exhalations. There is no systematic conservancy, no drainage, no cleanliness. So far as I could observe, there is not such a thing as a pavement in Poore. The sources of water-supply have been polluted from time immemorial. For centuries every variety of nuisance has been committed throughout the precincts of the place; and it is now, in many parts, loathsome from the concentrated and persistent odour of fæcal matter in a state of decomposition. The cloacal abominations discoverable in the gardens, intensified by heat and moisture, are almost unapproachable. The gutters are equally offensive. On all sides the air is foul to suffocation, with emanations from garbage and putrescent débris. Words fail me as I endeavour to depict the whole truth. It is here that for ages millions of poor, broken-down creatures, have congregated for religious purposes, in the midst of numberless devitalising agencies."

From year to year, thousands upon thousands have perished miserably from cholera, dysentery, and fever, and every now and then terrible famines have added to the desolation of the district. In 1868, Dr. Monat drew up a valuable paper on 'Cholera among Pilgrims at Juggernauth,' in which he has pointed out the sanitary and hygienic measures that are urgently required. Dr. Smith concurs with most of the suggestions, and strongly presses on the Bengal government the necessity for prompt and efficient action in remedying the crying evils which abound, and improving the condition of the people. A lac of rupees is not too much to be expended annually upon this good work.

We pass on now to notice briefly Dr. Smith's remarks on cholera in its bearings on Indian pilgrimages, and on inland quarantine, as applicable to pilgrims. This is the most important section of his work. It takes the form of a running commentary on the suggestions and recommendations of the late Constantinople International Conference, in consequence of an expressed desire of the Secretary of State for India that the proceedings of the conference should receive careful consideration in India, and the direction of the government of Bengal, to our author to "indicate what measures should in my opinion be adopted to give effect to the conclusions of the conference." He is at issue with the commissioners on many of the leading points in their report respecting the history of the disease as it is observed in India, and he wholly dissents from them in regard of the restrictive measures which they recommend for its arrest when it has become developed. He maintains, in opposition to their very confident assertion, that cholera invariably spreads in a degree proportionate to the facilities existing for its extension, or to the migrations of man and the direction of human current, that such is certainly not in accordance with manifold experience in the East, and he quotes a multitude of instances in disproof of the allegation.[1] Commenting on the alleged risk of the disease being communicated by intercourse with the sick, he cites from the recent work ('Cholera in its Home') of Inspector-General Dr. John Macpherson, with whose experience his own entirely accords, the following remark :— "It is scarcely ever the case that the attendants employed to rub the extremities of cholera patients fall sick. The sweepers who remove the excreta, and the washermen who wash the clothes, never suffered, although there was little or no employment of disinfectants. I have never seen a medical officer or subordinate on duty in hospital attacked, although a native assistant of mine once succumbed during an epidemic, while he was engaged in treating from house to house. For a series of twenty-five years at least, only one resident medical practitioner has died of the disease in Calcutta." Sir Ranald Martin uses very similar language in the second edition of his standard work, 1861.

On the subject of quarantine restrictions by land for the prevention of the disease, or arrest of its progress, Dr. Smith thus sums

[1] The experience of the pestilence in Europe in respect of its diffusion over the continent, has been equally opposed to the conclusions of the Conference on this point. In regard to our own country, the following passage from the article on the 'Geography of Epidemic Cholera in 1866,' in the number of this journal for July of last year, may be aptly quoted :—"We seem to be as yet quite in the dark when we seek to account for the erratic or migratory movements of its course. Human intercourse alone, or communication with infected places—whether *internally* between different parts of England, or *externally* with foreign countries—does not suffice to explain the irregular extension or dissemination of the disease." p. 217.

up his conclusions after a minute examination of the evidence before him :—

"Were personal communication between individuals beyond all doubt the one and only way in which the influence of the disease could be extended, the most coercive quarantine might be regarded as a most justifiable and necessary preventive measure for adoption. But I have endeavoured to prove that the exact nature and peculiarities of the circumstances which permit of the creation of cholera foci are not within our knowledge; that they are not subject to the caprices and migrations of man; and that they are beyond the influence of quarantine; consequently I am of opinion that the recommendations of the International Conference on this point should not be allowed to have effect in Bengal.

"If the inhabitants of every encampment, and village, and town about which cholera is hovering, or in which it has appeared, were to be subject to restrictive detention, I see no limits to the hardships that would thus accrue."

This general question of quarantine in relation to cholera is evidently exciting more attention at the present time than formerly, owing doubtless, in a great measure, to the extravagant proposals and recommendations of the Constantinople Conference forcing the subject upon public discussion. Dr. Smith, alluding to the memorial which was addressed, nearly two years ago, to the President of the Privy Council (inserted in the number of this journal for April, 1868), urging the necessity for the appointment of a Royal Commission in this country for the examination of the whole subject of quarantine in its manifold bearings, expresses his strong desire that India should have a representative on such a commission in the person of a specially selected medical officer of Her Majesty's Indian Service.

In closing our notice of the present work we would express our strong desire that all official reports relating to the sanitary and hygienic condition and requirements of India should be regularly transmitted to one or two of the public libraries in London, as those of the Colleges of Physicians and Surgeons, for the general information of the profession, and also to a journal like the 'Medico-Chirurgical Review,' so that their leading contents might be made widely known to all who are interested in the progress of State medicine. Nothing shall be wanting on our part to keep the medical public at home and abroad acquainted with the contents of the valuable works which we know are from time to time being issued in the different presidencies of our Indian empire on this very important subject.

ART. XII.—*A Manual of the Operations of Surgery, for the use of Senior Students, House Surgeons, and Junior Practitioners.* By JOSEPH BELL, F.R.C.S. Edinb., &c. &c. 2nd Edition. Revised and enlarged. Edinburgh and London, 1869, Pp. 287.

WE are happy to welcome a second edition of this excellent little manual, of which we spoke, with the favour which it well deserves, on its first appearance only three years ago. Its rapid sale is, perhaps, the best testimony to its merits. Mr. Bell's is, indeed, an excellent practical treatise on the subject, and has the advantage of being written, not as many such manuals are, merely from dissecting-room demonstrations, but by a surgeon who has had a considerable experience of the real emergencies of operative practice. Both in the letter-press and in the illustrations this little volume is remarkably clear, full, and intelligible; although, for the sake of cheapness, the cuts are as simple as possible. The work will be equally useful to the student attending a course of operative surgery, and to the practitioner who wishes to prepare himself for the performance of some operation with which he may not have had the opportunity of rendering himself previously familiar. Without any invidious comparisons between Mr. Bell's book and those of his compeers on the same subject, we can conscientiously say that we do not know a better or more useful compendium.

ART. XIII.—1. *De la Virulence et de la Spécificité de la Tuberculose.* Par le Dr. VILLEMIN. Paris, 1868, pp. 32.

On the Virulence and Specific Character of Tuberculosis. By Dr. VILLEMIN.

2. *Les Effets de l'Introduction des Produits Septiques et Tuberculeux dans l'Economie.* Par le Dr. DUBUISSON. Paris, 1869.

On the Effects of the Introduction of Septic and Tuberculous Products into the Economy. By Dr. DUBUISSON.

3. *On the Influence of the Digestive Habit in the Production of Tuberculosis.* By D. J. BRAKENRIDGE, M.D., &c. Edinburgh, 1868, pp. 18.

4. *On the Climatic Treatment of Consumption and Chronic Lung Diseases.* By JOHN C. THOROWGOOD, M.D., &c. London, 1868, pp. 99.

WE have here grouped together four pamphlets, which have not very much in common, because they are all illustrations of a point to which too much attention cannot be called, viz., the extremely

transitional (and therefore uncertain) state of our knowledge of chronic phthisis. This much only appears to be certain, that the progress of science will consist in proving that we have hitherto been confusing several distinct morbid processes under one name, and that we shall by-and-by look upon the words "phthisis," or "consumption," as we do now upon "fever," "apoplexy," or "dropsy."

It would hardly be wise to pronounce decidedly upon M. Villemin's well-known facts and inferences, until we have the whole of Dr. Burdon Sanderson's account of the inoculability of tubercle, which is promised us in next year's report of the medical officer to the Privy Council. As far as Dr. Sanderson's experiments are yet published, they appear to give decided support to M. Villemin's conclusion, that tubercle is inoculable into the lower animals; but we must bear in mind Mr. Simon's caution, that tubercle (or something undistinguishable therefrom) is produced in the rodents by common inflammation. Dr. Dubuisson's experiments, on the other hand, which have been very carefully performed at Clamart under M. Villemin's control, lead him to conclude that real tubercle is never produced as a result of such inoculation, but mere lobular pneumonia. This difficulty can only be met by a more careful study of the differences in progress and anatomical characters between lobular pneumonia and ordinary, non-inoculated, tubercle in the rabbit; meanwhile, considerable support seems to be afforded by all these experiments, to Niemeyer's view, that tubercular granulations are invariably secondary to suppurative inflammation.

Dr. Brakenridge travels over more immediately practical ground. He starts from the proposition, that habitual non-digestion of fat is the condition favouring the development of tubercle (which he very illogically proves by showing that fat-digestion is defective in tuberculosis), and he therefore urges that the habit of digesting fatty matters is extremely important in preventing the formation of tubercle. A cold bracing climate, and abundance of outdoor exercise, will, he believes, prove most beneficial in the earlier stages of the disease, when the mild climate and warm clothing needed in advanced phthisis would be decidedly injurious.

Dr. Thorowgood goes still further, and brings forward cases to prove, that a cold, bracing climate, is often highly beneficial in advanced phthisis, not only in summer, but even in winter and spring. Such a climate is found in England at Malvern, Harrogate, Buxton, Scarborough, and Cromer; and abroad at Cannes, Hyères, Malaga, and in Egypt. Where there is tendency to frequent inflammatory attacks in the air-passages, the author of course recommends the milder climates of Torquay, Ventnor, and Bournemouth. There is a chapter at the end of this little book upon the diet of phthisical patients, which contains much valuable matter; and

the whole bears such evident signs of careful study of disease, that we are sorry to see it marred by a somewhat slipshod and obscure style. This is no doubt owing to the alterations and additions which have been successively made to the second and third editions of the work; and we should gladly welcome a fourth edition, which might be freed from this defect, and give us still further information on a subject of so much practical importance.

ART. XIV.—*Conservative Surgery in its General and Successful Adaptation in cases of Severe Traumatic Injuries of the Limbs; with a report of cases.* By ALBERT G. WALTER, M.D. Pittsburgh, 1867. Pp. 213.

THIS treatise is intended to prove the importance, in surgical injuries of the limbs so severe as to raise the question of the necessity of amputation, of a free division of the fascia and deeper parts of the limb. We leave Dr. Walter to state his own case in the following words:

"A limb, thus injured, should be placed, without delay, in its whole length, upon a well-cushioned sheet-iron or tin splint, and the detached pieces of bone, followed by resection of their shattered extremities—if splintered, very obliquely fractured, or extensively denuded of periosteum—removed. The *wound should then be freely enlarged* (slitting up skin and fascia), or, if no breach of surface should exist, but mere bruising and swelling be present, indicating the extent and severity of the injury, a *free* incision in the long axis of the limb should *at once* be made through dermis and fascia, which will liberate the muscles, blood-vessels and nerves, from the pressure of blood effused in the areolar meshes of the different tissues, and give relief to the subsequent swelling of muscles, and extravasation of serum, which always follow in the course of such injuries, with gangrenous destruction of the skin and fascia superadded.

"That such a practice, however, may be productive of all the beneficial results, it is imperative that the incision should be *deep* and *free*, reaching down to the bottom of the injured tissues, and extending, above and below, into sound ones. The cut thus made should embrace the whole length and depth of the limb, rather than be too short and shallow, not reaching beyond the injured structures, nor down to the bottom of the crushed muscles. That no harm can result from free and deep incisions, thus practised, will be admitted: phlegmonous erysipelas, for instance, being relieved by the same treatment, while great injury will follow their limited extent, as experience has proved." (P. 10.)

That the practice is, in well-selected cases, a judicious one, we believe there is no English surgeon who would deny; and we can

hardly say that we think it is sufficiently often followed in our hospitals. The incision should extend through the whole area implicated in the lesion, and less danger would follow from too extensive than too restricted a cut. The patient may well be under the influence of chloroform meanwhile.

Dr. Walter's pamphlet consists almost entirely of cases illustrating the effects of this treatment; and they seem not unfairly selected, since it appears clear that, in some of them at least, the surgeon would have done better to have amputated at once. We can hardly describe Dr. Walter's treatment as novel, but we have no doubt that it is less widely followed than with advantage it might be.

In claiming, however, Mr. Lister's practice as an evidence of the success of his treatment, Dr. Walter adds another to the many amusing instances of the influence of a favorite theory in blinding a man's visual powers. There can be little doubt that there are many cases of injury and operation in which the patient suffers because the wound has been too strictly closed; many others, on the other hand, in which closure of the wound and equable pressure much facilitate and quicken recovery. In the latter class of cases, Mr. Lister's plan of treatment meets with striking success, and it appears to us, to say the least, doubtful whether the good effects which follow the carbolic acid treatment do not depend mainly on the complete closure and equable support of the wounded surfaces. But to say, as Dr. Walter does, that Mr. Lister's treatment is successful because it prevents the agglutination of the lips of the wound, appears to us merely to prove that the author has had no experience of the treatment in question. The following are Dr. Walter's words:

"To the practice of *leaving the wound unstitched and open*, for the free escape of all subsequent extravasata and secreta—their edges, moreover, being prevented from agglutinating by the methodical introduction of the acid, as Mr. Lister directs, into all the recesses of the lacerated structures—and *not to the exclusion of air*, is, in fact, due the success which, under the garb of *carbolic acid*, he claims to have achieved." (P. 203.)

Ever since we have been practically occupied with the treatment of wounds, it has seemed to us one of the hardest problems in surgery to know when to close a wound, and when to leave it open. Dr. Walter's pamphlet is an evidence, and, as far as we see, a trustworthy one, of the benefits which follow from free exposure and free incision of the wounded parts. Mr. Lister's practice, as far as it is successful, testifies to the success of the opposite principle. The selection of cases is possibly not a matter for rule and theory, but must be trusted to individual tact. Meanwhile, Dr. Walter's pamphlet, though written in a style not very grateful to English taste, contains matter well worthy of consideration.

ART. XV.—*The Pharmacopœia of India.* Prepared under the authority of Her Majesty's Secretary of State for India in Council, by EDWARD JOHN WARING, M.D., M.R.C.P., Surgeon to Her Majesty's Indian Army, assisted by a Committee appointed for the purpose. London. Pp. 52.

A WORK like the present, however valuable and important to our *confrères* in the East, is little likely to be known in this country except through the agency of reviews and notices. Many of our readers may be ignorant of the existence of any pharmacopœia specially intended for India, although there has been one in use since 1844, when Sir William O'Shaugnessy framed the Bengal pharmacopœia. The introduction into this country of a British pharmacopœia with all its improvements, and especially the issue of the valuable second edition, constrained the revision and reissue of an official volume for use in India, more modern in character and more consonant with recent advances than was the old Bengal dispensatory.

The committee constituted for the purpose of bringing out the new pharmacopœia consisted of Sir Ranald Martin, Sir William O'Shaughnessy (Brooke), Alexander Gibson, Daniel Hanbury, Thomas Thomson, J. Forbes Watson, Robert Wight, and Edward John Waring, names in themselves a guarantee for sound information and good workmanship. These gentlemen determined to include in their quite new pharmacopœia two lists of substances; the one to be officinal, the other to be non-officinal; the latter to consist of such substances as have a repute among the natives, or whose properties are not so fully ascertained as to entitle them to a place in the other list. It was also determined to arrange the various vegetable products according to the position of their parent plants in the natural system of botanical classification. Such a step could only be justified by another, viz. that of converting the pharmacopœia into a text-book of materia medica and therapeutics. A pharmacopœia *per se* need take no note of the source of any substance used in medicine; it is more convenient for it to do so, no doubt, but it is not necessary, for it fulfils its function quite as well when it describes the marks whereby the authenticity and the purity of a substance may be ascertained as it does when it describes its source also. It was this feeling which prompted the abandonment of the old plan of giving processes whereby certain chemical products were to be prepared. In short, a pharmacopœia should look at results rather than processes or origins. But as the framers of this official codex had it in their eye that it should also serve as the basis for teaching materia materia in Indian schools, we may hold them justified in their procedure.

The volume contains all drugs officinal in the British pharma-

copœia, whether available in India or not, and certain other substances specially suited for Indian practice, which the committee have thought fit to include in the officinal list. It is to these last we wish to direct special attention, premising that to each officinal substance is appended a short description of its uses in medicine and of the doses in which it is employed. First come two species of Aconitum, the ferox and the heterophyllum. Of these the former constitutes the well-known and dreaded poison, the Indian bish or bikh, and contains a very large percentage of aconitia; it is hence useful as a source of that alkaloïd (which, indeed, is mostly prepared from it), and as an outward application, but is too powerful for internal use. The heterophyllum, on the other hand, contains no aconitia, and is esteemed by men of competence and experience to be one of the most promising indigenous antiperiodics to be found in India. Dr. Forbes Watson, Dr. Balfour, and Dr. W. J. Moore, all report strongly in its favour, but the necessity for employing such a remedy will now yearly diminish, owing to the remarkable success of our cinchona plantations in India.

Another plant found in India, and belonging to the Ranunculus family, is the *Coptis teeta*, the root of which would seem to furnish a pure bitter tonic, of some value in the treatment of various forms of diseases, as in convalescence from debilitating fevers and suchlike disorders. The *Tinospora cordifolia* or Gulancha is a plant extensively distributed over India, its roots and stem collected during the hot season, and cut into transverse segments, are sold in all the bazaars of India. Dr. Waring has used it in the treatment of intermittent fever, and has found it to prevent the accession of the cold stage, but it did not interfere with the hot one. He thinks it of most value for its tonic properties.

Another plant extensively used in native practice is the Indian barbery, an extract of which, called rusot, is chiefly employed. This has been used as an antiperiodic, and seems to have much the same effect as Warburg's celebrated fever drops. It is also used, in conjunction with other remedies, in the treatment of eye affections, especially those of the conjunctiva.

Narcotine, one of the products of opium, is also here officinal, most probably on the recommendation of Sir William O'Shaughnessy, who ascribes to it antiperiodic properties. This view has been confirmed by other writers: it has been little used in this country. The seeds of the *Gynocardia odorata* or chaulmaugra, a plant growing in eastern India, are also introduced into the pharmacopœia. They contain an oil which is esteemed useful in leprosy; it is given both internally and externally. The source of the officinal gamboge is here stated to be the *Garcinia morella*, but other species, as the *G. pictoria*, are introduced for their production of a similar gum-resin. The *Garcinia purpurea*, or Kokum butter tree, yields a totally

different kind of product; the oil of its seeds is a bland, concrete, yellowish mass, brittle and giving a cooling taste in the mouth. It constitutes an excellent substitute for a bland ointment, and would form a good basis for suppositories, &c.

Still, again, of a different character is the product supplied by the *Dipterocarpus laeris*, the gurjun or wood-oil tree, from whose trunk a liquid is obtained, oleo-resinous in its character and having properties a good deal similar to those of copaiba, for which it is used as a substitute, and which it is said to surpass in efficacy. This, however, may only mean that it succeeds after copaiba has been used and failed, a totally different affair.

Hibiscus esculentus is another plant unknown in our pharmacopœias. The fresh and immature capsules of the plant are valued for the bland mucilaginous material they contain, and which, in the form of decoction, is used much as we would linseed tea.

As we might readily suppose, the lime tree (*Citrus bergamia*) has not been overlooked, the juice of its fruit is, indeed, quite as much used as that of the lemon, and is commonly substituted for it. It contains more citric acid and less mucilage than does the juice of the lemon.

The *Toddalia esculenta* grows in the Madras peninsula. The bark of its root was once employed a good deal in Europe under the name of Lopez root, as a remedy for diarrhœa; it has fallen into disrepute, but the authors think that trials with the fresh material may prove more satisfactory. It would seem to exercise its influence chiefly as a tonic, but is also described as a stimulant.

Olibanum, although expunged from the British pharmacopœia, is retained here, owing apparently to certain continental physicians and surgeons recommending it as a substitute for the balsam of Peru and Tolu.

In our pharmacopœia the Meliaceæ yield no medicament; but in this volume, two of its members are recognised, the *Azadirachta Indica*, the min or margosa tree, and the *Soymida febrifuga* or rohun. The min grows throughout India, and its bark is the part employed. This bark has long had a reputation for its febrifuge properties, some authors holding it equal to cinchona or arsenic. It is chiefly useful in the milder forms of fever. The rohun is described as possessing similar properties. It is said to produce vertigo like that produced by cinchona. It would seem to contain a large amount of astringent matter, and hence to be useful for injection or in the form of decoction. Black catechu is retained in the Indian pharmacopœia, chiefly, we suppose, as being more readily attainable than the other variety. The seeds of a leguminous plant called Cæsalpinus (guilandina) bonducella or bonduc are acknowledged. These have been a good deal employed by Indian practitioners against the fevers of the country with varying success. Some laud them

others depreciate them; as usual, careful investigations are a desideratum. *Mucuma pruriens* is retained in this codex. *Butea frondosa*, the Bengal kino tree, grows all over India. Its inspissated juice resembles kino, for which it is employed. Its effects are similar. The *Abrus precatorius* or Indian liquorice is used as a substitute for the root of the European liquorice plant. The *Arachis hypogea*, which yields the ground nut, gives when its seeds are pressed a clear bland oil which constitutes a valuable substitute for olive oil. The Carum (Ptychotis) ajowan, the ajwain, or omum plant, is an umbellifer, whose seeds, in common with a variety of others belonging to the same group, contain a volatile oil, which smells like thyme. Its effects are antispasmodic and stimulant, and it is valued in the treatment of flatulence, diarrhœa, &c., and has even obtained some repute in cholera. The *Hydrocotyle Asiatica*, or Indian pennywort, produces a leaf which when bruised gives forth a peculiar aromatic odour, due to the presence of a pale coloured volatile oil. These leaves are mostly employed as a poultice to ulcerations of a specific character, and in anæsthetic leprosy. The oil is also exhibited internally in like affections. The *Diospyros embryopteris*, a plant common throughout India, yields a fruit about the size of a small apple, and containing an abundant viscid and astringent juice. An extract of it is commonly used after it has been thoroughly dried as a remedy in diarrhœa and chronic dysentery. The dose is from one to five grains. The *Alstonia scholaris* is a common tree; its bark, occurring in thick, irregular, more or less contorted pieces, is astringent and tonic. It has also been suggested as an antispasmodic. Of greater reputation is the root bark dried of the *Calotropis procera* and *C. gigantea* the Mudar plant. This bark in large doses is diaphoretic and emetic, in smaller quantity alterative. It is much used in the treatment of leprosy, some authors bearing testimony in its favour, others having reason to be dissatisfied with it. There can be no doubt that its true value is as a substitute for ipecacuanha, which in its physiological effects it chiefly resembles. The *Tylophora asthmatica* has leaves with a heavy disagreeable smell and a nauseous taste. This also would seem to act much like ipecacuan, and may be used to unload the stomach or in the treatment of dysentery. The *Pharbitisi Nil* or *Kaladana* is common throughout India, its seeds are black and angular, and a quarter of an inch in length. When powdered, these constitute a safe and efficient purgative, resembling jalap in its effects. The *Andrographis paniculata*, or *Kanyát*, grows commonly all over India. The stalks and roots are used as a bitter stomachic, like quassia, for which it may be substituted. The common *Dahtura* of India, *Dahtura alba*, whose properties are only too well known to the natives, is introduced, as well as the *D. stramonium*, with which its effects are identical. The *D. alba* is the common poison of the country, and used to be even more exten-

sively employed than it is now. A Persian plantain called *Ispaghul* has seeds which yield to water an abundant tasteless mucilage; this has been recommended in the chronic diarrhœa of Europeans in India, and in certain renal and urinary affections. The root of the *Crinum Asiaticum* growing in low humid localities, has effects somewhat similar to those of squill. It may be used as an emetic or a nauseant, as well as a diaphoretic. Rice is introduced for the preparation of poultices just as we use linseed meal. Three species of Andropogons are recognised; they yield volatile stimulant oils. Finally, *Gracellaria lichenoides* and *Confervoides*, the Ceylon moss, is inserted, that it may be used as Iceland or Irish moss, whose properties it possesses.

We have not given all the minor and less known remedies or sources of remedies introduced into the volume, which teems with valuable hints. Indeed, we should be inclined to consider these the especial and characteristic feature of the work before us. The substances we have enumerated are tolerably well known compared with those enumerated in the small type of the codex, but some even of the former are not yet thoroughly investigated. To the inquiring European surgeon, who is anxious to extend the bounds of our knowledge, and who is willing to give up much time to patient investigation, this the secondary list of possible remedies will be of great value. It will at once enable him to perceive what has been done and what remains to be done. Of such, we beseech, let there be no slip-shod work, for this has been and is now the bane of therapeutics. As a rule, therapeutical is the most painstaking and the least honoured branch of medical investigation. The care that must be taken to exclude all sources of error, and to vary the conditions as far as possible, is great, and the apparent result may be small. Conclusions hastily come to are not only valueless but delusive, and a reputation founded on such must necessarily be the same. We would, therefore, seek to encourage those of our brethren in India who are endeavouring to improve our knowledge as to the effects of the native productions:—encourage them to persevere, but not to be rash; we are quite assured that this volume will aid them and strengthen their hands, and at the same time secure for them their due meed of praise when its subsequent editions make their appearance.

Art. XVI.—*The Pathology and Treatment of Stricture of the Urethra and Urinary Fistula.* By Sir Henry Thompson, &c. Third Edition. London, 1869. Pp. 336.

No criticism of ours is necessary on the reissue of a work so well known and so justly esteemed as that of Sir H. Thompson on

Stricture. Published originally seventeen years ago as a Jacksonian Prize Essay, it has been the chief agent in establishing the author's reputation, and giving him a sort of "speciality" in the diseases with which it is concerned. We shall limit ourselves, therefore, to laying before the reader the matured judgment of so experienced a surgeon on two of the more novel points in the treatment of stricture. viz. endoscopy and forcible rupture. With regard to the former, Sir H. Thompson does not speak encouragingly:

"An attempt to look at a stricture also has frequently been made by surgeons, with the hope that the eye might aid them to guide a small instrument through a narrowing which had baffled all trials by the unaided hand. Various methods have been adopted in France and America, as well as in this country; but the speculum now made for the purpose is essentially that employed in London by Mr. Avery, of the Charing Cross Hospital, five-and-twenty years ago. The manner of applying artificial light to it has been varied and improved by Desormeaux of Paris, and Cruise of Dublin; while a very simple and efficient form has been more recently devised by Mr. Warwick, in which sunlight and gaslight are available as well as the spirit-lamp (Fig. 20). After a long and careful study of this instrument, I am compelled to record my belief that much more has been said in favour of it than it deserves. I have never yet found it of the slightest service in stricture. I have no means of expressing my conviction of what the instrument in its present form is worth for this complaint, more truly or practically than in the words I employed in a clinical lecture on the subject last year in University College Hospital, and which I will therefore venture to quote here, —'If a man has a good and a tolerably practised hand, with a fair share of intelligence, I do not think he will gain a great deal by the endoscope; and if he has not, I think it will be of no use at all. There are some few cases in which he may find it of value: but do not expect that the endoscope is going to work any marvels in the diagnosis of surgical diseases of the urinary organs. In nineteen cases out of twenty you ought to be able to arrive at the necessary information without it—and it is not the easiest thing in the world to apply. As already remarked, a man should not be put unnecessarily to the pain and inconvenience of a sound or a catheter; but examination by the endoscope is a somewhat more irritating and tedious process. In certain exceptional cases, in which you are unable to arrive at a conclusion without it, you may employ it to some advantage.'" (P. 161.)

From what we have seen of this instrument (though doubtless our experience is much less than Sir H. Thompson's), we should believe that he has exactly summed up the case of endoscopy.

With regard to the rupture of a stricture by what is called Holt's method—that is, by Holt's application of Perrève's instrument—our author speaks as follows:

"This plan has now been largely used by the profession, and several hundreds of cases have been operated upon, and with results which warrant the formation of conclusions as to its value. It possesses the merit of simplicity, for provided the first instrument, a guide, is safely passed through the stricture into the bladder, the introduction of the large tube which effects the rupture is only a matter of force. No other operation for stricture is so easily accomplished, or is so unlikely to fail in the performance. To divide a stricture by any method of incision requires much more knowledge, practice, and tact; while it is, I believe, a more perfect proceeding in its results for really hard, old, and contractile strictures than rupture. Without doubt urethrotomy, whether external or internal (and the latter is mainly referred to here), is infinitely more difficult to perform neatly and completely. The question of the permanence of the results from rupture is to a certain extent *sub judice*, but no operation for stricture can be relied on to free the patient altogether from disposition to return. Sooner or later the divided or ruptured tissues assert their influence on the calibre of the urethra, and reproduce some narrowing of it.

"I am disposed to think at present that a well-performed internal urethrotomy is more enduring in its results than any other operative proceeding.

"Dr. Richardson, of Dublin, has suggested a modification of Perrève's instrument, which cannot be passed over here, since there is no doubt its action is more perfect than that of the original. It is applied in the same manner as by Mr. Holt. I have used it several times, always employing a full calibre, about 15, English scale, which I think essential to good results. After the operation, I prefer to tie in a gum catheter for twenty-four hours, keeping the patient in bed for that time.

"I have also myself adopted, somewhat extensively, a method to which I have given the name of 'over-distension,' and which consists in applying force, directed from within outwards, by means of two blades previously passed through the stricture. The object being to distend, or rupture, if it be preferred, up to a higher point than can be accomplished by means of any instrument the size of which is limited by the external meatus of the urethra."

Then follows a description of the author's own instrument for forcible dilatation, and the method of using it, concluding as follows:

"I have now used it for a large number of cases, and I know no better mode of dealing with some of the worst cases. It is not so easy to apply as Mr. Holt's method, since some care is required to adjust the centre of the dilating part of the instrument to the precise site of the stricture, where it must be maintained during the distension. It is especially suitable for obstinate strictures about four or five inches from the external meatus, and, like rupture, is not suitable

for those within one or two inches, which are always better treated by incision."

We have only selected these as "bricks from the building"—as instances of the sound and judicious summaries on all the questions of surgical procedure in the treatment of stricture which are to be found in this admirable treatise, proving that Sir H. Thompson has not been so occupied with his own success in this branch of practice as to render him negligent in testing the views and proposals of other surgeons.

Art. XVII.—*Une Epidémie de Peste en Mésopotamie en* 1867. Par le Dr. Tholozan, Médecin Principal de l'Armée, Premier Médécin du Schah de Perse, &c. 8vo, pp. 75. Paris, 1869.
An Epidemic of Plague in Mesopotamia in 1867. By Dr. Tholozan, &c. &c.

This able *brochure* well deserves the attention of epidemiologists. The outbreak of plague of which it treats has been described in the last part of the 'Transactions of the Epidemiological Society' by Dr. Dickson, Physician of the British Embassy at Constantinople. Dr. Tholozan did not witness the fever himself; but from his high position at Teheran, where he is the President of the Board of International Health, he had the opportunity of obtaining much information about it. He is of opinion that the official views put forth by the central board at Constantinople are incorrect in several respects, and feels it a duty on his part to expose their fallacy on grounds of the public interest and of medical science. During 1866 and 1867 rumours were afloat in Persia that the plague had appeared in the neighbourhood of Bagdad. Dr. Baker, Physician to the Euphrates Valley Telegraph Company, corresponded with Dr. Tholozan on the subject; but knowing as he (Dr. T.) did that there was a medical officer in that city who was in official connection with the Constantinople board, he confined himself to merely gaining all intelligence in his power. The secretary of that board, Dr. Navanzi, was subsequently sent into Mesopotamia to collect information respecting the epidemic, and his report[1] was published in the following year. That a pernicious and rapidly fatal fever, accompanied with bubos in more than half the cases, and with carbuncles and petechiæ in many of them, had prevailed for several months in the pachalik of Bagdad, and especially in the Arab district of Hindié, during the spring and early summer of 1867, can be disputed by no one. Doctors, how-

[1] 'Rapport sur l'epidemie de Hindié, dans l'Arak-Arabi, en 1867, lu au Consiel de Santé et adopté dans le seance du 7 Mars, 1868.' Constantinople, 1868.

ever, are, as usual, not agreed as to its real nature. The acknowledged disappearance of the plague from Egypt and the East for the last quarter of a century makes some medical men unwilling to admit the probability, or even the possibility, of the occasional and spontaneous upspringing of this "specific fever." Our author points out the fallacy of this prejudice, and he quotes a remark—"fondée sur une etude consciencieuse de la marche des épidémies" of Dr. Milroy in reference to this very point in question:

"The fact is a curious but not a singular one in the history of epidemic diseases; nor does this prolonged subsidence warrant the expectation of any permanent extinction of the Oriental plague in the Ottoman dominions, unless, indeed, it be accompanied with a substantial improvement in the sanitary and hygienic condition of the people; and then its place may be taken by other less malignant forms of continued and periodic fever."[1]

The truth of this prediction has received, Dr. Tholozon thinks, a remarkable illustration in the circumstance of the partial epidemic at Benghazi in 1858, and in that at Hindié in 1867.

The highly interesting fact appears from Dr. Navanzi's report that, for several years prior to the latter outbreak, the endemic forms, remittent and typhoid, in Bagdad and the surrounding districts of Hillé, Nedjef, Kerbela, and Bussorah, had become often accompanied with bubos or glandular swellings in the neck, armpits, and groins, these bubos frequently suppurating, and the wounds being occasionally gangrenous. This new feature seems to have been first noticed, or at least recorded, in 1856. In 1858 and 1859 it was again observed. Most of the cases did well. In the next two years, however, the fever seems to have been more grave and fatal, for in some instances there were numerous petechiæ, and also hæmorrhage from the nose, bowels, or bladder, along with bubos. The resident Turkish sanitary physician, being confident that they did not spread by contagion, declared that they must result "d'une infection paludienne." It must always be remembered that, if the slightest allusion to the word "plague" be ever uttered throughout the Ottoman dominions, forthwith the dreaded machinery of quarantine and cordons must be put in force, and the utmost panic would prevail. Nevertheless, in 1865 rumours began to be whispered about; but they were officially contradicted, for there was "nul caractère contagieux." On this point being assumed—for no precise inquiry respecting the sequence of attack seems ever to have been attempted—it followed, of course, that there could be no "pestoid" element in the disease. And it is upon this postulate as a basis that Dr. Novanzi, and with him the Constantinople Board of Health, have

[1] *Vide* "Sketch of the Geography of the Plague during the present Century," in 'Brit. and For. Medico-Chir. Review,' for April, 1864, p. 474.

come to the conclusion that even the epidemic of Hindié—notwithstanding its great and rapid fatality, and the frequent bubonic and occasional carbuncular accompaniments of the fever—was not genuine plague, but only "un typhus loimoide non-contagieux;" and this, too, in opposition to the expressed opinion of the medical commission at Bagdad, which had the opportunity of witnessing many cases on the spot. The sort of reasoning adopted in the official document will be seen from the following passage:

"Les symptômes qui ont constamment figuré dans l'épidémie de Hindié ne peuvent, en réalité, appartenir qu'à la seule famille des maladies comprises sous la dénomination de *fièvres paludiennes pernicieuses.* La peste comme le typhus des camps se distinguent avant tout et sur tout par leur caractère contagieux et par leur tendance envahissante. Elle attaque simultanément un grand nombre d'individus. Dès qu'elle est importée quelque part, elle tend à se répandre et à multiplier ses foyers, si l'on n'a pas eu la précaution de la circonscrire et de l'étouffer en interceptant toute communication, tout rapport entre les malades et les hommes sains."

All this is in the genuine spirit of the official quarantinism of fifty years ago. Dr. Tholozan has done good service by protesting against the doctrines of the Constantinople board, in respect of the fever of Hindié, and by pointing out the mischievous results of such teaching. He has shown himself capable of handling with ability questions of epidemiological interest, and we trust that he will continue his literary labours, which will find an excellent field for their exercise in his adopted country.

Art. XVIII.—*The Intermarriage of Relations.* By Nathan Allen, M.D. (From the 'Quarterly Journal of Psychological Medicine and Medical Jurisprudence' for April, 1869.) New York, pp. 56.

In this pamphlet of fifty-six pages Dr. Nathan Allen has cited the evidence of numerous, and, for the most part, well-known writers on marriages of consanguinity, including that of Drs. Bemiss, Casselberry, Howe, and other American observers, but without contributing any fresh facts of his own. He appears indeed to be of opinion that original observations are not at present needed, for we are assured that although "a great amount of statistics on this subject has been gathered by different writers and in various localities," yet "the effects of such intermarriages still remain in a great measure unsolved—resting in a kind of mystery." The merit of having solved this mystery, and consequently of having removed what is referred to as an approbrium to physiology, is claimed by Dr. Nathan

Allen, in virtue of his discovery of "the great law of human increase," which is "*based upon a perfect development of all the organs in the human body, so that there shall be a perfect harmony in the performance of their respective functions.*" We are informed that the discovery of this law, "which man in order to obey must understand," has, like other great truths of nature, been brought to light by a humble agent, and in a very incidental manner; and if hereafter the question should be asked by any captious inquirer, "Why has not this law, so important, been discovered before?" Dr. Nathan Allen is prepared to reply that it has ever been the design of Providence to delay the discovery of the great laws of nature in order that they "should be slowly brought to light at different periods." It was in accordance with this design that Newton discovered the law of gravitation, that Harvey discovered the circulation of the blood, and that Dr. Nathan Allen discovered the law of increase. "All great truths" (he adds) "when once discovered, are very simple, and the surprise to all is that they were not generally known before;" seeing that the fall of the apple, the anatomy of the heart, and the results of the intermarriage of relations had been witnessed by multitudes before the time of these great men. From the concluding remarks of this illustrious American, it would appear that the world-wide fame of the two great English discoverers in science is likely to be soon eclipsed, for we are informed that the application of the law of increase far exceeds in actual value and utility that of the other great laws of nature, and that practically by means of this discovery in organic life we are enabled to reach "the threshold—the vestibule of this temple of the science of man."

ART. XIX.—1. *An Introduction to the Elements of Pharmacy.* By F. HARWOOD LESCHER, Pereira Medallist. London, pp. 199.

2. *The Modified Examination of the Pharmaceutical Society: A Guide to the Principal Points in Prescriptions, Dispensing, Materia Medica, and Pharmacy.* By F. HARWOOD LESCHER. London, pp. 7.

OF these two works the larger includes the smaller, besides, of course, containing many particulars which cannot be obtained from a perusal of the other. Thus the subjects of botany and chemistry are taken up in the larger, not in the smaller, and many particulars relating to the other departments of pharmaceutical knowledge are to be found in the larger and not in the lesser volume. The latter is, indeed, made up of excerpta from the former. The style of the book is peculiar; it is entirely, or almost so, in the tabular form, and the

column runs transversely from one side of the page to the other. This is always an inconvenient way of arranging a subject, but is unavoidable with such a system of tabulation except an inconvenient quarto form were adopted. Of the subject-matter we have not much to say. Undoubtedly a vast quantity of material is here, so to speak, formulated, but in the process it loses a good deal of its value. "Mangnall's Questions," and "Pinnock's Catechisms," are not among the most lively varieties of literature, neither are they now-a-days considered the valuable engines of instruction our grandmothers supposed. For our own part we thoroughly agree with Mr. Carlyle in his dislike of formulas, for knowledge formulated is too apt to remain a form. In the transition from the vital to the abstract shape knowledge loses its force. Herein consists the great value of personal instruction, that the information is conveyed from man to man—a living force, so to speak—and the substitution of such a text-book as this for these modes of instruction would be deplorable. It is far too much the fashion at present to inveigh against class work or instruction by lectures. Properly employed these constitute the most potent educational engine we possess, for when conveyed from master to pupil knowledge is, to use a chemical phrase, in a nascent condition, more easily acquired and more deeply impressed. We intensely dislike all ready roads to learning; the difficulty of the ascent of the mountain of knowledge constitutes its great value as a means of intellectual training, that is to say when under judicious superintendence. Still books like the present have a certain value; the knowledge having been acquired they constitute a ready means of refreshing the memory, and for such a purpose Mr. Lescher's works are admirably adapted.

ART. XX.—*Lectures on Orthopædic Surgery, delivered at the Brooklyn Medical and Surgical Institute.* By LOUIS BAUER, M.D., M.R.C.S., Eng., Professor of Anatomy and Clinical Surgery, &c., &c. 2nd edition, revised and augmented, with illustrations. New York. 1868, pp. 336.

THIS is a second edition of a series of Lectures which were originally published in the 'Philadelphia Medical and Surgical Reporter.' The first edition was a mere reprint from the journal; but the second has been considerably enlarged and extended, so as to include other subjects besides those which were comprehended within the original scope of the work.

Orthopædic surgery, as a special department of our art, can hardly be said to have existed among us more than some thirty or

forty years. But in the United States it does not seem to have found a home so soon as it did in this country; and it would appear that the principles of tenotomy are not so generally understood in America as they are in Europe. Accordingly, there is there an open field for those who desire to devote themselves to this branch of surgery, and it is this field which Mr. Bauer has been cultivating with diligence and success.

The Lectures which form the basis of this work were delivered partly in Brooklyn and partly in Montreal. The first half of the volume consists of lectures upon orthopædic surgery in the ordinary acceptation of the term: the latter half is made up of a course of lectures upon the causation of joint diseases. In fact, the latter half of the book has very little to do with orthopædic surgery, and carries the author into the consideration of several important subjects in general surgery.

We need not follow Mr. Bauer through all the details of his subject. First he goes regularly through the different varieties of club-foot; then he proceeds to consider the various spinal deformities. After that he passes on to speak of wry-neck and the displacements of the knee, and then he concludes this part of his work with chapters on paralysis, progressive muscular atrophy, and rickets. In treating of orthopædic surgery, properly so called, our author follows in the main the opinions which are commonly received, and with which we in this country are familiar through the writings of Little, Adams, Brodhurst, and others. But it will be observed, that even in this first part of his work Mr. Bauer oversteps the limit of what is generally held to be included in the term "orthopædic surgery," and that he enters at some length into the consideration of some of the affections of the nervous system. And it may be said, that the whole of the second part is taken up with a subject which is only remotely connected with the title of the volume. If, therefore, Mr. Bauer's object be to diffuse in America a sound knowledge of orthopædic surgery, he might have spared himself about a third part of his labour, for to that extent he has dealt with topics which, however interesting and important in themselves, are beyond the proper limits of his subject. Indeed, there is all through the volume before us, a want of method and arrangement in dealing with the abundant materials which the author has at his command. Much that is irrelevant is mixed up with much that is excellent.

As one reads, one longs for the brevity and the perspicuity that we have noticed in some other treatises on the same subject; and we cannot help thinking that, if Mr. Bauer had been contented to write a shorter book, he would have given us a better one. But there is a more serious fault that we have to find with our author; and that is, the way in which he magnifies himself and

depreciates others. Some, whose labours are deserving of all respect, receive but scanty justice at his hands; and in one or two places he speaks of professional brethren of high distinction in a manner that we should not have expected from a public lecturer.

There are some transatlantic phrases in the pages before us, which fall rather harshly upon our ear; but, if they pass current in America, we have perhaps no right to find fault with them. But to many of the words used by our author we must take exception, for we cannot but think they must be as unknown in America as they are in this country. As instances of what we mean, we would mention the following—domiciliate, adaptitude, reactibility, tensity, immobilization, musculature, experimentative, rejuvenate; and these are only some of a long list that we have noted. To say the least, such words as these are pedantic, and would be better avoided. In scientific writing it is a great point to be as simple and clear as the circumstances of the case will permit; and simplicity and clearness in laying down the limits of his subject, in arranging his materials, and in his style of writing, is what Mr. Bauer wants more perhaps than anything else.

ART. XXI.—*Lectures on Surgery.* By JAMES SPENCE, F.R.S.E., Surgeon to the Queen in Scotland; President of the Royal College of Surgeons, Edinburgh; Professor of Surgery in the University of Edinburgh, &c. Part I. Edinburgh. 1868.

THIS volume is the first instalment of a series of lectures on surgery which Mr. Spence is about to publish. We are told in a brief prefatory note, that as he found it was impossible to bring out the whole work in time to meet the wants of the pupils who were attending his class during last winter session he determined to publish his lectures in parts, and the volume before us is the first of such parts. It contains thirty-four lectures, or rather the pith of thirty-four lectures, for most of them are given so briefly that we must conclude that they were drawn out to much greater length at the time of their delivery. The subjects they include are numerous. We have here an account of inflammation and its events; of erysipelas and carbuncle; of tumours, simple and malignant; of syphilis; of wounds in all their variety; of burns and scalds; of tetanus, and various other minor matters. Now, it is evident, that if all these subjects are to be treated in the compass of one volume of moderate size, they cannot be discussed very fully. And such, indeed, is the case. For example, the whole subject of syphilis is discussed in

twenty-five pages; and this, be it observed, includes the treatment as well as the pathology of the disease. Gonorrhœa, strange to say, is omitted altogether. So that, as far as this part is concerned, the venereal diseases have received only a scanty measure of attention. Whether the author proposes to return to them again in future lectures we cannot say. Perhaps he does. But as there is no preface to explain his intentions, we are left to conclude that he has done with the subject altogether; and, if so, he has passed over it rather lightly.

And the same thing might be said of other subjects. Indeed, the impression which is left on our minds by a perusal of these lectures is, that they are rather superficial. They are written with a graceful and current pen, they are read easily and pleasantly, they will probably become popular among Mr. Spence's pupils, but they are not so full or so complete as we should have expected. Perhaps it may be said, that in this volume we must not look for more than general principles—details will follow hereafter. This may be true in some degree; but many subjects are included in this part which will probably not be considered again, and yet their treatment might have been made a good deal fuller with advantage.

It is a pity that our author has not furnished us with a preface, which might have explained the whole scope of his undertaking, and the order in which he proposes to handle its several parts. Without this information we are hardly in a position to judge of the projected work. We can only form our opinion by that small portion of it which is before us, and this is perhaps scarcely a fair specimen of the whole. We should have been glad to have known what arrangement Mr. Spence intends to follow in dealing with the different affections which fall under the care of the surgeon—how far he proposes to enter into special subjects, such as ophthalmology, and other points. But there is no means of satisfying our curiosity. We must wait till the progress of the work gives us the information we desire.

In these days, when the construction of hospitals, and the question of "hospitalism," occupy so much attention, Mr. Spence's experience in the Royal Infirmary at Edinburgh will be read with interest.

"Great attention should be given to proper drainage and ventilation; the latter by natural means, such as windows and open fireplaces. Mechanical methods of ventilation, such as heated shafts for extracting the foul air, are almost always disappointing, their success being usually in the inverse ratio to the amount of ingenuity displayed in the arrangements, and the complexity of the apparatus. I had the misfortune to experience this in my own hospital practice shortly after I took charge of the senior surgeon's wards in the new surgical hospital. These wards had only then been in use for about

three years, and had been arranged as model wards, and ventilated on the purest and most approved scientific principles. Notwithstanding this, it had been noticed that cases did not go on so favorably as in less favoured localities; and two or three weeks after I had removed my patients into these wards, first some stumps, which were nearly healed, took on an unhealthy action, and soon all sores and wounds presented the characters of either the black or grey phagedæna. The slightest abrasion or cut was infallibly attacked by the diseased action, which was most intractable. The patients were removed to a small reserve hospital on the grounds, occasionally used as a fever-house; and though not perhaps a model hospital, the change of locality acted like magic on the patients. The sores began to amend almost from the time of removal; and ultimately every patient who had been removed made a good recovery. Indeed the only two fatal cases occurred at the commencement of the outbreak, and these were originally amongst the most trivial wounds, one a case of simple fracture of the thigh, with slight abrasion over the knee. The case had been under treatment about a fortnight, when the abrasion presented the appearance of black phagedæna, and resisted all treatment. In the other fatal case, the phagedenic action followed upon an incision of the prepuce, for phymosis, in a man of worn-out constitution. Careful investigation showed how very imperfect the removal of the vitiated air must have been. And now that natural ventilation by the windows and air-chambers, by the ventilator in the roof, and open fire-places has been adopted, and other changes made in the arrangements of the wards, I have not for many years seen phagedenic sores unless when brought into the house from without, or occasionally when unhealthy tendencies prevailed generally in the city and neighbourhood as epidemics" (p. 71).

From what he says of the treatment of wounds by carbolic acid, we observe that Mr. Spence does not seem to have so much confidence in this method of dressing as some have. He has had considerable experience of it, but he does not appear to expect that it will produce so great a change in the results of surgical treatment as some are disposed to think it will. But it may be doubted whether he has given the system recommended by Mr. Lister a fair trial. That system is so elaborate, that it is no easy matter to employ it in all its details.

One other quotation we shall make from Mr. Spence's work, for it gives the best account of a true case of recurrent tumour that we have met with anywhere.

"The best authenticated case of pure simple recurrent tumour occurred in Edinburgh some years ago, in the practice of the late Dr. Maclagan. The patient was a young woman, and the tumour was situated on the back; it was removed on two occasions by Dr. Maclagan, and again by Dr. D. Maclagan at intervals of three to

five years; and after it had been removed three times, the patient was free from it for many years. When she was about thirty-five years of age, the tumour again returned, and I had then an opportunity of seeing it. The tumour was growing in the immediate vicinity of the cicatrices of the former operations, and presented a sort of tense elastic feeling. It had a transparent pinkish colour on the surface. At some points it was more dense than at others, and at one part it had ulcerated. It had also a long hardened base. In this case, after each removal, the tumour had been examined by Mr. Paget, of London, who found the structure of it to be the same in every instance. When I removed it on the last occasion, it was examined by Dr. Haldane, and also by Mr. Paget, and no alteration whatever in its structure could be noticed. It was composed of a sort of fibrous texture, with a softish gelatinous-looking material filling up the interstices, and from its composition it received the name of fibro-plastic tumour. This condition is visible to the naked eye. The amount of soft material in the tumour may vary in amount, and may form a sort of nucleated mass at different points. Ten years after I had removed this tumour I saw the patient, and she was quite well, and there was then no tendency to a return of the tumour, its non-recurrence being probably due to some alteration in the constitution of the patient" (p. 138).

With regard to the vexed question of syphilis, the unity or duality of its poison, Mr. Spence gives his adhesion to the doctrines of the *unicists*. He does not enter at any length into the arguments on either side; but he holds and teaches that there is but one poison, which produces different effects according to the constitution of the patient, and other circumstances.

It is almost impossible to attempt a large work on surgery without the aid of illustrations, and Mr. Spence has availed himself both of lithographs and chromo-lithographs. They are not interspersed throughout the text—such a thing would have been impracticable, but they are collected together and fill ten pages at the end of the volume. This is not a convenient arrangement. We should have preferred to have had them under our eyes while we were reading, but this is the penalty we pay for enjoying a high class of illustrations. They are all good of their kind. In some instances the subject is rather ghastly, but the execution is always good. The chromo-lithographs, which form the newest feature in the book, are deserving of no small praise. Those which represent inflammation as it is seen in the eye, and the different varieties of gangrene, appear to us especially worthy of notice.

ART. XXII.—*A History of Chemical Theory.* By A. WURTZ. Translated by H. WATTS, F.R.S. London. 1869.

THIS history of chemical doctrines, as it is called by its author,

forms the introductory chapter to a new 'Dictionary of Chemistry' which M. Wurtz is now editing. On another occasion we shall notice the body of the work itself; at present we confine our remarks to the "Discours Préliminaire" which is prefixed to it.

First of all, then, we say, let no one be deterred from reading M. Wurtz's 'History of Chemical Theory' because of its opening sentence, which runs as follows:—"*Chemistry is a French science.*" This statement is offensive and untrue—or, we should have said, offensive because untrue. Try as hard as he likes, our author cannot forget the names and labours of Cavendish, Priestley, Black, Proust, Wollaston, and Dalton. The great discovery of Lavoisier as to the nature of combustion, important as it was, was intimately connected with the previous labours of English chemists, and has been marvellously enhanced in value by their subsequent investigations. But although M. Wurtz gives an extravagantly high position to one discoverer and one discovery, he allows the possession of a moderate amount of merit to some chemists (English, German, Swedish) who had the misfortune not to be Frenchmen. That he systematically ignores, with rare exceptions, the labours of English chemists and English mineralogists is seen in every sheet of his 'Dictionary of Chemistry' yet published, but still we see in his 'History of Chemical Theory' a clear and philosophical appreciation of the various ideas propounded during the last 100 years as to the nature of the elements and the construction of their compounds. After giving sketches of the theories brought forward by Berzelius, Dumas, Liebig, Dalton, Laurent, and Gerhardt, we are introduced to special views and special discoveries (made chiefly by living chemists), and then at last we have a concise account of the actual views as to the chemical constitution of matter now held by the majority of chemists. The work does not profess to be more than an outline, but, while bold in character, it does not fail to include the most salient points of its subject. We have only to add here, concerning Messrs. Macmillan's editor of this history, that Mr. Watts, the translator, has done his work of rendering the original into English, and of annotating it here and there, in a style worthy of his reputation and that of the distinguished author.

PART THIRD.

Original Communications.

Art. I.

On some forms of Sudden Death, and Sudden Death in General.

By Alex. Ogston, M.D., Aberdeen.

Table I.—*Of* 580 *cases of sudden death.*

Cause of death.	Number.	Percentage.	Remarks.
Drowning	98	16·89	
Wounds and injuries	87	14·99	
Suffocation	50	8·62	16 of these in new-born children.
Pneumonia	49	8·44	
Apoplexy	43	7·41	3 of these in new-born children.
Still-birth	33	5·68	
Cause undiscoverable	27	4·65	8 of these in adults, chiefly from decomposition, and 19 in new-born children.
Pulmonary apoplexy	23	3·96	
Poisoning	23	3·96	1 of these in a new-born child.
Hanging	17	2·93	
Thrombosis	14	2·41	
Convulsions	12	2·06	
Aneurysm	12	2·06	
Exposure to cold	12	2·06	
Œdema of the lungs	10	1·72	
Encephalitis and brain disease	9	1·55	
Fatty heart	9	1·55	
Mechanical heart-disease	7	1·20	
Peritonitis	5	·86	
Rupture of the heart	4	·68	
Meningitis	3	·51	
Strangulation	3	·51	
Childbed diseases	3	·51	
Bronchitis	3	·51	
Hydrophobia	2	·34	
Burns	2	·34	
Hydrocephalus	2	·34	
Hæmoptysis	2	·34	
Starvation	2	·34	
Erysipelas	2	·34	
Scarlatina	2	·34	
Cellulitis	1	·17	

TABLE I (continued).—*Of* 580 *cases of sudden death*

Cause of death.	Number.	Percentage.	Remarks.
Phthisis	1	·17	
Cholera	1	·17	
Liver disease	1	·17	
Pericarditis	1	·17	
Abortion	1	·17	
Ulceration of intestines	1	·17	
Hæmatemesis	1	·17	
Enteric fever	1	·17	
Old Age	1	·17	
	580	99·89	

TABLE II.—*Of* 326 *cases of sudden death occurring under ordinary circumstances.*

Cause of death.	Number.	Percentage.	Remarks.
Suffocation	50	15·337	16 of these in new-born children.
Pneumonia	49	15·030	
Apoplexy	43	13·190	3 of these in new-born children.
Still-birth	33	10·122	
Cause undiscoverable	27	8·282	8 of these in children and adults, chiefly from decomposition, and 19 in new-born children.
Pulmonary apoplexy	23	7·055	
Thrombosis of heart and main blood-vessels	14	4·294	
Exposure to cold	12	3·681	
Aneurysm	12	3·681	
Œdema of the lungs	10	3·067	
Encephalitis and brain disease	9	2·760	
Fatty heart	9	2·760	
Mechanical heart disease	7	2·147	
Peritonitis	5	1·533	
Rupture of the heart	4	1·227	
Arachnitis and meningitis	3	·920	
Bronchitis	3	·920	
Hydrocephalus	2	·613	
Starvation	2	·613	
Hæmoptysis	2	·613	
Phthisis	1	·307	
Cholera	1	·307	
Liver disease	1	·307	
Pericarditis	1	·307	
Ulceration of intestines	1	·307	
Hæmatemesis	1	·307	
Old age	1	·307	
	326	99·994	

TABLE III.—*Of cases of Sudden Death*

No.	Age.	Sex.	Cause of Death.	Stage and Character of Pneumonia.	Seat and extent of Pneumonia.
1	Adult	M.	Pneumonia	Not given	Not given
2	Do.	F.	Alcoholic poisoning	Red hepatisation	Double, partial
3	Boy	M.	Pneumonia	Gray hepatisation	Right, total
4	6 weeks	M.	Do.	Red hepatisation	Double, partial
5	Adult	F.	Do.	Do.	Left, total; right, partial
6	25	F.	Drowning	Do.	Double, total
7	Adult	M.	Pneumonia	Do.	Left, partial
8	Not given	F.	Do.	Do.	Do.
9	Adult	M.	Do.	Gray hepatisation	Right, total; left, partial
10	12	M.	Thrombosis	Red hepatisation	Double, partial
11	82	M.	Pneumonia	Do.	Left, total
12	70	M.	Do.	Do.	Right, total
13	38	F.	Do.	Do.	Do.
14	Adult	F.	Do.	Do.	Double, partial
15	Do.	M.	Do.	Do.	Double, total
16	Do.	F.	Do.	Do.	Right, total; left, partial
17	Do.	M.	Suffocation in smoke	Do.	Right, partial
18	Do.	M.	Pneumonia	Do.	Left, partial
19	Not given	M.	Do.	Tubercular hepatisation	Double, total
20	Adult	F.	Do.	Red hepatisation	Right, partial
21	Do.	F.	Apoplexy	Do.	Left, partial
22	3 months	F.	Pneumonia	Do.	Left, total
23	Not given	F.	Do.	Do.	Right, partial
24	Do.	F.	Do.	Do.	Double, partial
25	Do.	M.	Meningitis	Do.	Right, partial
26	Adult	F.	Œdema of the lungs	Do.	Left, partial
27	Do.	F.	Hypertrophy of heart	Do.	Double, partial
28	Do.	M.	Pneumonia	Do.	Do.
29	Do.	F.	Exposure to cold	Do.	Right, total
30	Do.	F.	Pneumonia	Gray hepatisation	Do.
31	Do.	M.	Do.	Red and gray hepatisation	Right, total; left, partial
32	Not given	M.	Do.	Red hepatisation	Right, total
33	Adult	M.	Do.	Do.	Left, partial

[1] In this and the following Tables, old adhesions of the pleuræ

where Pneumonia is present.

Pleuræ[1] and Pericardium.	State of Heart and Valves.	Distribution and Character of Blood in the Heart.	Remarks.
Not given	Not given	Not given	
Healthy	Healthy	Clotted, equal on both sides	
Right pleurisy	Do.	Do.	
Healthy	Do.	Only on the right side	
Right pleurisy	Valvular disease	Not given	Mitral and tricuspid vegetations.
Healthy	Healthy	Only on the right side	
Right pleurisy	Do.	Equal on both sides	
Left pleurisy	Do.	Chiefly on the right side	
Double pleurisy	Do.	Do.	
Healthy	Do.	Thrombosis, chiefly on right side	
Left pleurisy	Do.	Fluid, equal on both sides	
Healthy	Do.	Only on right side	Thrombosis of right heart.
Right pleurisy	Do.	Not given	
Double pleurisy	Do.	Chiefly on the right side	Do.
Pericarditis	Hypertrophy of heart	Do.	Tricuspid valve fenestrated.
Healthy	Healthy	Do.	
Pleuræ and pericardium red	Do.	Do.	
Healthy	Do.	Do.	
Do.	Do.	Only on the right side	
Double pleurisy	Do.	Not given	Pericarditis also present.
Healthy	Do.	Do.	
Do.	Do.	Fluid, chiefly on right side	
Do.	Do.	Equal on both sides	Blood clotted in left, fluid in right heart.
Do.	Do.	Chiefly on the right side	Thrombus in pulmonary artery.
Do.	Do.	Do.	Thrombus in the right heart.
Fluid in left pleura	Fatty heart, and valv. dis.	Clotted, chiefly on right side	Tubercular mass in lower lobe of left lung.
Healthy	Heart large; valves healthy	Fluid, chiefly on right side	
Do.	Heart fatty	Fluid, equal on both sides	
Do.	Healthy	Thrombosis on both sides	Tubercles in apex of right lung.
Right pleurisy	Do.	Thrombosis on right side	
Healthy	Do.	Fluid, equal on both sides	
Right pleurisy	Do.	Fluid, chiefly on right side	
Healthy	Heart fatty	Empty of blood	Extensive pulmonary apoplexy of right lung.

[1] are disregarded, and such pleuræ are noted as healthy.

No.	Age.	Sex.	Cause of Death.	Stage and Character of Pneumonia.	Seat and Extent of Pneumonia.
34	Adult	M.	Pneumonia	Red hepatisation	Double, partial
35	Child	M.	Do.	Do.	Do.
36	Do.	M.	Do.	Do.	Do.
37	Adult	M.	Exposure to cold	Do.	Left, partial
38	Infant	M.	Pneumonia	Do.	Double, partial
39	Adult	F.	Do.	Do.	Right, total; left, partial
40	Do.	M.	Do.	Do.	Left, partial
41	Do.	F.	Do.	Gray hepatisation	Right, total; left, partial
42	Do.	F.	Do.	Red hepatisation	Left, partial
43	Do.	M.	Do.	Do.	Double, partial
44	Do.	F.	Do.	Gray hepatisation	Left, total; right, partial
45	Not given	F.	Do.	Red hepatisation	Double, total
46	Adult	M.	Suffocation	Do.	Double, partial
47	Not given	M.	Softening of the brain	Do.	Left, partial
48	Adult	M.	Pneumonia	Do.	Double, total
49	Do.	F.	Do.	Do.	Left, total
50	Do.	F.	Do.	Do.	Left, total; right, partial
51	Do.	F.	Do.	Do.	Double, partial
52	Do.	M.	Do.	Do.	Double, total
53	65	M.	Aneurism	Gray hepatisation	Right, total
54	Adult	M.	Apoplexy	Red hepatisation	Right, total
55	10 weeks	F.	Pneumonia	Do.	Double, total
56	62	M.	Do.	Do.	Left, partial
57	Adult	F.	Do.	Do.	Double, total
58	2	M.	Do.	Do.	Left, total; right, partial
59	Adult	F.	Do.	Do.	Do.
60	40	M.	Pulmonary apoplexy	Do.	Right, partial
61	58	M.	Apoplexy	Do.	Double, partial
62	75	M.	Pneumonia	Gray hepatisation	Right, partial
63	58	F.	Exposure to cold	Red hepatisation	Double, partial
64	45	F.	Pneumonia	Do.	Double, total
65	47	F.	Do.	Red and gray hepatisation	Double, partial
66	65	M.	Do.	Red hepatisation	Do.
67	20	F.	Œdema of the lungs	Do.	Left, partial

Pleuræ[1] and Pericardium.	State of Heart and Valves.	Distribution and Character of Blood in the Heart.	Remarks.
Healthy	Healthy	Fluid, chiefly on right side	
Do.	Do.	Thrombosis of right side	
Do.	Do.	Fluid, chiefly on right side	Thrombus in right heart.
Do.	Do.	Equal and excessive on both sides	Thrombi on both sides of heart.
Do.	Do.	Chiefly on the right side	Thrombus in right heart.
Do.	Do.	Fluid, chiefly on right side	
Double pleurisy	Mit. and aort. disease	Do.	
Healthy	Healthy	Chiefly on the right side	Blood clotted in right, fluid in left heart.
Do.	Heart pale and flabby	Fluid, chiefly on right side	
Do.	Heart fatty	Do.	
Do.	Do.	Do.	
Double pleurisy	Healthy	Semi-fluid, chiefly on right side	
Healthy	Do.	Fluid, chiefly on right side	
Do.	Do.	Do.	
Do.	Do.	Do.	
Do.	Do.	Equal on both sides	Pulmonary apoplexy of lower two lobes right lung. Thrombosis of heart.
Do.	Do.	Semi-fluid, chiefly on right side	
Do.	Do.	Fluid, equal on both sides	
Do.	Do.	Fluid, entirely on right side	
Do.	Do.	Fluid, scanty on both sides	Rupture of iliac aneurism behind peritoneum.
Do.	Do.	Fluid, chiefly on right side	
Do.	Do.	Fluid, equal on both sides	
Do.	Aort. and mit. disease	Clotted, equal on both sides	Heart fatty.
Do.	Heart fatty	Semi-fluid, chiefly on right side	
Do.	Healthy	Clotted, chiefly on right side	
Do.	Heart fatty	Do.	Aortic and mitral disease.
Do.	Healthy	Fluid, equal on both sides	
Do.	Heart fatty	Only on the right side	Thrombosis of right heart.
Do.	Do.	Chiefly on the right side	Thrombosis of the heart.
Do.	Healthy	Abundant on both sides	
Do.	Heart fatty	Fluid, chiefly on right side	
Do.	Healthy	Clotted, chiefly on right side	
Do.	Heart fatty	Semi-fluid, equal on both sides	Do.
Do.	Do.	Fluid, equal on both sides	

TABLE IV.—*Pulmonary Apoplexy.*

No.	Sex.	Age.	Cause of Death.	Seat and Extent of Pulmonary Apoplexy.	Complications of Lungs, Pleuræ, and Pericardium.	Appearances in Heart and Blood-vessels.
1	M.	56	Apoplexy	Left, total	None	Blood chiefly on right side.
2	M.	39	Injuries of chest	Left, partial	Do.	Blood equal on both sides.
3	M.	Adult	Pulmonary apoplexy	Double, partial	Do.	Blood chiefly on right side.
4	M.	10	Stabbing	Right, partial	Pleurisy, hæmothorax	Thrombus in right heart.
5	F.	Adult	Fracture of skull	Left, partial	None	Blood fluid, chiefly on right side.
6	M.	Do.	Hæmoptysis	Double, partial	Pleurisy, double	Do.
7	F.	Do.	Pulmonary apoplexy	Left, partial	Adherent pericardium	Enlarged heart.
8	M.	Unknown	Do.	Do.	None	Fatty heart, blood chiefly on right side.
9	M.	Do.	Do.	Right, total	Do.	Fatty heart, blood clotted, chiefly on right side.
10	M.	Adult	Peritonitis	Left, total	Do.	Heart empty of blood.
11	F.	40	Thrombosis	Left, partial	Œdema of lungs	Thrombosis of right heart and pulmonary artery.
12	M.	Adult	Pulmonary apoplexy	Double, total	None	Fatty heart.
13	M.	Do.	Do.	Right, total; left, partial	Do.	Fatty heart. Thrombosis of right side.
14	M.	45	Do.	Double, partial	Do.	Blood chiefly on right side.
15	F.	16	Do.	Do.	Œdema of lungs	Blood fluid, chiefly on right side.
16	M.	Adult	Pneumonia	Right, partial	Œdema and hep. of lungs	Heart fatty, with little blood.
17	F.	Do.	Pulmonary apoplexy	Right, total	None	Heart empty.
18	F.	Do.	Do.	Double, partial	Do.	Blood fluid, chiefly on right side.
19	M.	Do.	Fracture of skull	Do.	Do.	Blood fluid, equal on both sides.
20	M.	Do.	Pulmonary apoplexy	Do.	Œdema of lungs	Blood fluid, only on right side.
21	F.	Do.	Do.	Right, total; left, partial	None	Heart fatty. Blood fluid, chiefly on right side.
22	F.	Do.	Pneumonia	Right, partial	Red hepatisation	Thrombosis on both sides of the heart.
23	M.	Do.	Pulmonary apoplexy	Double, total	None	Blood fluid, only on right side.
24	M.	24	Do.	Left, total; right, partial	Do.	Heart fatty. Blood chiefly on right side.
25	M.	75	Do.	Right, total; left, partial	Do.	Blood fluid, chiefly on right side.
26	M.	Adult	Do.	Do.	Œdema of lungs	Blood clotted, only on right side.
27	M.	40	Do.	Double, partial	Red hepatisation	Blood fluid, equal on both sides.
28	M.	50	Do.	Left, total; right, partial	None	Blood fluid, chiefly on right side.
29	M.	39	Fracture of skull	Left, partial	Œdema and hep. of lungs	Thrombosis of right heart.

30	M.	67	Pulmonary apoplexy	Double, partial	None	Blood fluid, scanty on both sides.
31	M.	25	Do.	Do.	Do.	Blood fluid, equal on both sides.
32	M.	56	Do.	Do.	Do.	Thrombosis of right heart.
33	M.	37	Fracture of skull	Double, total	Do.	Blood fluid, chiefly on right side.
34	M.	63	Pulmonary apoplexy	Left, total; right, partial	Do.	Heart empty of blood.
35	M.	73	Fatty heart	Left, partial	Do.	Heart fatty. Blood fluid, equal on both sides.
36	F.	Adult	Pulmonary apoplexy	Left, total	Do.	No blood in the heart.

TABLE V.—*Thrombosis of the Heart and Main Blood-vessels.*

No.	Age.	Sex.	Cause of Death.	Situation of Thrombus.	State of Heart.	State of Cardiac Valves.	Condition of Lungs.
1	12	M.	Thrombosis	Both sides and their vessels	Healthy	Normal	Congested and hepatised posteriorly.
2	2½	F.	Rupture of liver	Right cavities	Do.	Do.	Anæmic.
3	73	F.	Sores after injuries	Right ventricle	Do.	Do.	Normal.
4	70	M.	Pneumonia	Right cavities	Do.	Do.	Right lung hepatised and congested. Left lung congested.
5	28	M.	Thrombosis	Cavities on both sides	Do.	Do.	Normal.
6	Adult	F.	Pneumonia	Right cavities	Do.	Do.	Lower lobes hepatised. Remainder œdematous.
7	Do.	M.	Scarlatina after injuries	Do.	Do.	Do.	Normal.
8	38	M.	Hanging	Do.	Do.	Do.	Do.
9	Adult	F.	Injuries of larynx	Do.	Do.	Do.	Œdematous.
10	Do.	F.	Thrombosis	Do.	Do.	Mitral and tricusp. thickened	Congested. Left lung œdematous.
11	10	M.	Stab in chest and liver	Do.	Do.	Normal	Pulmonary apoplexy of right lower lobe.
12	Not given	M.	Pericarditis	Do.	Do.	Do.	Tubercular.
13	Adult	M.	Erysipelas after injuries	Do.	Do.	Do.	Normal.
14	Do.	F.	Hæmorrhage from wounds	Left auricle	Do.	Do.	Do.
15	Not given	F.	Pneumonia	Pulmonary artery	Do.	Do.	Lower lobes hepatised. Remainder emphysematous.
16	Adult	F.	Arsenical poisoning	Right vessels and cavities	Do.	Do.	Congested and emphysematous.

No.	Age.	Sex.	Cause of Death.	Situation of Thrombus.	State of Heart.	State of Cardiac Valves.	Condition of Lungs.
17	17	M.	Exposure to cold	Right cavities	Healthy	Normal	Anæmic.
18	70	F.	Do.	Do.	Right side thinned	Aortic and tricusp. thickened	Normal.
19	83	F.	Do.	Both sides and their vessels	Fatty	Mitral and tricusp. thickened	Anæmic.
20	Adult	F.	Rupture of uterus	Right cavities	Healthy	Normal	Normal.
21	Do.	M.	Suffocation when in drink	Cavities on both sides	Do.	Do.	Do.
22	Do.	F.	Fatty heart	Left cavities	Fatty	Do.	Do.
23	Do.	F.	Liver disease	Right vessels and cavities	Healthy	Do.	Do.
24	Child	M.	Starvation	Right ventricle	Do.	Do.	Do.
25	14	F.	Phosphorus poisoning	Right cavities	Do.	Do.	Do.
26	3	M.	Thrombosis	Right vessels and cavities	Do.	Do.	Congested and œdematous.
27	Adult	M.	Do.	Right cavities	Fatty	Do.	Congested. Left lung œdematous.
28	Not given	M.	Meningitis	Do.	Healthy	Do.	Lower and middle lobes of right lung hepatised.
29	Do.	F.	Hypertrophy of the brain	Do.	Do.	Do.	Congested.
30	4½ months	M.	Starvation	Do.	Do.	Do.	Normal.
31	Adult	F.	Exposure to cold	Cavities on both sides	Do.	Do.	Left lung emphysematous. Right lung hepatised.
32	40	F.	Thrombosis	Right vessels and cavities	Do.	Do.	Right lung œdematous. Pulmonary apoplexy of left lower lobe.
33	Adult	F.	Pneumonia	Do.	Do.	Do.	Left lung congested. Right lung hepatised and œdematous.
34	60	M.	Thrombosis	Both sides and their vessels	Fatty	Aortic bony and insufficient	Much œdematous and congested.
35	Adult	M.	Do.	Right cavities	Do.	Normal	Do.
36	Do.	M.	Pulmonary apoplexy	Right vessels and cavities	Do.	Do.	Pulmonary apoplexy of right, and back of left lung.
37	Do.	F.	Aortic aneurism	Left ventricle	Healthy	Do.	Normal.
38	Not given	F.	Apoplexy	Right cavities	Do.	Do.	Do.
39	Child	M.	Pneumonia	Do.	Do.	Do.	Middle right, and upper left lobe hepatised. Remainder œdematous.

40	Child	M.	Pneumonia	Right cavities	Healthy	Normal	Lower lobes hepatised. Remainder œdematous.
41	Adult	M.	Exposure to cold	Both sides and their vessels	Do.	Do.	Lower left lobe hepatised.
42	Do.	M.	Encephalitis	Cavities on both sides	Do.	Do.	Emphysematous.
43	Infant	M.	Pneumonia	Right cavities	Do.	Do.	Hepatisation of both lungs, except upper lobes.
44	Adult	M.	Cut throat	Do.	Do.	Do.	Normal.
45	Do.	F.	Thrombosis	Do.	Do.	Do.	Tubercular and œdematous.
46	35	F.	Fracture of the skull	Do.	Do.	Do.	Congested and œdematous.
47	Adult	F.	Lung disease. Pneumonia	Cavities on both sides	Do.	Do.	Left lung hepatised. Pulmonary apoplexy of right upper lobes.
48	4½	F.	Poisoning with laurel	Do.	Do.	Do.	Normal.
49	25	F.	Arachnitis	Right cavities	Do.	Do.	Do.
50	58	M.	Apoplexy	Do.	Fatty	Do.	Back parts hepatised.
51	Adult	F.	Thrombosis	Do.	Healthy	Do.	Excessively œdematous.
52	75	M.	Pneumonia	Cavities on both sides	Fatty	Thickened	Gray hepatisation of right upper lobe. Remainder œdematous.
53	39	M.	Fracture of the skull	Right cavities	Healthy	Normal	Œdematous, congested, and hepatised behind. 2. Apoplectic depôts.
54	58	F.	Exposure to cold	Do.	Do.	Do.	Hepatised behind.
55	84	M.	Thrombosis	Both auricles and the vessels	Fatty	Do.	Œdematous.
56	65	M.	Pneumonia	Both sides and their vessels	Do.	Mitral and aortic thickened	Lower lobes hepatised. Upper lobes œdematous.
57	55	M.	Fracture of the skull	Pulmonary artery	Healthy	Normal	Œdematous.
58	70	M.	Drowning	Right auricle	Do.	Do.	Do.
59	49	M.	Thrombosis	Both sides and their vessels	Fatty	Do.	Do.
60	65	M.	Exposure to cold	Left auricle	Healthy	Do.	Normal.
61	56	M.	Pulmonary apoplexy	Right cavities	Do.	Do.	Pulmonary apoplexy of lower lobes and right middle lobe.
62	73	F.	Thrombosis	Both sides and their vessels	Fatty	Do.	Congested.
63	68	M.	Do.	Do.	Healthy	Do.	Œdematous.

TABLE VI.—

No.	Age.	Sex.	Cause of Death.	Situation of Œdema.	Lung Complications.	Pleural Complications.
1	6 weeks	M.	Pneumonia	Double	Hepatisation	None
2	Adult	F.	Do.	Do.	Do.	Pleurisy. Containing fluid [1]
3	Do.	M.	Do.	Right	Do.	Right pleurisy
4	Not given	F.	Do.	Double	Do.	Left pleurisy
5	Adult	M.	Do.	Left	Do.	Double pleurisy
6	76	M.	Fatty heart	Double	None	Serum in right pleura
7	70	M.	Pneumonia	Right	Hepatisation	None
8	Adult	F.	Do.	Double	Do.	Double pleurisy
9	Do.	M.	Do.	Do.	Do.	None
10	Do.	F.	Injuries	Do.	None	Do.
11	Do.	F.	Thrombosis	Left	Do.	Do.
12	Not given	F.	Brain disease	Double	Do.	Do.
13	Adult	F.	Pneumonia	Right	Hepatisation	Pleurisy. Containing fluid
14	3 months	F.	Do.	Double	Do.	None
15	Adult	M.	Fractured ribs	Right	None	Hæmothorax
16	Do.	F.	Œdema of lungs	Double	Do.	None
17	Do.	F.	Suffocation	Do.	Do.	Do.
18	Do.	M.	Fracture of skull	Do.	Do.	Do.
19	Do.	M.	Apoplexy	Left	Do.	Do.
20	Do.	M.	Œdema of lungs	Double	Do.	Do.
21	Child	F.	Do.	Do.	Do.	Do.
22	Adult	M.	Do.	Do.	Do.	Do.
23	3	M.	Thrombosis	Do.	Do.	Do.
24	Adult	M.	Do.	Left	Do.	Do.
25	Do.	M.	Poisoning by morphia	Double	Do.	Do.
26	Do.	F.	Œdema of lungs	Do.	Hepatisation	Fluid in pleuræ
27	Do.	F.	Pericarditis	Do.	Tubercular consolidation	None
28	Do.	M.	Pneumonia	Do.	Hepatisation	Do.
29	40	F.	Thrombosis	Right	Pulm. apoplexy	Do.
30	Adult	F.	Pneumonia	Do.	Hepatisation	Do.
31	Do.	M.	Hypertrophy of heart	Do.	None	Do.
32	60	M.	Thrombosis	Double	Do.	Do.
33	Adult	M.	Do.	Do.	Do.	Do.
34	Do.	M.	Pneumonia	Right	Hepatisation	Do.
35	Infant	F.	Bronchitis	Double	None	Do.
36	Not given	M.	Pneumonia	Do.	Hepatisation	Pleurisy, containing fluid
37	Adult	M.	Fatty heart	Do.	None	None
38	Do.	M.	Pneumonia	Left	Hepat. and pulm. apoplexy	Do.
39	Do.	M.	Do.	Double	Hepatisation	Do.

[1] Serum in the pleuræ or pericardium

Œdema of the Lungs.

State of Heart and Pericardium.	State of Blood in the Heart.	Distribution of Blood in Heart.	State of Cardiac Valves.
Healthy.	Not given	Only on right side	Healthy.
Dilatation of heart	Do.	Not given	Thickened mitral and tricuspid.
Healthy	Fluid	Equal on both sides	Healthy.
Do.	Clotted and fluid	Chiefly on left side	Do.
Do.	Clotted	Chiefly on right side	Do.
Heart large & fatty	None	Both sides empty	Do.
Serum in pericard.	Fluid and thrombosis	Only on right side	Bony points in mitral.
Healthy	Thrombosis	Equal on both sides	Healthy.
Serum in pericard.	Clotted	Chiefly on right side	Do.
Healthy	Thrombosis	Only on right side	Do.
Do.	Fluid and thrombosis	Chiefly on right side	Thickened mitral and tricuspid.
Do.	Fluid	Do.	Healthy.
Pericarditis	Not given	Not given	Do.
Serum in pericard.	Fluid	Chiefly on right side	Do.
Healthy	Clotted	Equal on both sides	Do.
Do.	Fluid	Chiefly on right side	Do.
Do.	Do.	Do.	Do.
Do.	Do.	Only on right side	Do.
Do.	Do.	Chiefly on right side	Do.
Do.	Do.	Only on right side	Insufficient aortic valves.
Do.	Do.	Do.	Healthy.
Heart fatty	Do.	Chiefly on right side	Do.
Healthy	Thrombosis	Only on right side	Do.
Heart fatty	Fluid and thrombosis	Equal on both sides	Do.
Do.	Clotted	Only on right side	Do.
Do.	Do.	Chiefly on right side	Thickened aortic and tricuspid.
Pericarditis	Fluid	Do.	Insufficient aortic valves.
Heart fatty	Do.	Equal on both sides	Healthy.
Healthy	Fluid and thrombosis	Both sides full	Do.
Do.	Do.	Chiefly on right side	Do.
Adherent pericard.	Fluid	Equal on both sides	Thickened mitral and aortic.
Heart fatty	Clot and thrombosis	Chiefly on right side	Insufficient aortic.
Do.	Fluid and thrombosis	Do.	Healthy.
Healthy	Fluid	Equal on both sides	Do.
Do.	Clotted and fluid	Do.	Do.
Do.	Fluid	Chiefly on right side	Do.
Heart fatty	Do.	Equal on both sides	Do.
Do.	Do.	Both sides empty	Calcareous aortic
Healthy	Do.	Chiefly on right side	Healthy.

is mentioned only when considerable.

No.	Age.	Sex.	Cause of Death.	Situation of Œdema.	Lung Complications.	Pleural Complications.
40	Child	M.	Pneumonia	Double	Hepatsiation	None
41	Do.	M.	Do.	Do.	Do.	Do.
42	Adult	M.	Œdema of lungs	Do.	None	Do.
43	Do.	M.	Pulmonary apoplexy	Right	Pulm. apoplexy	Do.
44	Do.	F.	Pneumonia	Double	Hepatisation	Do.
45	Do.	F.	Do.	Do.	Do.	Do.
46	Do.	M.	Do.	Do.	Do.	Do.
47	Do.	F.	Do.	Do.	Do.	Do.
48	Do.	F.	Thrombosis	Left	Tubercle	Do.
49	35	F.	Fracture of skull	Right	None	Do.
50	Adult	F.	Peritonitis	Double	Do.	Do.
51	Do.	F.	Pneumonia	Right	Hepatisation	Do.
52	Do.	F.	Do.	Double	Do.	Do.
53	Do.	M.	Do.	Do.	Do.	Do.
54	Do.	M.	Pulmonary apoplexy	Left	Pulm. apoplexy	Do.
55	65	M.	Rup. of iliac aneurism	Right	Hepatisation	Do.
56	Adult	M.	Apoplexy	Do.	Do.	Do.
57	10 weeks	F.	Pneumonia	Double	Do.	Do.
58	5 weeks	M.	Smothering	Do.	None	Do.
59	62	M.	Pneumonia	Do.	Hepatisation	Do.
60	Adult	F.	Do.	Do.	Do.	Do.
61	49	F.	Œdema of lungs	Do.	None	Do.
62	Adult	F.	Thrombosis	Do.	Do.	Fluid in pleuræ
63	75	M.	Pneumonia	Do.	Hepatisation	None
64	39	M.	Fracture of skull	Do.	Hepat. and pulm. apoplexy	Do.
65	60	F.	Fatty heart	Do.	None	Do.
66	65	F.	Old age	Right	Do.	Do.
67	84	M.	Thrombosis	Double	Do.	Do.
68	47	F.	Pneumonia	Left	Hepatisation	Do.
69	65	M.	Do.	Double	Do.	Do.
70	64	F.	Œdema of lungs	Do.	None	Fluid in pleuræ
71	55	M.	Fracture of skull	Do.	Do.	None
72	44	M.	Œdema of lungs	Do.	Do.	Fluid in pleuræ
73	49	M.	Thrombosis	Do.	Do.	None
74	68	M.	Do.	Do.	Do.	Do.
75	20	F.	Œdema of lungs	Do.	Hepatisation	Do.
76	42	M.	Apoplexy	Do.	None	Do.

State of Heart and Pericardium.	State of Blood in the Heart.	Distribution of Blood in Heart.	State of Cardiac Valves.
Healthy	Fluid and thrombosis	Chiefly on right side	Healthy.
Do.	Do.	Do.	Do.
Heart fatty	Clotted and fluid	Do.	Do.
Healthy	Fluid	Only on right side	Do.
Do.	Clotted and fluid	Chiefly on right side	Do.
Do.	Fluid	Do.	Do.
Heart fatty	Do.	Do.	Do.
Do.	Do.	Equal on both sides	Do.
Healthy	Clot, fluid, and thromb.	Chiefly on right side	Do.
Do.	Thrombosis	Do.	Do.
Do.	Clotted and fluid	Do.	Do.
Do.	Do.	Do.	Do.
Do.	Fluid	Equal on both sides	Do.
Do.	Do.	Only on right side	Do.
Heart fatty	Clotted	Chiefly on right side	Thickened mitral.
Healthy	Fluid	Equal on both sides	Healthy.
Heart fatty	Fluid and clotted	Chiefly on right side	Thickened mitral and tricuspid.
Healthy	Fluid	Equal on both sides	Healthy.
Do.	Do.	Chiefly on right side	Do.
Heart fatty	Clotted	Equal on both sides	Thickened aortic and mitral.
Do.	Do.	Chiefly on right side	Do.
Healthy	Fluid	Equal on both sides	Thickened mitral.
Do.	Fluid and thrombosis	Chiefly on right side	Ossified aortic valve.
Heart fatty	Clotted and thrombosis	Do.	Thickening of all valves.
Healthy	Clotted, fluid, and thrombosis	Do.	Healthy.
Heart fatty	Fluid	Equal on both sides	Do.
Healthy	No blood	Both sides empty	Thickened mitral and aortic.
Heart fatty	Clotted and thrombosis	Equal on both sides	Healthy.
Healthy	Clotted	Chiefly on right side	Thickened mitral and tricuspid.
Heart fatty	Clot, fluid, and throm.	Equal on both sides	Thickened mitral and aortic.
Fluid in pericard.	Fluid	Do.	Do.
Healthy	Thrombosis	Only on right side	Thickened mitral and tricuspid.
Fluid in pericard.	Fluid	Equal on both sides	Thickened mitral.
Heart fatty	Thrombosis	Do.	Thickened mitral and tricuspid.
Healthy	Do.	Do.	Healthy.
Heart fatty	Fluid	Do.	Thickened mitral and aortic.
Do.	Do.	Chiefly on right side	Healthy.

The causation of sudden death, although a subject to which a good deal of interest attaches, has hardly received from pathologists the attention it deserves; and consequently, while our knowledge of morbid anatomy is extending at a rapid rate, this particular province has still much unexplained and mysterious about it. That this should be so is the result of several circumstances. In the first place, the inquiry into the causes and modes of death is at no time an easy task; and, in the second place, the pathologist, to whom the medical world naturally turns for assistance, is not in a position to advance or to acquire much information bearing on this question. In our hospitals, institutions to which pathology owes its very existence as a science, the study of sudden and unexpected death is out of the question; such deaths occur in them only exceptionally, and the main aim of hospital autopsies is therefore almost exclusively the study of pathological lesions as connected with and suggested by the history of the individual obtained during life.

The position of the private practitioner contrasts favorably with that of the morbid anatomist in respect of opportunities for acquiring a practical knowledge bearing on this subject, and did the general practitioner avail himself of even a limited number of these opportunities, we would not have to complain of deficiency of information on this topic. But, unfortunately, in almost every instance, these are allowed to slip away, and to the lips of the physician called to the corpse of one who has suddenly and unexpectedly expired, the stereotyped verdict—heart disease or apoplexy—instinctively rises,—a verdict which has been, in some form or other, employed from time immemorial by the judicious practitioner, glad of a broad cloak for his ignorance, and an escape from the awkward questioning of the friends. In early times, it is well known, most sudden deaths were set down to the effects of poison, while in later years, the city of refuge for those who have not the courage to say, "I do not know," has unfortunately been rendered nearly impregnable by the discovery of the fatty heart; so that it is not overstrained to say that, among the richer classes at least, it must seem to the uninitiated laity as if no one whose demise has been sudden and unlooked for could enter into his future state otherwise than in one of a very few ways.

All the blame, however, should hardly be thrown on the general practitioner, for indeed he would have his difficulties to contend with did he adopt any other course. To refuse a death certificate until an autopsy was allowed, in the face of the opposition of the relatives, and of the fear of some more unscrupulous rival, would be an act which few indeed would commend; and their scanty applause, even with the addition of an approving conscience, would be but small consolation for the empty pockets such conduct would entail.

It is hopeless, then, to expect enlightenment on this head from the general practitioner; and the sole other source of information consists in the judicial inquests on cases of sudden death, where the results of these are obtainable. It has therefore been the object, in putting together the above tables and the following remarks upon them, to compare the results furnished by such sources, with the notions, or, at least, the utterances of many who, holding the position of fathers and heads in the profession, are yet most active agents in perverting our registrar's returns to a monstrous extent. Indeed, when regard is had of the multitude of people who are returned, after sudden death, as having succumbed to heart disease and apoplexy, and of children who are rashly supposed to have been "overlain," not to mention other favourite but erroneous hypotheses, it must be confessed that very many columns of these returns are worse than worthless.

In relation to Table I, where the results of 580 cases of sudden death, as disclosed by post-mortem examination, are brought together, some few explanations are necessary. The table is compiled from a series of full records of complete post-mortem examinations in cases of sudden and suspicious death, made with the view of reporting thereon to the Crown authorities. Those cases embrace many deaths which, under usual circumstances, might not have come under the denomination of sudden and suspicious, but it has been deemed better to allow them for the present to retain their position, as they illustrate very well the general run of disease, and prove that many maladies, in themselves almost incapable of remaining unrecognised, under peculiar external circumstances, or possessing an unusually latent character, contribute their mite towards filling up the catalogue of sudden deaths. In glancing over the list, for instance, it cannot but excite surprise to see such maladies as enteric fever, scarlatina, erysipelas, starvation, &c., figuring among the causes of sudden death, and it would require an account of the peculiarities of each particular case, an undertaking which space forbids us entering upon, to vindicate for such diseases the position they are made to occupy. But the fact remains, that such diseases do, under exceptional circumstances, destroy life in such a manner as to deserve being classed among the others in the above table, hydrophobia being, perhaps, the only one which ought properly to have been omitted from it.

Besides these more striking diseases, there are a number of others which could not have been expected to occupy so prominent a place as they hold; diseases which, though generally running their course under the observation of the physician, do sometimes progress in so latent and insidious a manner that their existence remains unknown and unsuspected by the individual himself, and the autopsy gives the first hint of their having been present. Among these may be

mentioned pneumonia, cellulitis, meningitis, encephalitis, cholera, liver disease, hydrocephalus, peritonitis, pericarditis, and bronchitis.

To complete the table, deaths from wounds and injuries, drowning, poisoning, hanging, strangulation, burns, &c., have been retained, although, strictly speaking, they do not belong to cases of death occurring suddenly under ordinary circumstances.

In Table II, an attempt has been made to reduce the first table of cases more to the level of ordinary experience of sudden death, and to place together merely such instances as would, by most inquirers into the subject, be comprehended under this designation. At the same time it must be remembered that such a thing as an absolute definition of what constitutes an ordinary sudden death is, in the very nature of things, out of the question, and that, in proportion as the subject is regarded from the practical rather than from the theoretical side, the difficulties of drawing a line of demarcation multiply themselves. Hence cases of suffocation have been retained, since this accident, although rare and tolerably obvious to an eyewitness where occuring in adult life, forms a large proportion of the diseases of infancy where the termination of life is sudden and inexplicable. In truth, although the signs during the autopsy are perfectly diagnostic of this occurrence in many of the deaths of young children and even of adults, little or no idea can be formed from the circumstances or the accounts of the friends, as to the mode in which it had originated.

In the second table, those cases where the symptoms during life, or the marks and appearances on the body after death, or the history of the case, where obtainable, would, with approximate certainty, indicate the agency at work, have all been omitted. Cases of drowning, where the wet clothes, &c., would tell their tale; cases of wounds and injuries, cellulitis, poisoning, hanging and strangulation—where the mark of the cord would remain,—hydrophobia, burns, convulsions, childbed diseases, erysipelas, scarlatina, abortion, and enteric fever, have all been omitted; and if any still retained may seem liable to challenge, it may be urged that numbers of those omitted should by right have been retained, while it should further be borne in mind that the cases must be estimated as they occurred in practice, and not as our notions of probability would suggest to us.

In the second table, purged and curtailed as it is, we find, still playing a very important part, many diseases which could hardly have been supposed likely to be represented in it, and these are all the more striking, as they preponderate over, or at least rival in importance, other maladies recognised as causes of sudden death. In fact, the two generally recognised causes, heart-disease and apoplexy, sink into the shade when compared with the numbers of pneumonias, brain diseases, &c. Cases of apoplexy stand as 43, or

13 per cent., while pneumonia numbers 49, or 15 per cent. Three cases of apoplexy, too, occurred in new-born children, reducing apoplexy in more advanced years to 40, or 12·270 per cent.; none of the cases of pneumonia occurring in children so young as this. Fatty heart numbers only 9 cases, or 2 per cent., and mechanical morbus cordis only 7 cases, the two forms of heart disease making together 16 cases, or 4·907 per cent., and reaching, if rupture of the heart is included, 20 cases in all, or 6·134 per cent.

It will be observed that some of the headings embrace diseases as yet hardly recognised by the profession as existing in the form of independent maladies, and which are certainly seldom present to the mind of the physician when reflecting on the mechanism of death,—diseased states, for example, like pulmonary apoplexy, thrombosis, and œdema of the lungs, and which, nevertheless, indicate their frequent occurrence by the magnitude of the figures appended to them, being respectively 23, 14, and 10 in number; but as some of these will be referred to at greater length subsequently, a minute inquiry into their conditions of existence is needless here.

These results show how little in a given case the practitioner can guess what has been the agency at work, and although the cases on which they are based are derived, for the most part, from the poorer classes, the conclusions apply to a very great extent to all ranks of society. While among the wealthy, probably, some few of the latent diseases might have been discovered during life, those which remain are cases of maladies common to all grades and conditions of men, and which I have found in private post-mortem inspections in sudden death among the middle classes, to be very frequent indeed. In fact, the autopsies of private patients of my own and other medical men lead me to believe that in them the causes of sudden death are very much the same as among the lower classes.

Having observed how commonly pneumonia is present in the bodies of those who have died suddenly, and having been led to investigate as closely as possible all such cases which occurred, I was brought face to face with a series of pathological appearances within the chest, which I had frequently before observed, but of which, till then, I had failed to appreciate the importance, viz. the frequent occurrence, either separately or conjointly with each other and pneumonia, of such conditions as œdema of the lungs, thrombosis within the heart and pulmonary vessels, and pulmonary apoplexy, and the relations they bear to other diseases of the body.

On careful observation of even a few such cases, it becomes plain that some or all of these diseased conditions or their combinations, constitute, in certain diseased or debilitated states of the body, the regular mechanism of death, and the main difficulty lies in assigning to each its true position and importance in this respect. On purpose to facilitate, as far as possible, a searching study of the conditions

where each is present, it has been thought better to notice these diseases separately, and to draw up for each a brief table of the cases in which it was found.

Pneumonia.

To commence with pneumonia, which has, since the time of Laennec, been known as a frequent pathological occurrence, in the form of what he termed "peri-pneumonie des agonisans," pneumonia of the dying, and also in the form of true inflammatory pneumonia.

In regard to the different forms of pneumonia to be found in the dead body, and especially in regard to the causes and characters of such, great differences of opinion prevail. Most authorities agree in saying that to the naked or assisted eye of the pathologist the different forms of pneumonia present themselves with characters so identical, that from the appearance of the lung alone it cannot be determined what form of pneumonia was present, and even those who pretend to draw a distinction do it in such a loose and indefinite way, that their definitions may be thrown aside, and it may be assumed that the appearance of the lung is no guide to the nature of the process of inflammation going on in it. Every one familiar with autopsies will agree in this, that the different stages of congestion, red and grey hepatisation, being capable of being assumed by pneumonias of different forms, as from inflammation, from obstruction, or from hypostasis, the altered appearances of the lung tissue are identical in each. And yet the appearances indicate that a difference of cause must have been present, for in one case a single lobe of a lung is found, in what may be called inflammatory pneumonia, with its tissue solidified from exudation of lymph, and vascular and congested in addition, while the pleura or pericardium in its vicinity bears traces of recent and acute inflammation; in a second case a lobe is also found solidified from lymph (with perhaps less evidence of vascularity), and converted into a solid mass up to the very pleura covering it, and the pleura in this case will not so much as be reddened, although its cavity may contain a few drops of serum; while in a third case, a case of hypostatic pneumonia, the consolidation, not limiting itself to a lobe, but occupying more or less the back parts of both lungs, could with difficulty have its locality accurately defined, and shades off gradually and without distinct demarcation into the neighbouring healthy lung. It seems, in other words, as if the pneumonia of the second class were simply a concentrated form of the third class, or hypostatic pneumonia, and as if the inflammatory were merely this pneumonia of the second class, plus the peculiar inflammatory virus, which we do not know save by its effects on the pleura and pericardium, but which makes diseases elsewhere so different, which causes, for example, that the

serum in a case of acute peritonitis will give rise to a virulent poisoned wound when accidentally inoculated, while the fluid in ascites is utterly harmless.

The term "pneumonia from obstruction" has been applied to some forms of lung inflammation by a recent writer on pneumonia, Dr. Octavius Sturges, who in an admirable paper in 'St. George's Hospital Reports' for 1867, has discussed this subject fully and with great ability.

Dr. Sturges divides pneumonia into four classes.

1st. Pneumonia in debilitating diseases.

2nd. Pneumonia in specific fever, or where some secreting organ is interfered with, *i. e.* in blood poisoning.

3rd. Pneumonia owing to mechanical causes.

4th. Pneumonia from idiopathic lung inflammation.

In his paper on this subject, Dr. Sturges shows that we are, by mechanical means, in a position to imitate the state of hyperæmia and congestion preceding inflammation ('St. George's Hospital Reports,' 1867, p. 219). "Venous obstruction," he says, and he cites "Simon's Lectures" in support of his statements, "however produced will give rise to an exudation which will be serous, or albuminous, or spontaneously coagulable, according as the pressure is less or greater." Quoting also a paper by Dr. Robinson in the 26th volume of the 'Medico-Chirurgical Transactions,' Dr. Sturges shows satisfactorily that in the stage of fibrinous effusion which has been mechanically produced in the kidneys by obstructing the flow of blood through the renal vein, the difference between the appearances found and those present in inflammation "is more of degree than of kind," and applying the observations and arguments to the lungs, he proves (l. c. pp. 220—221) that a pneumonic infiltration from obstruction is a highly probable phenomenon.

But it seems to me that while quite justified in assuming that there is an obstructive, as distinguished from an inflammatory pneumonia, Dr. Sturges has not made out the same claim to separate the obstructive inflammations, under which head are included, not only those where obstructive heart disease is present, but also those where alterations of the blood, or loss of power of the heart exist, from hypostatic pneumonia; and further, that his fourth class of idiopathic pneumonia ought by rights to include his second class of inflammation occurring during specific fever and interrupted secretion, a class in which, he says, "the lung affection occurs with marked local symptoms, resembling idiopathic pneumonia, with which, indeed, it may be pathologically identical."

It would seem, on the contrary, more philosophical to class together all pneumonias where the true inflammatory element is present, and which would all be characterised by the sympathy of the system generally with the local disease, as expressed in the

accompanying fever, and usually by the local signs, and after death by the element of inflammatory infection of the neighbouring parts, pleura, pericardium, &c.; and this, while freely admitting that the same inflammatory pneumonia, occurring in extremely adynamic subjects, may completely alter its usual appearances and give rise to the typhous or adynamic form so well described by Trousseau ('Clin. Med.,' 1862, Tome I).

In regard to the other class of pneumonia, of which specific inflammation does not seem to form an element, it is only a forced distinction that can be drawn between the mechanical and hypostatic forms. There is nothing in the appearances or situation of the disease, or in its symptoms, which would justify their separation, unless perhaps that hypostatic pneumonia usually affects both lungs, and especially their lower and back parts; while mechanical pneumonia, on the contrary, is oftener seated in one or more lobes confined to these, and occupying their entire extent.

Dr. Sturges' views of the production of this form of pneumonia, while decidedly a great advance on what had previously been brought forward, have still something to be added to them; and it is this something which gives a similar meaning to the two last-mentioned classes of cases, and resolves pneumonia of this nature, not so much into a cause of death as into the position of a method or mode of death, as it appears really to be.

No doubt the weight of the experiments in regard to obstructed circulation producing fibrinous effusion, similar to that occurring in inflammation, is great, but it is not necessary that obstruction be called into account to explain the results. The chief effect of obstruction of circulation is to lessen the rapidity with which the blood flows through the vessels. Beyond effecting this, and a slight amount of increased pressure within the vessels, obstruction can have no effect, and it would seem more reconcileable with facts to attribute the phenomena produced to the diminished rapidity of circulation which ensues. This idea gains strength if it is borne in mind what is one of the chief phenomena of the inflammatory process as observable in the capillaries of a frog's foot. In it the lessened rapidity of circulation soon comes on, plays a very important part, and is quickly followed by exudation of liquor sanguinis, and other changes similar to those which supervene in the kidney, whose rapidity of circulation is lessened by obstruction applied to its vein. Diminished rate of circulation is known to produce œdema, and it seems no more than fair to attribute the appearances produced by venous obstruction to the diminished speed of the circulation which is its consequence. That this is true many facts indicate. Serous effusion is usually producible by venous obstruction, as seen in phlegmasia dolens, and is also producible by simply diminished rate of circulation, a fact so well known as to need no proof. It exists

also as the consequence of obstruction to the entrance of arterial blood, as in embolism of a part, where the diminished rate of circulation consequent on the plugging of the artery, produces the œdema characteristic of this occurrence. I have no doubt that in venous obstruction going on to the effusion of lymph, the retarded circulation is the most important factor, and that, although the pressure may also have its influence in producing the exudation, such exudation may occur without pressure and simply from retarded circulation, favoured in some cases by alterations in the composition of the blood. The doctrine of Virchow, that the fibrin of the exudation is the product of the tissues, not of the blood ('Cell. Pathologie,' pp. 154, 367; 'Spec. Path. und Therap.,' Bd. I, p. 75) may also be allowed some weight in the question of the production of these forms of pneumonia.

On these grounds we would attribute all non-inflammatory pneumonias to diminished circulation; and where the disease appears to have selected one particular lobe or locality, to the existence of something diminishing the circulation in that situation more than in the rest of the lungs.

Pneumonia of this sort occurs in individuals in whom an altered condition of the blood is usually distinctly present as the result of old disease of the kidneys, liver, or heart, or of habits of intoxication, bad nourishment, or of marasmus, old age, &c. In those individuals the lessening of the vital powers is coincident with a diminished rate of circulation and with altered properties of the blood, which reaching a certain stage produce the non-inflammatory pneumonia of the lungs, unattended with any symptoms, and, although the individual seems to die as the result of general debility, pneumonia reveals itself at the autopsy, vindicating its claim to be regarded rather as a mode than as a cause of death. Similarly does the disease originate in individuals the subjects of no enfeebling agency, but who, prostrated by fever, apoplexy, or some other severe malady, have the circulation gradually failing as their vital force becomes exhausted, until, in their last few days on this side of the grave, the circulation has diminished to such an extent as to produce pneumonic alterations in the lungs, alterations to be recognised, in all probability, for the first time on the post-mortem table. The occurrence of pneumonia in combination with other similarly produced modes of death, as œdema of the lungs and thrombosis, as will afterwards have to be explained, strengthens greatly this view of the subject, and I have little doubt that many of our diseases, occurring in connection with the tubercular diathesis, and yet showing no tubercular indications in the pathological appearances produced, as the central softening of the brain found in what is falsely termed acute hydrocephalus, are simply similar non-inflam-

matory tissue alterations occurring in states of retarded circulation, the locality of the disease being determined by some local cause.

The table which has been drawn up of cases of pneumonia embraces all those where pneumonia occurred in the 580 cases of sudden death, and contains, besides the 49 where pneumonia was returned as the cause of death, as being the most important post-mortem appearance, 18 others where it was present though subordinate. No attempt has been made to separate the forms of pneumonia further than concerns the stage in which they existed; and to avoid rendering the table too bulky for use, it has been thought necessary to omit mention of its connection with troubles of the kidneys and liver, and to confine the particulars noted to the more interesting combinations with pleurisy, pericarditis, fatty and other heart disease, fluidity and distribution of the blood, &c.

Pulmonary Apoplexy.

The cause of death, next in numerical importance to pneumonia, of which special mention has to be made, is pulmonary apoplexy.

Presenting itself, in its diffuse form, in frequent combination with pneumonia, thrombosis of the heart and œdema of the lungs, its importance is sufficiently demonstrated by the Table IV, where it is shown to have occurred, in the 580 cases, 23 times as the most marked appearance and therefore returned as the cause of death, and 13 times as a subordinate appearance; 36 times in all.

It is not proposed to discuss the subject of pulmonary apoplexy here; I would refer instead to a paper by my father on this subject, published in the 'Brit. and Foreign Med.-Chir. Review' for April, 1866, and to the table I have drawn up; but the question of how pulmonary apoplexy is produced is one on which a few words may with advantage be added.

The way in which pulmonary apoplexy presents itself in many cases is a frequent puzzle to the pathologist, and it—more perhaps than any morbid alteration—is to be found complicating cases where there already exists an evident and sufficient cause of death, or even it may be giving the appearance as if two causes of death were co-existing, and it is sometimes hard to determine which claims to be the most important cause. To take only one instance of this from the table, there are there noted four cases of fracture of the skull in which pulmonary apoplexy was present, and in each of these its extent varied; in one it existed merely as two apoplectic depôts in one lung; in another the whole of the lower lobe of the left lung was consolidated from this cause; in a third the back parts of both lungs were affected; while in the fourth the total extent of both lungs was the seat of the disease, there not existing a single portion of either lung, however small, which was not black, consolidated,

and nearly airless, from this infiltration of blood. This last case, occurring as it did in a man whose assailant was afterwards tried for culpable homicide, left the medical men engaged in the case in a very unenviable fix. The injuries in the head were confined to fractures of the basis cranii, to injuries of the brain, and to effusion of blood among the membranes of the brain, but not abundantly enough to have caused the slightest compression. The man was known to have been in perfect health the moment before receiving the injury. I saw him dead half an hour later, and yet here were two causes of death, each in itself sufficient, and none of which could have existed before the injury was received. The explanation which suggested itself to me was the following, and it may be applicable, to a certain extent, to more of the cases in the table than those where fracture of the skull caused death. In the case just cited the natural mechanism of death after the injury to the brain would be by coma, and hence collection of blood on the right side of the heart and in the lungs, causing congestion of these organs. Now, pulmonary apoplexy is merely an advanced state of congestion, where the blood is infiltrated into the substance of the lung tissue instead of being retained within the vessels. What was the cause which changed congestion into extravasation is not clear; it may have been excessive heart's action, or some local cause seated in the lungs; but even this imperfect explanation removes the difficulties of the case, by converting the pulmonary apoplexy from a primary to a secondary cause of death.

In the case in the table it occurred twenty-seven times in the male sex, and only nine times in females, or three fourths of the cases being among males, and only one fourth among females.

Thrombosis of the Heart and large Vessels,

Although constituting the cause of death in only fourteen cases, occurs in a much larger number than this, being present in all in 63 cases, or in 10·8 per cent. of the total number.

The phenomena of thrombosis, as studied and elucidated by Virchow and his followers, consist in the loss of fluidity of the blood or of some of its constituents within their proper channels or receptacles, and embrace the results (where any exist) of this coagulation. Thus, so long as the coagulation within the vessel gives rise to no obstruction to the circulation, symptoms of its existence may be entirely wanting, excepting in the case of a portion or the whole of the clot being washed away with the current of the blood and becoming fixed in the next portion of the vascular system whose diameter is too small to allow its passage. In these circumstances the phenomena of plugging of the vessel have been designated by the name of embolism, and the impacted embolus occasions frequently the formation on it of further depositions of coagulum.

The act of the washing away of a portion of the thrombus is commonly attended with rigors, and this symptom forms a good diagnostic mark in distinguishing embolism from absorption of septic fluid, which is seldom (if ever) attended with the production of rigors.

Where the original thrombus increases to such an extent as to offer a barrier to the circulation, or where the process presents itself as embolism, œdema of the part supplied by the vessels generally occurs.

In the heart and main vessels this process of thrombus formation constitutes an extremely common method of death, the thrombus being sometimes the main agent in the cessation of life, and sometimes only a subordinate appearance.

In chronic maladies attended with diminished rapidity of circulation, or with an altered composition of the blood, it is but natural to suppose, and the analogy existing in the process of spontaneous cure of aneurism confirms the supposition, that while the constituents of the blood, as already shown under pneumonia, occasionally deposit themselves in the tissues under the forms of serous and fibrinous exudation, such deposition should sometimes take place within the mass of the blood itself. And such deposition of fibrine in the mass of the blood I believe to be the only explanation which our knowledge admits of, of the production of thrombosis of the heart and large vessels in the process of slow and gradual death. The thrombi are usually found, when small, in some part of the organs of circulation where the blood current can be fairly supposed to be slowest, where there exists something like a side eddy in the stream of the circulation. Their deposition is more common and more copious on the venous than on the arterial side of the heart and vessels, and they seem to select, in preference to all other localities, the auricular appendices of the auricles for their first formation. In many cases the thrombus remains limited to the right, or to both auricular appendices, and is there observed as a soft pale-yellow gelatinous clot, composed of fibrine pervaded and soaked through with serum, and exhibiting, where cut into, a meshwork of pale-yellow, slender fibres, with a large quantity of yellowish straw-coloured fluid, mechanically held in their interspaces. The more central or oldest parts of the thrombus are paler and a little firmer than the more superficial or last formed parts, yet without anything like an attempt at arrangement into layers, such as is found in the brittle and more opaque lymph lining an aneurism. The thrombus is, in addition, usually firmly connected and interlaced with the unevennesses of the inner surface of the heart, so that a considerable amount of force is requisite to separate and isolate it. The next stage of the disease, where the circulatory disturbances favour the increase of the thrombus, seems to be the formation of other thrombi

along the course of the vessels connected with the heart, and in preference along the course of the superior vena cava and its branches, and it is possible to pull out from the interior of this vessel a long yellow clot, whose ramifications indicate that it has been formed in the superior cava, the innominate, jugular, and subclavian veins. The thrombus, however, seems seldom to fill the veins, and merely to exist as a continuous cord lying in their calibre, appearing, from its greater yellowness at one side, to have lain along one of the walls of the set of vessels. Within the head the sinuses are also occupied in part by such a line of yellow fibrinous thrombus. This thrombus appears to retain its position, and to avoid being washed down into the heart by the extent of its ramifications, the tenacity with which its several parts adhere together, and by the lessened force of the circulation to which it owes its deposition. *I do not recollect ever having met with an analogous formation in the inferior vena cava.* Along the curvature of the arch of the aorta, a similar small thread of thrombus is sometimes found, extending however neither into the arteries of the head and upper extremities nor into the descending aorta, to any distance. Exceptional forms of thrombi are occasionally met with, such as pale and little consistent clots, of the size of a bean, or thereby, which appear to have been floating free in the auricles, and which seem, from their complete and rolled aspect, not to have been anywhere attached. It may be doubted, however, whether their attachments have not been interfered with in opening the heart. Thrombi, such as above described, do not apparently become readily washed into the pulmonary artery, the clots found there being *usually* continuous with those in the heart, as a consequence of a continuance of the growth of the thrombus about to be described. In the more pronounced forms of the disease, the already existing thrombi, those particularly in the auricular appendices, and especially on the right side of the heart, suffer an increase of bulk from continued deposition of fibrine, and still firmly attached to the heart walls, they grow larger and larger until they, in many instances, occupy the whole of the heart's cavities, being firmly interlaced in the auriculo-ventricular valves, and extending into the pulmonary artery so far that, on drawing them out from this vessel, and floating the portion in water, they can be seen as a cast of the minutest ramifications of this artery. The extension of the thrombus into the pulmonary artery appears *for the most part* to take place by direct continuation of the cardiac thrombus into the vessel, and seldom by the development there of an independent thrombus, since in some cases the thrombus is found to pass from the ventricle only into the main stem of the artery, and ends suddenly in a blood clot; in other and more frequent cases the thrombus fills the main stem and a part of its two primary branches, while in a third series of cases, the casts of all, down to the finest ramifications, are yellow and

fibrinous. These thrombi in the heart and pulmonary artery do not distend the cavities in which they lie; even in the most advanced cases, they merely fill them. In a few of the autopsies the pulmonary veins were also filled with thrombi, which were continuous with that in the left auricle; but, as a rule, the development of thrombus on the arterial side of the lungs is very limited indeed, and confined almost entirely to the auricle and ventricle.

The extensive development of thrombosis is attended with a markedly œdematous condition of the lungs, a state usually present to a more or less marked extent in even slight cases, although sometimes it has been found wanting. In this œdematous state the lungs are bulky, pitting on pressure, rather heavy and solidified, and from their cut surfaces air and serum can with ease be expressed. In the more marked cases the serum is clear and yellowish, and the whole pours out in abundance, frothing like champagne; where less œdema is present, or where the lungs are congested, the serum is pinkish, tinged with blood.

Such a process as this naturally requires a little time, a few hours or so, for its production; and hence it is much more frequent in gradual deaths, however unexpected they may have been, or however sudden they may seem to the friends and neighbours, than in those where the very mode of death indicates that it must of necessity have been rapid. Out of 98 cases of drowning, it was met with but once, and in an individual drowned in this wise. He was a farm servant, and had been in bad health for some time. Walking near a pond one day he was taken ill, and falling into it was drowned before he could be rescued. In him the thrombosis may have been forming before he fell into the pond.

The table of cases of thrombosis shows that where it occurred the death was caused—

14	times by	Thrombosis itself.
9	„	Injuries.
10	„	Pneumonia.
1	„	Pericarditis.
3	„	Poisoning.
7	„	Exposure to cold.
1	„	Childbed disease.
1	„	Liver disease.
2	„	Starvation.
2	„	Brain diseases.
2	„	Meningitis.
1	„	Aneurism.
2	„	Apoplexy.
2	„	Pulmonary apoplexy.
1	„	Erysipelas.
And 1	„	Scarlatina.

In all which diseases the death would probably have been gradual, while it was found—once in death from suffocation, once in hanging, once in drowning (as mentioned above), and once in fatty heart; and in this case the thrombosis itself was more probably the true cause of death, whilst in the case of suffocation the individual was insensible from drink at the time, and was choked in his own vomit. Thus, out of 63 cases, it occurred only once in death which must of necessity have been sudden.

An altered and impoverished state of the blood appears to be an almost universal and very necessary condition in the formation of thrombosis. In young children, where the infrequent occurrence of chronic diseases leads to infrequent occurrence of impoverished states of the blood, thrombosis as above described is a rare phenomenon indeed. I have seen it once in a child three months of age, and in a case occurring since these tables were drawn up, once in a new-born child, where it existed as a rounded, complete, very soft, little consistent, and apparently unattached clot in the cavity of the right auricle. In all the other cases where it occurred the individual was above the age of three months.

The analogy of thrombosis as above described with that occurring elsewhere is seen from the existence of an œdematous state of the lungs, which was noted as present in 23 out of the 63 cases, while 27 times the lungs were tolerably healthy.

Finally, viewed in the light of being merely a method of death, thrombosis of the heart and large vessels is, as would be expected, frequently complicated with diseased states of the lungs other than œdema. In the table it will be found to have been coincident—

With pneumonia in	17	cases.
„ œdema of lungs in . .	23	„
„ pulmonary apoplexy in . .	6	„
„ tolerably healthy lungs in .	27	„
„ fatty heart	12	„

It would be interesting to know, in those who recover after such fibrinous thrombi have been deposited, what becomes of them, and whether they are always reabsorbed. It is possible, in some cases at least, that they might during recovery give rise to sudden death from being washed away and impacted in the pulmonary artery or elsewhere, producing in this manner the phenomena of embolism.

Œdema of the Lungs.

In Table VI (of œdema of the lungs) all cases where this is noted as having been present are included, with the exception of the cases of drowning in which it occurred, these having been omitted as irrelevant.

It will be perceived from this table that it usually exists along with some other important pathological appearance, but that some-

times it is itself the most important change observable after death, and it would be refusing credit to the evidence of our senses to deny that it occasionally exists in the dead body as the only morbid phenomenon, and is, therefore, in itself an idiopathic cause—or rather mode—of death. It is connected, like pneumonia and thrombosis, with debilitated states of the system, and in the remarks upon pneumonia its independent existence will be seen to be capable of being accounted for by diminished circulation existing in these debilitated individuals.

Art. II.

Suggestions for the proper Supervision of the Insane and of Lunatic Asylums in the British Colonies. By W. Lauder Lindsay, M.D., F.R.S.E., Physician to the Murray Royal Institution [for the Insane], Perth.

In the course of a tour through part of our Australian colonies (to wit, New Zealand and New South Wales) in 1861-2, my attention was attracted to the state of their lunatic asylums and of the laws and procedure affecting the insane. In the capitals of several provinces my attention was invited to the subject by the highest local legal and medical authorities; while in others the chief civil officers placed at my disposal all necessary facilities for carrying out systematic inquiries regarding the organization of local lunatic asylums and lunacy laws. The general and avowed object of these invitations and facilities was to induce me to collect materials for a full report (*a*) on the existing condition of colonial lunacy laws and lunatic asylums, and (*b*) on the alterations necessary for the proper organization of both—in other words, for placing them on a par with those of Europe and America.

In Dunedin, the capital of Otago, New Zealand, I visited the provincial jail, then the only local receptacle for the insane, with His Honor J. Hyde Harris, at that time a barrister, subsequently a judge, sometime Superintendent of the province, and Member of the Legislative Assembly of New Zealand. With Dr. Hulme, the provincial surgeon, who is now physician to the new lunatic asylum of Dunedin, I had the advantage of several interviews, inspecting with him the General Hospital. On the subject of insanity—more especially in its local legal relations—I had also conversations, more or less full or frequent, with (1) His Honor Judge Richmond—then of Dunedin, but previously of Auckland, Taranaki, and Nelson, New Zealand—who had and still has the reputation of being not

only the most accomplished, but the most experienced, lawyer in New Zealand; (2) T. B. Gillies, barrister-at-law, also then of Dunedin, now of Auckland, whose ability and experience as a lawyer are also said to be great; (3) Lieut.-Colonel Cargill, Member of the General House of Assembly [at Wellington], as well as of the Local Provincial Council of Otago; (4) Mr. John Hislop, secretary of the Education Board of Otago; as well as with various members of the local Provincial Council and of the local medical profession.

In Nelson His Honor the Superintendent [J. P. Robinson] requested an interview with me in the Government Buildings, in order that I might express my opinions as to the proper organization of a lunatic asylum for that province.[1] Subsequently to my return home he communicated with me regarding the staff of the existing local institution, empowering me to select and send out certain officers.[2] But his unfortunate death by drowning, whilst on a reconnaissance excursion to the west coast of Nelson, put a sudden stop to all our negotiations. In Nelson I had opportunities of discussing the subject of the local treatment of the insane with Capt. Rough, then harbour-master, with whom I visited the local asylum, and who took and takes a warm interest in all the provincial charities; as well as with Dr. Irvine, one of the leading medical practitioners of the city.

In Auckland I was invited to inspect the local asylum with His Honor the Superintendent [Mr. Williamson], who did me the favour subsequently to select for me a set of the 'Auckland Provincial Government Gazettes,' containing statistics and statutes relating to the management of the insane in that province. I had previously visited the asylum[3] with Dr. Philson, formerly of the 58th Regiment, then provincial surgeon, and physician to the asylum, hospital, and gaol. The Hon. Thos. Ball, Member of the Provincial Council for Mongoniu and head of the Executive Government of Auckland, also took a lively interest in the subject of local lunacy, accompanying the superintendent and myself in our official inspection of the asylum on 22nd February, 1862; while Mr. Crawford, solicitor, took the trouble to copy for me in writing the latest act of the Legislature relating to lunacy in New Zealand. Mr. Williamson expressed regret that I had not lectured publicly on the Reforms required in lunacy affairs in the colony, a procedure which he did me the honour to suggest might have had a more powerful or general effect in stimulating to such reforms than mere *local* agitation.

Since my visit to Auckland in 1862 the general Government of New Zealand has honoured me by regularly forwarding copies of the

[1] An official interview took place on 28th January, 1862.

[2] 'Excelsior' (a publication of the Murray Royal Institution, Perth) for January, 1865, Nos. 21-2.

[3] On 10th February, 1862.

general statistics of the colony, including those of insanity; while for various Government papers relating to the insane of Otago I am indebted to Mr. Hislop, of Dunedin.

While residing in Sydney, New South Wales, in March, 1862, I devoted two days to an inspection of the only two public lunatic asylums in that large and important colony—those of Tarban Creek and Parramatta, both near Sydney.[1] I had the good fortune to meet at the former asylum Dr. Campbell, and at the latter Dr. Greenup,[2] their respective physicians or superintendents. With these gentlemen, who had a much greater amount of experience and knowledge of the insane in New South Wales than any other authorities then in the colony, I had full conversations; and subsequently I discussed the whole subject of lunacy laws and lunacy procedure in that part of Australia—from other and non-official points of view—with various physicians of standing in or near Sydney, especially the veteran traveller, Dr. George Bennett, of Wooloomooloo; Dr. Roberts, physician to the General Hospital, Sydney; and Dr. Pringle, of Parramatta; as well as with various well-known laymen and clergymen. The colonial secretary (Mr. Elyard) favored me with the following Government papers: (1) "Report from the Commissioners of Inquiry on the Lunatic Asylums of New South Wales; with Minutes of Evidence," 1855; (2) Acts of the Legislature affecting the Insane from 1843 to 1861; (3) Plans on a large scale of the Tarban Creek and Parramatta Asylums. Dr. Campbell put into my hands a set of the printed forms or schedules [relating to admissions, &c.] used at Tarban Creek.[3] Quite recently another New South Wales Government blue book has been forwarded, viz.: a "Report on Lunatic Asylums," by Dr. Manning, 1868. Dr. Manning was sent in 1867 as a commissioner to visit the most modern asylums of Britain, Continental Europe, and America, and to report on the changes desirable in the asylums of New South Wales, to place them on a level *mutatis*

[1] I visited Tarban creek on 5th March, 1862, and was conducted through the establishment by the assistant-physician or apothecary (Mr. Wardley). Parramatta I inspected twice, first on 5th March, with the clerk and steward, Mr. Statham (in Dr. Greenup's absence), and again on 15th March, in company with Dr. Greenup himself.

[2] Since deceased, under circumstances of so exceptional a kind that I refer to them here, as illustrative of the peculiar class of accidents to which physicians engaged in lunacy practice are liable. "*A Physician Killed in an Asylum!*—Dr. Greenup, formerly of Salisbury, for the last fourteen years Superintendent of the Parramatta Lunatic Asylum, holding also the offices of Medical Adviser to the Government, and Examiner of Sydney University, has been stabbed by one of the patients in the asylum, and died in two days, after much suffering. His last words were, 'No one is to blame for it.' He fell a victim to his humane disposition, which led him to be too trustful of men confined in the criminal division of the asylum." ('Scotsman,' September 20, 1866).

[3] No published *Annual Reports*—similar to those of the English county asylums—are issued either by Tarban or Parramatta.

mutandis with those of countries more advanced in civilisation. I had the pleasure of meeting him in Perth, when in the course of his official tour he was visiting the few new asylums of Scotland.

I made copious notes at the time and on the spot of the impressions produced by my visits to local asylums; of the results of observation on the colonial treatment of the insane, whether at large or under legal confinement; and of the evidence of all classes of settlers with whom I came in contact, including the highest legal and medical functionaries, regarding the operation of the lunacy laws and the provision made for the management of the insane throughout New Zealand and New South Wales. Moreover, since my return home, some of the colonists with whom I had the good fortune to become acquainted during my tour have been so considerate as to forward regularly or frequently local newspapers or Government gazettes; and in these I have carefully searched for and noted any changes that have occurred since my own visit to the colonies, either in public opinion or in actual procedure, as regards lunacy reform or progress.

From the various sources above referred to, I have accumulated a large mass of material relating to the whole subject of insanity and its treatment in our Australian colonies. This material, which consists both of published and oral evidence, relates to—

I. (*a.*) The condition of existing asylums and their occupants;
(*b.*) The present lunacy laws and their operation; and
(*c.*) The insane at large

in New Zealand on the one hand, and in New South Wales on the other.

II. The reforms or changes that are necessary to place the state of the (*a*) lunacy laws, (*b*) asylums, and (*c*) insane, of the colonies in question simply on a par with their condition in Europe and America.

III. The general principles on which should be based lunacy legislation; the organisation of hospitals for the insane; and the treatment of all phases of insanity—in the British colonies as a group: exhibiting separately the special or distinctive requirements of each colony—requirements depending on climate and other circumstances.

I had originally intended to throw my material into the form of a full *Report* on the whole subjects above enumerated. But such a report would constitute a bulky blue book, and more pressing duties have hitherto prevented my carrying into execution any part of the original scheme.[1] Meanwhile, I have been led to believe that

[1] While on my way home, on board the ship "Granite City," in June, 1862, I addressed, in the columns of the 'Otago Colonist,' the settlers of that province on the subject of their provincial asylum—since erected at Dunedin. I was

the *suggestions* based on my whole inquiries on colonial lunacy affairs, including my comparative examination of the lunatic asylums and lunacy laws of Britain and the continent of Europe,[1] might prove serviceable in assisting reforms, whose desirability or necessity is being not only admitted, but promises to lead to action in more than one of our colonies.

The natural course of publication would require that *Suggestions for Reform* should follow a narrative of the evils sought to be avoided or remedied. But various circumstances render it desirable that I should reverse the natural arrangement, seeing that I cannot at present overtake the publication of a full report. All that I propose to offer in the present communication is certain *General observations and suggestions applicable to Lunacy Reform in the British Colonies as a whole,* and based on my various inquiries in New Zealand and New South Wales, Britain, and continental Europe.

In all the colonial towns I visited, I found some at least of the citizens fully alive to the defects of their lunacy laws and lunatic asylums, and earnestly desirous of their proper organisation.[2] But in various provinces there were various obstacles to progress or reform. In Nelson, for instance, all progress was for many years paralysed by the expectation that a large central or general asylum for New Zealand would be ultimately established near that city. The result has been, however, that each province has resolved on providing *locally* for its own insane: and the leading provinces of Otago, Canterbury, and Auckland, have already established new asylums, which are now in full operation on modern principles of treatment.

In all the colonial asylums I visited, humane, modern and enlightened views pervaded all classes of their officials; and every disposition existed to imitate, if not to rival, in their arrangements, the asylums of the home country.[3] But all efforts in such a direc-

induced thereto by learning that a vote of £4000 had been made by the Otago Government for the building of the first wing of a new asylum on a faulty plan; one not recommended by the provincial surgeon, nor by any competent medical authority, but drawn up by the provincial architect, and sanctioned by government officials wholly ignorant of the requirements of insane patients, or of modern principles of hospital construction.

[1] The only European country, regarding the arrangements of whose asylums I have hitherto published an account, is Norway. ('Journal of Psychological Medicine,' April, 1858.)

[2] The most competent witnesses, such as Judge Richmond, confessed that the arrangements for the management of the insane in New Zealand were or are of the most wretched kind, and a disgrace to any colony! This was fully shown also, *e. g.* by the evidence taken before a Special Committee of the Provincial Council of Auckland in 1862: which "revealed a state of things demanding immediate action," and which referred to the horrors which "overcrowding and want of proper management have produced."

[3] Thus, in 1858, I find the provincial surgeon of Auckland—Dr. McGauran—writing of the lunatic asylum there ('Auckland Provincial Gov. Gazette,' Feb. 12, 1858, p. 19), "A lunatic quickly appreciates any amelioration of his

tion were generally paralysed or stifled in the birth by government parsimony and public apathy. No proper consideration was shown towards the officers of colonial asylums as regards either emoluments, superannuation, holidays, domestic comforts, status or deference. These officers, as a rule, were overworked and underpaid. There was an insufficient division of labour, a defective and inexperienced staff. The circumstance seemed to be lost sight of that, for the efficient management of an hospital for the insane, it is a fundamental necessity to maintain all classes of officers in the utmost vigour both of mind and body, which can only be effected by *liberal expenditure*, and a proper recognition of their social rights and status.

In all the provinces visited, a necessity existed for modern asylums; for re-organisation of the lunacy laws; and for a re-classification of the officers called upon to administer them. Reform was required, however, less among the ruled than the rulers. In the latter, greater liberality of purse and sentiment, more enlightenment of opinion regarding the rights and requirements of the insane, were obvious desiderata. More particularly I was struck equally in Australia and New Zealand with the want of any *individual authority* on the subject of insanity and its proper treatment, to whom government and the public, as well as the officers immediately charged with the execution of the lunacy laws and the management of local asylums, might look for direction in all their constantly occurring difficulties; an official with proper status, who could support the proper claims and protect the real interests of all concerned in the treatment of insanity. So obvious appeared to me the urgency for the appointment of supervising officials of acknowledged ability, experience, and status, that I might concentrate all my suggestions for reform in colonial lunacy affairs, into a single recommendation for the establishment of a competent—

Central Board of inspecting and directing Commissioners.[1]

Such a board would render it unnecessary to draw, as at present, all supposed models for colonial asylums from British, European,

condition; and I have endeavoured, so far as lay in my power, to provide those amusements best calculated to exhilarate the mind. It affords me pleasure to state that a considerable addition has been made to the library during the year. . . . . I have also procured a piano, bagatelle-table, musical box, dominoes, &c. . . . . All who have visited the patients can appreciate the positive happiness conferred on them. . . . The services of the assistant-matron in particular are rendered valuable by her knowledge of music, which she is required to perform daily for the lunatics."

[1] The necessity for a *Board of Experts*—of official referees—to whom both judges and juries might appeal for direction, is signally illustrated by the startling case of Miss Loftus, who committed suicide, while affected with religious melancholia, at Sydney, in December, 1861. This lady was one of the most estimable citizens of Sydney—widely known for her deeds of philanthropy. But a coroner's jury found her guilty of *felo-de-se:* a verdict which the coroner remarked "entailed the forfeiture of all chattels, real and personal, of the deceased,

or American examples; a procedure which cannot fail to prove unsatisfactory, founded as it is on ignorance of at least two important facts—that (1) the lunacy laws and lunatic asylums of Britain, Europe, or America, have not attained perfection; and that (2), even if they had, it does not follow that what is suitable for old, highly civilised countries should be equally so for recently settled colonies, differing so materially as they do (*e.g.*) in climate, population, and habits of life. The highest aim of colonial aspirants for lunacy reform I found to be the assimilation of colonial lunacy laws and lunatic asylums to those of supposed standards or models in the home country. But this is not the proper end to be desired or aimed at. It should be the function of a Colonial Commissioner in Lunacy to adapt all that is best and most suitable—and *only* what is best and most suitable—in the lunacy regulations of older countries, wherever situated, to the requirements of the particular colony, whose interests he is called upon to consult and protect. This supposes in such an officer an intimate knowledge of the lunacy laws and lunatic asylums, not only of Britain, but of Europe generally, and of America; a long *personal* experience in the management of the insane and of asylums, and in the operation of legislative enactments regarding them; and a familiarity with those peculiarities of the British colonies, or of a particular colony, which render necessary a deviation in the organisation of their lunacy operations from the recognised standards of other countries. I do not doubt that even a single official possessed of such qualifications would prove invaluable in any colony as an authority on all matters concerning insanity and its treatment; provided always his opinions are treated with proper deference by government on the one hand, and the public on the other, and that he is invested with the proper *power* to carry his schemes into execution. But such an authority is not to be found in the colonies themselves;[1] nor is he easily to be obtained in the home country. Most certainly such services cannot be expected without *liberal remuneration*. Considering that *each* (paid) member of the Lunacy Board of England,[2] has an annual salary of £1500, exclusive of travelling expenses, and that a colonial salary can only be estimated at half its value in English coin,[3] the

to the Crown, besides deprivation of the rites of the church; and necessitated a private interment of the body between the hours of nine and twelve at night, within twenty-four hours of the finding of the inquisition!" ('Sydney Morning Herald,' December 14, 1861, quoted in 'Otago Daily Times,' Jan. 3, 1862).

[1] Neither in Australia nor New Zealand did I meet with any physician who had the slightest claim to the qualifications above described; while nine-tenths of the asylum physicians of *England* have had a most limited experience, even in their own country!

[2] The said Board consists of a chairman and secretary, with *ten* Commissioners, besides clerks, &c.

[3] In the 'Minutes of Evidence taken before the Commissioners of Inquiry respecting the Lunatic Asylums of New South Wales' (1855, p. 65), Dr. Campbell

salary requisite to induce a man of position at home to sacrifice the advantages of residence in his own country for the onerous and most disagreeable duties pertaining to lunacy reform in a democratic colony, cannot be set down at less than £2000 a year, with corresponding superannuation allowance and other advantages! I am quite aware that this will appear a "huge" sum in colonial eyes; it is the salary given only in our oldest colonies to the highest civil officers.[1] Nevertheless, I do not regard such a salary for such an officer as more than moderate; nor do I see why he should not occupy quite as good a status and possess quite as much official power as the judges or other civil authorities above referred to. I know of no instance in which colonial governments have succeeded in inducing men of position among the alienists of this country to emigrate in order to assume the direction of colonial asylums, at salaries which doubtless appeared to these governments or their home agents sufficiently attractive. I am aware, however, that in several recent cases, vacant or newly created appointments in the superintendentship of colonial asylums were offered without avail in succession to several physician-directors of pauper asylums in England! Whence may be inferred the much greater difficulty of securing the services of a properly qualified Colonial Commissioner in Lunacy! The *sort* of man to be aimed at is an alienist of recognised eminence in the home country, of sufficient experience in the treatment of the insane, the administration of lunacy laws, and the organisation of hospitals: who has had the opportunity by foreign travel of studying the peculiarities of different climates, countries, races, and habits of man in their influence on insanity and its appropriate treatment. The name and opinions of such a man would, doubtless, command in a colony at least the same respect that they would do at home; and the weight of his authority would equally influence government, the public, and the officers immediately charged with the management of the insane—in any of our colonies.

A Colonial Board of Lunacy should, as at home,[2] have its headquarters in the principal or most central city of the colony, with an ample establishment of clerks to do all the drudgery of mere office work. The time of a Medical Commissioner or inspector would be fully occupied in visiting and reporting upon lunatic asylums, and jails or hospitals containing insane patients; in reporting on insanity at large; in framing lunacy laws and regulations for the

states, "You well know that £500 in England or Ireland is *equal to twice that sum* in New South Wales."

[1] In New South Wales this is the salary of the Colonial Secretary, chief justice, and the puisne judges—according to the "Public estimates" for 1862.

[2] In 1855, the "Commissioners of Inquiry on Lunatic Asylums" in New South Wales advocated, in their 'Report' (p. 9) the establishment of a "*Board of Commissioners in Lunacy*," on the model of the *English* Board.

management of proper hospitals for the insane; in interviews with government officials of all grades throughout the colony—and perhaps in public lectures—all in order to the dissemination of sound views as to the proper treatment of the insane, and the duties incumbent upon society towards them.

I am quite aware that there are some serious obstacles to the appointment of what may be considered highly salaried officials as Lunacy Commissioners in some of our colonies, but these obstacles have no relation to the *importance of the appointment of such authorities as the first step* towards provision for the proper treatment of their insane! New Zealand, for instance, is divided into a number of provinces, each with its own government—each jealous of its neighbour and rival—none in itself rich or liberal enough to appoint, and none large enough to require, a separate Lunacy Commission or commissioner. But I have no hesitation in recommending the establishment of a *General Lunacy Board for New Zealand* as a department of the general or imperial government service. A fully equipped Board would have ample occupation in supervising the lunacy affairs of two large islands, and about a dozen different provinces! I believe, also, that in Australia, Victoria and New South Wales are each large enough to support and require its own Lunacy Board and inspecting Commissioners.

The absurdity and error of conforming everything in colonial lunacy matters to the *English* or *British* standard may be easily illustrated. British lunacy laws are much too numerous—much too lengthy or prolix—much too elaborate and minute in their provisions. They appear also to be drawn up by those whose business it is to legislate, but who are unacquainted, or imperfectly acquainted, with at least many of the subjects about which they legislate. Even as mere works of legal composition, they are most defective. So confusing or ambiguous are frequently their terms that their provisions are inexplicable by the very Boards charged with the supervision of their administration; and the bewildered official, who requests some intelligent interpretation of the meaning of the statute or its framers, is perhaps curtly referred to "counsel" for an explanation which he has surely a right to look for from (*e.g.*) a Board of Commissioners! The consequence of such a state of affairs as regards lunacy is that Acts are constantly being passed amending or repealing previous Acts, until the total number of existing and non-consolidated statutes becomes quite confusing.

Thus in England (it was recently stated) there are no less than about forty statutes affecting the insane, and urgently requiring consolidation! Even in Scotland, whose Lunacy Board dates only from 1857 (first annual report issued in 1859), already six Acts have been passed, including the comprehensive statute which established the said Board, and made provision for the erection of pauper

district asylums.[1] Most of these statutes merely amend, supplement, or repeal certain provisions of the Reform Act of 1857. The ambiguity of their clauses may be illustrated by the fact that on one occasion so many of the asylum physicians of Scotland neglected, by misunderstanding, to comply with the requirements of the law that a special Act became necessary to legalise the effects of their neglect![2] When such a wholesale misunderstanding can occur among the highly educated and experienced officers charged with the direction of hospitals for the insane in Scotland, it is not surprising they should appear frequently among the general medical profession, inspectors of poor, and the general public. Indeed it is exceptional to find all the provisions of all statutes currently in operation carried out, both to the letter and in the spirit. Wherever it is at all possible, omission or evasion occurs. Moreover, in certain cases, omission or evasion is not only permissible but legitimate; and the breach of the law, if not more honoured, is, at least for all practical ends, more judicious and beneficial than its observance!

The Irish lunacy laws are much more numerous than the Scotch, and a lunacy board was established in Ireland much earlier than in Scotland, its first annual report having appeared in 1850, and its *tenth* in 1859, when the *first* Scotch report was published. This points to what is at least a curious coincidence, viz., that the Lunacy Laws are most numerous in that part of Britain which has longest had the benefit of a Lunacy Board,[3] and fewest where such a Board

[1] The Scotch Lunacy Acts of the present century are, so far as I am aware, the following:

1815, George III.		Reform.
1828, George IV.		Amendment.
1841, Victoria.		Do. and Supplementary.
1857	,,	Reform and Consolidation.
1858	,,	Amendment.
1862	,,	Supplementary.
1864	,,	Do.
1866	,,	Amendment and Supplementary.
1867	,,	Amendment.

To these fall to be added certain special acts, such as that of 1806, George III, affecting an asylum at *Edinburgh;* and the various *Prisons* Acts [which include the subject of *Criminal Lunatics*], such as that of 1839, Victoria; and the Bill now before Parliament (1869).

[2] A printed circular from the Scottish Lunacy Board, of date 8th August, 1867, narrates that "through ignorance or misapprehension there has been so extensive an omission on the part of the superintendents and medical attendants of asylums to comply with its provisions, that it has become necessary to apply to Parliament for powers to authorise the continuance in force of all orders granted by sheriffs for the reception and detention of lunatics, which expired on the first day of January last, for such a period as would permit of this omission being remedied; and to protect superintendents and proprietors of asylums against the consequences of their neglect." Hence was passed Act 30 and 31 Vict. c. 55, of 1867, to supplement sect. 7 of Act 29 and 30 Vict. c. 51, of 1866!

[3] The English Board is twenty-four years old, having been established in 1845. Its last annual report, dated July, 1869, is its twenty-third.

is of comparatively recent establishment. In all three kingdoms, however, these laws or statutes urgently require reduction, consolidation, and simplification!

In Britain the unfortunate official charged with the management of insane patients is, however, not only bewildered by the character and number of the Lunacy Statutes, but also by the multitude of forms, schedules, circulars, orders, instructions—printed or written—besides special letters—that are constantly issuing from the Lunacy Boards of London, Edinburgh, and Dublin![1]

Compared with the complexity of the lunacy laws and regulations of Britain, those of the United States of America are marvellously simple. In this, and in other respects, the latter are much more suitable as models for a British colony. There can be no comparison, for instance, between the cumbrous and confusing admission papers of Scotland and those of America. In the latter there is only one certifying physician, who is called upon to subscribe the following simple, but sufficiently explicit, declaration, "I hereby certify that _____ of _____ is insane"; while the application for admission is made directly to the asylum authorities, and consists of the following short sentence: "I request that the above-named person may be admitted as a patient into the _____"[2] In Scotland not only is each of two medical certificates otherwise very verbose, but the physician is called upon to state (1) "Facts indicating insanity observed by himself;" and (2) "Other facts (if any) indicating insanity communicated to him by others." This is an illustration of the unnecessary refinements and absurdities that *abound* in British lunacy regulations! Practically, according to my own experience, the details here called for are useless; and in certain respects their requirement does positive harm, leading practitioners sometimes to invent or use names or phenomena that are inapplicable, or that really do not exist. A simple expression of belief, by a duly qualified medical man, that a patient is of unsound mind would be quite as valuable as the (frequently extraordinary) "facts indicating insanity," which the present absurd requirements of the law bring to light. Such "facts" would fail to convince any British judge or jury, whose feelings and opinions will lead them to pronounce every man sane and responsible where the proofs to the contrary are not of an overwhelmingly convincing and obvious character. In Scotland, too, a lengthy petition and statement must be made to a Sheriff, by whom warrant must be granted for admission—a procedure which is productive of considerable delay in the said admission, even where, on

[1] Abundant evidence of the absurd and mischievous complexity of the formalities connected with the admission and discharge of patients into and from the asylums of New South Wales, is given in the 'Minutes of the Commission of Inquiry' of 1855.

[2] Copied from the Forms for the "Admission of Patients" into the Butler Hospital for the Insane, Providence, U.S., January, 1867.

presentation, all parts of a complex schedule are properly filled up, and this occurs only in a minority of cases.

In *England* the county asylums are models only in certain respects. They are worthy of imitation as regards the *liberality* of the county boards in making residential provision for their insane poor.[1] Some of the county asylums are almost palatial—provided with all the equipments of a modern hospital, according to the most enlightened scientific views. But far too many of the insane are consigned to structures, the appliances of which can never atone for the want of the privacy and comforts of ordinary domestic life.

Scotland shows a much more instructive lesson as to the proper distribution of the insane poor in private dwellings, though even *it* does not go nearly far enough in *this* direction. I believe, on the one hand, that it is possible to construct central hospitals more cheaply than at present, and on the other to treat large masses of the quiet and industrious insane in Gheel colonies, modified to suit the special requirements of locality and people. Scotland, moreover, has *led the way in the Rational Treatment of the insane*[2]—that treatment which is now called 'modern' and 'humane.' All that is good in the so-called 'moral treatment' of the insane in England and America was adopted and adapted from Scotland; and even now it stands at the head of countries, which develope in proper ratio the recreational, educational, and occupational elements in the management of insanity.

Again, the immediate government of British asylums by boards of directors is the source of various evils. The best asylums in this country are private asylums; that is, those which belong to one person, or to a few individuals in a copartnery, who are subject to no immediate control, and who, therefore, organise their establishment in the way which, their experience points out, will most benefit their patients. In public asylums, the directors or managers have the power of arbitrarily disposing of the asylum funds, and they too frequently use this power in a way detrimental to the interests of the institutions of which they are the nominal patrons: sometimes squandering thou-

[1] Their liberality in salarying their officials is also—frequently at least—commendable. As regards the physicianship—while many superintendents have salaries at or over £500 a year, besides house accommodation, with or without board, use of carriage and horses, and other advantages; in some cases they rise as high as £800—all in pauper or county asylums. The colonial equivalents of such emoluments cannot be set down at less than £1000 to £1500 per annum.

[2] I am strongly of opinion that Dr. Browne, and the Crichton Institution, Dumfries, during the first ten years of its existence, have done more for the *real* or permanent progress of humane and rational views of the treatment of insanity than the much more lauded labours of Dr. Conolly. The latter were the result of an impracticable chimera, that has done, and continues to do, much mischief in the conduct of British asylums by the introduction, and misuse, if not abuse, of what our Continental and American brethren expressively call the "English swindle of Non-Restraint!"

sands of pounds and damaging asylums, not only by expending their finances in improper directions, but by preventing the development of their legitimate resources. All public asylums of reputation have had their reputation created for them by the physicians at their head; and this creation of high reputation has occurred only in cases where managing boards have delegated to such physicians the degree of power which should invariably be placed in their hands. As a rule, which has few exceptions, the members constituting asylum boards are ignorant of the requirements of the insane, and of the proper organisation of hospitals; and yet they venture constantly, independently, and rashly to adjudicate in matters regarding which their physican alone is competent to form any opinion, or to give any advice, of value. Whence it happens that those public board-directed asylums are invariably best managed where the government is to the largest extent confided to a single central authority, and that authority the physician-in-chief: while those are notoriously worst conducted where the directors take too personal and intimate a share in the management—in other words, interfere with and supersede the proper and skilled officers of the establishment. In truth, both at home and abroad, asylum physicians should possess a much larger measure of *power*, as well as of public and official *confidence*. The present system of treating them as men who will surely fall into sins, both of commission and omission, unless they are subjected to close espionage, and terrified by numerous money penalties, is as insulting as it is unnecessary! No minuteness of laws and regulations will alone govern an asylum efficiently, or so well as the simple appointment of suitable officers; but the latter is a procedure implying liberal remuneration, and the bestowal of a suitable status and proper domestic comforts. With such officers, legislation may be very *simple;* and the simplest legislation is always the most efficient. Moreover, discretionary power ought to be committed to all classes of asylum officers. 'Red tape' is productive of evils quite as serious as those it is supposed, or intended, to prevent. Thus, in institutions under rigid red-tape government, the following state of matters may at any time occur:—Two lunatics quarrel and fight, to the danger of the lives of one or both; the attendant, who is on the spot, dare not use force to separate the combatants—must not place either of them in his own room, or in a separate airing court. All events of an extraordinary kind he must forthwith report to his superiors, and await their instructions: so that red tape actually requires him to leave the combatants to fight out their quarrel—even it may be, unto the death! —while he goes in search of a governor or physician, who, even if he be at hand—which is a mere possibility—is probably himself puzzled at the moment how to act on the principles of non-restraint and non-punishment—principles that render it unfashionable, if not penal, to place a patient in seclusion, or to confine his hands and arms by

mechanical means! In all asylums, accidents are of constant occurrence, which require the instant isolation of an offender; but this is impossible if the attendant must await the fiat of the superintendent, who may at the moment be enjoying his indispensable and well-earned daily "outing."

In democratic countries, the Government officials of commanding influence are too frequently men of little education, and less refinement of feeling,[1] who require reasons of a kind most convincing to themselves for every petty expenditure, alteration, or procedure. So far as concerns asylum management, they are necessarily so ignorant that they can seldom appreciate the force of reasons or representations when made or submitted to them. So little chance is there of representations by asylum officials meeting with due attention, and still less with proper deference, that practically no representations are made that are not of the most urgent kind. A feeling of despair reigns among too many colonial asylum-officers—a feeling that is naturally engendered by the non-action or action of their rulers in antecedent circumstances. Apathy or interference, however, also paralyses effort or progress in other departments of colonial public work, especially those which are scientific; and I mention this to show—what I thoroughly believe to be the case—that it is not the officers at the head of medical or scientific institutions in our colonies that are to blame for the backward condition of these establishments, but the Governments that impose upon them insulting regulations, harass them with petty and tyrannical interference, withhold from them the salaries and status to which their education and experience entitle them, and disgust them with the apathy and superciliousness that spring from ignorance. It were easy to give illustrations of the utter disgust and despair inspired, among men of education and refinement, holding small but important government offices in Australia and New Zealand, by the incapacity of their legislators and rulers, and the impracticable or defective character of the acts of the Legislature.

On the other hand, the confidence of Government in the officers placed in charge of colonial lunatic asylums is liable to be shaken by every anonymous attack in the newspapers; and in colonial newspapers anonymous and sensational attacks of the most personal and scurrilous kind abound. Such attacks may be, and generally are, utterly unfair, and founded on misconception, if not falsehood: they suffice, nevertheless, to give rise to special commissions of inquiry, the result of whose labours usually is a so-called "vote of confidence" in the integrity and ability of the unfortunate officials so attacked. The colonial public, however, has generally confidence neither in

[1] In New South Wales (*e.g.*) Dr. Greenup told me the idea is, or was then, prevalent that the insane should simply be put out of sight, and securely kept from annoying Government or the public. One legislator had seriously stated, as *his* opinion, that *Prussic acid* was the best treatment of insanity!

Government nor in asylum officials: while the latter have equally little in the public and Government; and they complain bitterly, and apparently with only too good grounds, of the insults and injustice they suffer from both. In short, the relation of Government and the public to Colonial Asylums and their officers could not be more unsatisfactory and deserving of reform. The presence of even a single authority, who could from his experience and position, command the respect equally of Government, the public, the press, and the officers of all grades of colonial asylums, would at once rectify so deplorable a state of affairs, though he might become the scapegoat of those who have hitherto contended only among themselves!

This is not the place nor time to offer more *specific* suggestions —applicable equally to Britain and her colonies—regarding the organization of asylums, or the treatment of the insane. But I have expressed general opinions, or have offered specific suggestions, *inter alia*, in the following publications:—

(1) In brief summary, in the last Blue Book of the Scottish Commissioners in Lunacy ('Annual Report for 1869,' Appendix, p. 268).

(2) 'Reports of the Murray Royal Institution, Perth, for the Decennium 1854 to 1864,' *e.g.* Section on—(*a*) "Organisation of Hospitals for the Insane," Index, p. 5; (*b*) "Jurisprudence of Insanity," Index, p. 7; (*c*) "Ignorance of Architects and its Results," Index, p. 6; "Colonisation of the Insane," Index, p. 6.

Art. III.

On the Spontaneous Cure of Hydatid Cysts. By Charles Kelly, M.D. Lond., Assistant Physician and Pathological Registrar to King's College Hospital, and Curator of the Museum in King's College.

It is not uncommon to find after death cases in which a hydatid cyst is situated in the liver or some other organ, and where the contents of such a cyst are of a putty-like consistence; under the microscope the interior is seen to be made up of fat and granular débris, carbonate and phosphate of lime, cholestearine and remnants of echinococci.

As a rule, these cysts are not diagnosed during life, as they do not in general exceed the size of an orange, are often on the under surface of the liver, and seldom produce any symptoms by which they may be recognised.

The usual explanation of the phenomena that occur is to suppose that these cysts once contained fluid, and that this fluid has become

absorbed; as a consequence, the walls have become shrunken and the hydatid ceased to live.

So general is this explanation, that few English writers have mentioned any other. Sir Thomas Watson, in his "Lectures on the Principles and Practice of Physic," suggests that in some cases death may ensue from overcrowding of the hydatids. "Sometimes the whole colony perishes while yet hid in its dwelling-cave, all the enclosed hydatids losing their vitality, and shrinking up as their fluids are absorbed. It may be that they increase in number and in size till the crowding and pressure prove fatal to them. Their former domicile now becomes their tomb, and effectually precludes any contamination of the fluids of the body, or irritation of surrounding textures, by their remains. This may be deemed a sort of natural cure of such a malady" (vol. ii, p. 561).

In most of the cases which have been recorded, mention has been constantly made of a shrunken hydatid cyst, and the convolutions of the endo-cyst which are so frequently met with are adduced as proofs of the contraction having taken place.

Yet there are several objections to this theory of absorption and subsequent contraction; for if the anatomy of the cyst be considered, it will be noticed that there are no vessels to take part in such a process, for the inner membrane simply lines the outer fibrous sac, and has no vascular connection with it whatever. If absorption had occurred, then the outer sac should show evidence of shrinking or puckering of its wall or of the adjacent parts; but this is not the case, as the tumour is generally very tense and globular, and there is no sign of cicatrization in the tissue in which it is imbedded.

In some cases the endo-cyst has been found no less than four times the superficies of the cavity which contained it; Dr. Bright has recorded such a case, in which a cyst as large as a hen's egg was imbedded in the substance of the liver; now if these convolutions were due to shrinking of the wall, there should have been a cicatrized appearance in the parts around, as is so often seen in the fibrinous deposits of the kidney, but this was not the case, as the liver substance around was not puckered, and the sac was circular and tense.

Another objection is, that in some cases where a tumour has been present for many years, and where the post-mortem examination showed a cured hydatid cyst, it has been noticed that no change had taken place in the hardness or size of the tumour during life. In each case the outer fibrous sac, which is called by some the ecto-cyst, is not formed by the hydatid itself, but is derived from the tissue in which the hydatid happens to be situated. This sac is formed of fibrous tissue, and varies much in thickness and consistence, being sometimes cartilaginous or ossified. Lining this and

in close contact with it is a transparent, laminated membrane; which is part of the hydatid itself; this is known as the endo-cyst, it has no vascular connection whatever with the fibrous sac. Within is generally a saline fluid, containing no albumen or merely a trace, and of low specific gravity; water and chloride of sodium are the chief constituents, and in this liquid the echinococci are nourished. This is, in general, what is met with in hydatid cysts; but when spontaneous cure has taken place, the endo-cyst is often seen much folded upon itself, and the contents are of a semi-solid consistence.

The fact of there being no albumen in the hydatid fluid shows that the inner membrane must have a secreting power, by which it takes from the blood such elements as it requires for its nourishment; for if it were a mere transudation of serum, the fluid would be highly albuminous. The presence of chloride of sodium is interesting as it is always found where active or living changes are taking place; thus it is met with in the liquor amnii, and in the lungs, in cases of pneumonia. As there is no direct communication between the blood and the endo-cyst, the pabulum which it receives must first pass through the outer sac; the fibrous sac is nourished in the same way as other fibrous tissues, although in consequence of not containing many vessels, the process of growth is not very rapid. No tissues in which living changes occur are non-vascular, but the activity of those changes depends upon the amount of blood supply; cartilage is nourished by pabulum which, passing from the blood, permeates the tissue, and the same is true of fibrous tissues; so that the outer sac is always permeated by pabulum, so long as any living changes are going on; when they cease the wall becomes subject to atheromatous or calcareous deposits. Thus the outer portion of the endo-cyst is being constantly moistened by pabulum which has already passed through the outer sac, and the hydatid membrane secretes such elements as it requires.

The life of the hydatid, therefore, must depend on the thickness and vascularity of the outer sac, and if this is too dense or has undergone much degeneration the supply of pabulum needful for the growth of the hydatid is more or less cut off, and consequently death ensues. The cysts which are cured spontaneously seem never to have contained much fluid, and the following seems the explanation of what occurs.

In the early development of the hydatid, the outer wall is in some cases thicker and more unyielding than in others; as the endo-cyst grows, it fails to dilate the outer coat to any great extent, and the consequence of this relative disproportion of growth is, that the endo-cyst becomes doubled and involuted on itself, and the sac is not filled with fluid, but with folds of the lining membrane and secondary cysts; vital changes for a while go on, and the hydatid grows, but a time

soon comes when these changes cease, as the pabulum secreted is insufficient to support the life of the closely packed contents; chemical and physical changes then take place; the hydatid dies, the lining membrane suffers fatty degeneration; the echinococci become disintegrated, and cholesterine and lime salts are deposited. These cysts then do not contain fluid which is afterwards absorbed, but their death is caused by relative disproportion of growth between the sac and the endo-cyst at the very commencement of their development, and the crowding together of membrane and secondary cysts without sufficient fluid being secreted to support their existence.

This, in a great measure, must depend upon accidental circumstances; as the position of the cyst, where it may be unable to expand readily; the slowness of growth of the endo-cyst, by which the outer sac has time to become thicker and more resistant, or the presence of atheromatous changes in the fibrous sac, in which case the nourishment of the contents must be more or less interfered with.

If, on the other hand, the fibrous, outer sac be thin and yielding, it will give way before the development of the endo-cyst, which, instead of being folded upon itself, will merely line it, and as it grows, the pabulum, which as before mentioned, is constantly moistening the outer side of the hydatid membrane, will pass in and fluid be secreted to fill up the space formed by the expansion of the cyst. These are the cases which attain sometimes a large size and may require operative interference; they may be diagnosed during life.

The cases which are recorded in the Table show the different stages which have been here described; but two have occurred lately at King's College Hospital in support of these views, and led me to put forward the above explanation.

CASE 1.—In the upper part of the liver, and nearly imbedded in its substance, was a very tense, globular, cyst, as large as an apple; it contained hardly any fluid, but was closely packed with secondary cysts, and with foldings of the endo-cyst which, when spread out, exceeded in area the outer sac; the latter was tough and thick, but no retrograde changes had as yet occurred; but it is clear, that if the outer wall could expand, it might become much larger and require tapping; if however it failed to grow, from being too thick and offering too much resistance, the contents would die, and a spontaneous cure would be effected.

Dr. Murchison has related a similar instance, and others will be found in the appended Table.

In all it will be noticed that the cysts contain hardly any fluid, and are indeed already nearly solid, so no theory of absorption is required to explain the phenomena, as there is nothing to be absorbed; we have already mentioned the difficulties which are met with, if we

believe that the cysts have once been larger and then contracted; but not the least objection would be that it fails to show, why at any particular time, some should stop growing and absorption begin, and others go on with their development; but it can be understood if the amount of nourishment is cut off or insufficient for the growth of the hydatid.

Case 2.—A cyst as large as a cocoa-nut was found in the upper and posterior part of the liver; its outer surface was smooth and tense; the tissue showed no sign of puckering; the diaphragm was more arched than usual, and the liver a little lower down; the woman had never complained of any symptoms during life, so that it was not found till after death.

The contents were nearly solid and putty-like; on washing away this white material the endocyst could be seen much folded on itself, and its area at least three times that of the outer sac. Now, if this membrane had merely lined the sac at one time, and the convolutions were due to shrinking and contraction, it must have been of so large a size as to produce symptoms during life, or at least to have left marks of its cicatrization which could be recognised after death; but this was not the case.

The outer sac was very dense and atheromatous, and calcareous deposits were found in the wall.

There is no paradox in asserting that the nourishment of the cyst contents is derived from the blood, and yet no absorption takes place; the former may and does occur without the latter. I have met with no authentic case on record, verified by post-mortem examination, in which contraction of a cyst has occurred after it has been diagnosed during life, and drugs given, unless the cyst has been tapped, or the contents escaped by rupture.

Several observers have reported instances in which an apparent decrease in size has taken place after giving iodide of potassium, but no post-mortem inspections have been made; the fact that this drug has never been found in the hydatid fluid, even after it has been given for weeks, would rather point to its inefficiency. A diminution in the size of the tumour, or in the girth of the abdomen, is obviously of very doubtful value, as other causes apart from fulness of the cyst may cause it to be at different times of more or less prominence; finally, the silence of the reporters with regard to the autopsies of their cases would show that the diagnosis was not verified.

Dr. Tanner gives a case ('Practice of Medicine,' p. 550, fifth edition) in which iodide of potassium was prescribed for a long time, in consequence of a cyst, or rather a hard tumour, being diagnosed in the region of the liver; no hydatid fremitus, or feeling of fluctuation, could be made out from the first; a trocar and canula were introduced, but no fluid escaped; a hyatid cyst was supposed to

exist, and so this drug was given; two years after the lady died of some other complaint, and the diagnosis was found correct, as a solid hyatid cyst was found in the under surface of the liver, globular in shape; but this is no argument in favour of the absorption theory, as the facts, that no fluid was withdrawn by the trocar and canula, and no fluctuation could be made out, show that the cyst was at that time solid, and probably the iodide of potassium had no effect whatever.

Dr. Budd imagined that an hydatid tumour might be cured "by the secretion of a thick matter, like putty or plaster, within the sac, either causing the destruction, or consequent on the destruction, of the acephalocyst."

Some have thought that an excess of common salt in the fluid kills the hyatid. With respect to the first theory it may be said, that the putty-like matter is consequent on the death of the hyatid and is not secreted. The latter theory evidently fails to explain the phenomena.

Cruveilhier mentions some interesting points with regard to the cure of these cysts, and believes that there is an antagonism between the two cysts; and he gives cases which show the influence of resistance to growth in causing spontaneous cure; although it is but fair to mention his views, it was not till the greater part of this paper was written that I met with them.

The cause of death or of spontaneous cure is not, however, merely the resistance of the outer sac; it is the cutting off of the nourishment whereby the hydatid lives; a thick sac aids in doing this, but chiefly by causing involutions of the endocyst and too close packing of the contents. Atheroma, or disease of the outer sac, is another important cause.

In the cases which I have collected by far the greater number have occurred in the liver, and have been imbedded in its substance, or on its under surface, or in some position where resistance has been met with; and when they have been found in the omentum it has been because they are compressed by many others around them.

To sum up, the conditions favourable for spontaneous cure are:

1. A thick, unyielding outer fibrous sac.
2. Relative disproportion of growth between the endocyst and the sac in which it lies.
3. Calcareous or atheromatous changes in the fibrous tissue which forms the sac.
4. Situation in a confined part so as to prevent rapid growth.

All these conditions are generally satisfied, and they have in common this fact, that the amount of pabulum which can enter the cyst is more or less interfered with; and that as vital changes must sooner or later cease, the way is open for those chemical and phy-

sical changes which are always to be found after the death of an hydatid.

No cases of spontaneous cure haxe been found in the lung or brain, or anywhere where enough resistance cannot be offered.

Of the cases which I have collected, the following is a list of the organs in which the cysts have been situated:

	No. of cysts.
Liver	32
Omentum	3
Spleen	1
Between bladder and rectum . .	2
„ stomach and colon . .	1
In vertebral canal	1
Total . .	40

If the above views are correct, it follows that as soon as an hydatid cyst is diagnosed to contain fluid, it is of no use waiting for absorption to occur, as spontaneous cures are not brought about by that method, and it is equally useless to give large quantities of iodide of potassium which seems to be inert and have no effect on the cyst.

The common belief of most physicians is, that drugs are of little or of no value, and so when a solid cyst is recognised as probably an hydatid, it had better be left alone, as it already is cured, and will produce no evil effects.

The accompanying Table contains a short account nearly in the words of the authors of the cures which have been recorded, and of cysts progressing towards spontaneous cure.

Table of Spontaneous Cures of Hydatid Cysts.

No.	Reference.	Author.	Remarks.
1	'Diseases of the Liver,' 2nd edition, p. 431	Dr. Budd	A number of hydatid tumours were found in the omentum; some contained a single acephalocyst filled with a clear fluid; some were quite solid from containing a great number of hydatids, which were closely packed in their investing cyst, like a number of dried raisins. All the large investing cysts were globular.
2	Ibid., p. 424	Dr. Budd	Three cases of hydatid cysts in the liver; all were solid, and contained a putty-like material. No mention is made in which part of the liver they were found.
3	'Traité des Entozoaires,' p. 371, Paris, 1860	Davaine	An hydatid cyst was found in the left lobe of the liver; the wall was calcareous at several points; the contents resembled yellow tubercle or concrete pus. No pus was found, however, but fat and cholestérine and much granular matter.

No.	Reference.	Author.	Remarks.
4	'Anatomie Path. Générale,' t. iii, p. 553	Cruveilhier	An hydatid cyst was found in the vertebral canal, and compressed by the bony walls in which it lay. It contained putty-like matter.
5	Ibid.	Cruveilhier	A cyst was found as large as a nut on the convex surface of the liver; it was globular; the walls were fibrous, and the contents were like mastic; a gelatiniform membrane was rolled upon itself.
6	Ibid.	Cruveilhier	A cyst with an osteo-fibrous outer sac was found in the convex surface of the liver; its contents were pultaceous.
7	Ibid., p. 554	Cruveilhier	Five little cysts were found in the liver of a soldier, æt. 34. Two were superficial; the rest deep in the substance; all were spheroïdal. Four had fibrous walls; one had an osseous outer sac. The contained matter resembled plaster; in the midst were hydatid membranes.
8	Ibid.	Cruveilhier	A cyst was met with between the bladder and rectum. The contents were of the consistence of paste. It was yellowish, and had a faint odour.
9	'Clinique Médicale,' tom. ii, p. 412 (deuxme. édit.)	Andral	In the middle of the right lobe of the liver was an hydatid cyst with cartilaginous walls; inside was white creamy pus, and in the middle hydatids, some of which were still entire; the greater part was formed of the *débris* of membranes rolled on each other,
10	'Transactions of Pathological Society,' vol. ii, p. 217	Dr. Peacock	In the left lobe of liver was a "contracted hydatid cyst" as large as a bantam fowl's egg; the wall was very dense, having a thick and hard deposit of cretaceous matter on its inner side; mixed with the collapsed hydatid were many hooklets with much cretaceous matter and cholesterine.
11	Ibid., vol. iv, p. 166	Dr. Bristowe	The left lobe of liver contained an hydatid cyst as large as an orange; its parietes were very firm, and lined with earthy deposit. The fluid within was small in quantity, thick, and yellowish; there were several crystals of cholesterine, and some were thickly studded on their surface with crystals of hæmatoidine.
12	Ibid., vol. v, p. 298	Mr. Jones	On the under surface of the liver was a tough cyst as large as a walnut, filled by a putty-like mas; it contained carbonate and phosphate of lime, oil, cholesterine hydatid membrane, hooklets, and echinococci. There were also five or six other tumours, from a pea to a walnut in size, and "in these the hydatids were convoluted or folded up."

No.	Reference.	Author.	Remarks.
13	'Transactions of Pathological Society,' vol. vii, p. 224	Dr. Hillier	Two small cysts were found in the liver, and also a third larger one; one had a cartilaginous wall and thick ochre-coloured contents; the other, on the under surface of the liver, contained a membrane folded upon itself and some cheesy material. Numerous hooklets and cholesterine were found; the larger one had much fluid within.
14	Ibid., vol. vii, p. 226	Dr. Barker	At the posterior and right angle of right lobe of the liver was a cyst as large as a duck's egg, and nearly globular. The walls were of a dense and fibrous material, and its cavity was filled by collapsed and laminated hydatids. There was a slight degree of moisture, but no measurable quantity of fluid. There was a second cyst in the lobus spigelii, as large as a cocoa-nut; the wall was dense and fibrous; the sac contained a number of hydatids, some plump and some collapsed.
15	Ibid., vol. xi, p 127	Dr. J. S. Bristowe	An hydatid cyst as large as a walnut was found in the left lobe of the liver; it contained a collapsed hydatid.
16	Ibid., vol. xi, p. 295	Dr. John W. Ogle	The omentum was full of hydatid cysts. The accompanying woodcut shows one of globular shape, but filled with a membrane which was folded many times upon itself. The walls of some of the cysts were very thick, and their cavities contained a semi-concrete material, made up of carbonate of lime, and cholesterine and oil.
17	Ibid., vol. xviii, p. 125	Dr. Murchison	An hydatid cyst as large as a child's head was found in the posterior part of the right lobe of the liver. The cyst contained no fluid, but was tightly packed with secondary cysts; some were collapsed. There was no opaque or putty-like material. The outer cyst presented at several places an atheromatous calcified appearance.
18	Ibid., vol. xviii, p. 257.	Dr. Bastian	A mass about the size of an orange was found in the lower part of the spleen. The outer cyst was fibro-calcareous; within the hydatid membrane was many-times folded upon itself, and within was a white pasty substance made up of fat, with carbonate and phosphate of lime.
19	'Med. Times and Gazette,' vol. xxxi, p. 113	Dr. Kirkes	Imbedded in the substance of the right lobe of the liver was an hydatid cyst as large as an orange; the outer wall was dense, white, and leathery, and, in one part, cartilaginous; the interior was lined by a yellowish pultaceous substance, and contained many small cysts, some of which were collapsed.

No.	Reference.	Author.	Remarks.
20	'Med. Times and Gazette,' vol. xxxi, p. 260	Dr. Hale	Imbedded in the upper surface of the left lobe of the liver was a cyst as large as an orange, with opaque, tough walls; the hydatid membrane was doubled up, and folded upon itself in a great number of convolutions. Its contents consisted of the usual putty-like substance, with the *débris* of smaller cysts and echinococci.
21	'Guy's Hospital Reports, vol. ii, p. 441, series 1, 1837	Dr. Bright	There were numerous hydatid cysts in the liver; one, as large as a hen's egg, and behind the rest had the endocyst at least four times as large as the whole superficies of the cavity.
22	Ibid., p. 450	Dr. Bright	There were a great many cysts in the omentum pressing upon each other. Some had very thick walls, and these were completely filled with hydatids, in size from a shot to a small marble; some were transparent, and contained fewer secondary cysts.
23	Ibid., p. 462	Dr. Bright	A cyst was found in the liver as large as an orange, with completely ossified walls; others were imbedded in the substance of the organ, which were not larger than a pea, but were also ossified. All were filled with the remnants of hydatids, and in some the convoluted laminæ were capable of being separated and unrolled.
24	Ibid., p. 463.	Dr. Bright	A cyst as large as an orange was found between the bladder and rectum. In parts the outer cyst was a quarter of an inch thick, and internally many bony patches had been deposited. It contained numerous cysts about the size of marbles, and remnants of collapsed ones.
25	Ibid., vol. vi, p. 192, series 3.	Dr. Habershon	In a case under Dr. Barlow's care the liver contained an hydatid cyst, with dense walls and pultaceous contents.
26	Ibid., p. 194	Dr. Habershon	A cyst was found, as large as a fœtal head, between the stomach and colon, and connected with the liver by a fibrous band. Its wall was partially ossified; the contents were degenerating. No echinococci were found.
27	'Edinb. Med. and Surgical Journal for Oct. 1835, p. 286	Dr. Hunter	An old lady had had for sixty-five years a tumour in the epigastrium. Two cysts were found after death on the under surface of the liver; one as large as an orange, the other the size of a hen's egg. Both had nearly osseous walls, and contained a thick gelatinous material with hydatids.
28	'Practice of Medicine, p. 550, 5th edition	Dr. Tanner	A large globular cyst was found on the under surface of the liver—solid, with putty-like contents. Oil, cholesterine, and hydatid membranes were seen under the microscope.

No.	Reference.	Author.	Remarks.
29	King's College Museum, Prep. 330	Mr. W. J. Smith	A hard tense cyst, as large as an apple, with solid cretaceous-like contents, was found in the substance of a liver. There were no symptoms of it during life; there was no puckering of the parts around.
30	In the accompanying paper	Dr. Kelly	Two cases of hydatid cysts in the liver, one was quite solid and globular; the other had hardly any fluid, but retrograde changes had not yet taken place.

PART FOURTH.

Chronicle of Medical Science.

(CHIEFLY FOREIGN AND CONTEMPORARY.)

REPORT ON MATERIA MEDICA AND THERAPEUTICS.

By Robert Hunter Semple, M.D.,
Member of the Royal College of Physicians, Physician to the Bloomsbury Dispensary, London.

On the Use of Arsenic in the Treatment of Pulmonary Phthisis. By Dr. Moutard-Martin.—Dr. Moutard-Martin records the results of his own experience in the arsenical treatment of phthisis, and he states that before the year 1861 he was in the habit of administering the arsenious acid in the dose of 5 milligrammes to 2 centigrammes (a centigramme and a milligramme are respectively the $\frac{1}{100}$th and the $\frac{1}{1000}$th of a gramme, which is equivalent to about 15 grains of English measure) to all the phthisical cases under his care in the Hôpital Beaujon in every stage of the disease. At that period he found that in a great number of cases there was a return of the appetite and of the general health and strength, but that the state of the lungs was not commensurately improved. Since 1861 he has continued this treatment, both in hospital and in private practice, and he now announces that he has in certain cases effected a complete cure of the disease. The arsenical treatment has not, he thinks, engaged sufficient attention among physicians in consequence of the general incredulity as to the possibility of curing phthisis at all; but now that the curability of the affection is proved, the partial success of arsenic ought to encourage the profession to a more extensive employment of that drug. Dr. Moutard-Martin divides the patients treated in the hospital into two groups, namely, those who are without fever or diarrhœa and who retain their appetite, and those who have fever, either continuous or intermittent, and who suffer from abundant sweating, loss of appetite, diarrhœa, and vomiting. Among the patients included in the first class some have distinct cavities in the lungs, while others present only crude tubercles or tubercles in a state of softening. In any of these cases, under the use of arsenic, the appetite increases, the strength is restored, the complexion becomes brighter, and the weight increases; but the patients then often request to be discharged from the hospital, and they soon return with an aggravation of their symptoms

Dr. Moutard-Martin attributes this relapse to the discontinuance of the treatment, the continuity of which can alone secure success, and to the insalubrious conditions in which they ordinarily live. He relates a case in which not only the general symptoms were relieved, but the local phenomena were modified in a favorable manner. He does not, however, believe that the tubercles disappear under the treatment, but he thinks that the surrounding pneumonia is diminished, and that if the arsenical treatment were continued long enough even a cavern might be modified so as to be reduced to an inert cavity surrounded by healthy pulmonary tissue. The patients admitted into the hospital under more unfavorable conditions, as with fever, sweating, and diarrhœa, were also relieved by the arsenical treatment, but the beneficial results are not so rapid or so constant. Dr. Moutard-Martin relates some other cases of striking benefit obtained from the arsenical treatment, and he believes that they are sufficient to give encouragement, and to prove that pulmonary phthisis may be cured, even at an advanced period, and that, although it is not cured, it may be frequently relieved.—*Bulletin Général de Thérapeutique*, Nov. 15, 1868.

On the Therapeutical Use of Digitalis. By Dr. S. Kersch, of Prague.—Dr. Kersch has employed digitalis in twelve cases of pneumonia, five of pleurisy, and fifteen of typhus. In the two former, as long as the exudation continued, he found that there was no effect upon the pulse, but always on the discontinuance of the exudation the result was remarkably beneficial. In typhus the pulse became only irregular, but never diminished in frequency. Dr. Kersch found digitalis especially useful in those cases of cardiac disease in which the chief feature was an organic change in the valves or openings, and in which the pulse was accelerated, generally small, and always irregular, so that a few powerful and slower pulsations alternated with some weaker, smaller, and more rapid ones. After a continued use of the digitalis the pulse became in such cases not only slower, but also completely regular, strong, and uniform. An important condition for the employment of digitalis, according to Dr. Kersch, is that the blood should be in a normal, that is to say, uninflammatory state, and that the patient should not be cachectic, leukæmic, or anæmic, for in such cases Dr. Kersch has never observed any success to follow the use of the drug, unless the poisonous effects produced by increased doses can be considered desirable results. As to the cases in which digitalis was employed unsuccessfully, Dr. Kersch believes that the influence of the drug on the permanently altered nerves is rendered nugatory, because by their continually deficient or abnormal nutrition as a result of the preceding long-continued anæmia, or of the abnormal constitution of the blood, as, for instance, in its structure or its proportional amount of fibrine, an irreparable alteration is developed.—*Schmidt's Jahrbücher der Gesammten Medicin*, March 20, 1868.

On the Febrifuge Properties of Quinia, and its Efficacy in Pulmonary Consumption. By Dr. C. Liebermeister.—Dr. Liebermeister

has formerly contributed some observations on the febrifuge properties of quinia in abdominal typhus, and in his present paper he shows that the alkaloïd acts in a similar manner in some other febrile diseases, such as the purulent fever of variola, erysipelas faciei, acute articular rheumatism with or without heart disease, pneumonia and pleurisy; but his communication is especially interesting in reference to the febrifuge action of quinia in pulmonary phthisis. This action is the more conspicuous in the fever which accompanies pulmonary tubercle, the higher the degree of the fever is and the more it approximates to the continued character. Dr. Liebermeister therefore maintains that the general opinion as to the efficacy of quinia in phthisis being especially remarkable in cases having an intermittent type is erroneous. He recommends accordingly that the use of the quinia should be continued in large doses for a considerable time, in order that the local symptoms may be improved by the relief of the accompanying fever. He relates a case of phthisis in which caverns had already developed themselves in the lungs, but in which, under the use of quinia (combined with digitalis), the patient recovered his weight, and was able to resume his work, although he had a subsequent relapse. Dr. Liebermeister, while admitting that the use of quinine (with digitalis) is not successful in all cases of phthisis, thinks that it ought to be tried even in advanced cases of that disease. But the most useful field for treatment in pulmonary consumption is at the commencement of the disease, and in this stage the combination of quinia with digitalis is especially serviceable.—*Schmidt's Jahrbücher der Gesammten Medicin*, Feb. 20, 1868.

On the Use of Tincture of Green Hellebore (Veratrum Viride) in Inflammation of the Lungs. By. Dr. Drasche and Dr. Kiemann.—Dr. Drasche considers that the treatment of inflammation of the lungs by veratrum viride offers one of the most remarkable examples of the cure of an acute inflammation. The operation of the drug is most clearly and most early manifested in its effect on the fever, and after the first doses, or after a few hours, a partial or general diminution of the febrile symptoms is manifested. This effect is exhibited in all the stages of pneumonia, but it is far less certainly or constantly present in pleurisy, tuberculosis, and typhus. The pulse is diminished in rapidity and strength, and in one case recorded it was reduced twenty beats within two hours after two doses of the tincture. Together with the pulse the temperature also falls almost regularly from one to four degrees, and this fall remains even after the veratrum is discontinued, and when the pulse rises. The effect of the drug upon the breath is less constantly observed, but for the most part there is relief of suffering. Among the inconveniences of the use of the veratrum in pneumonia the most common is vomiting, and sometimes there is diarrhœa, and occasionally hiccough. Dr. Drasche thinks that the veratrum not only controls the fever but also the local disease of the lungs. When it is administered in the course of pneumonia with yellow sputum and violent fever, the peculiar

expectoration disappears in a short time together with the cessation of the febrile symptoms, and auscultation and percussion prove that the local disease is arrested. But if the medicine is discontinued, as, for instance, on account of vomiting, the fever and the expectoration return, and the hepatisation advances. Dr. Kiemann, who observed a great number of cases of pneumonia, in connection with Dr. Drasche, in hospital practice, and has described forty of them with accuracy, agrees with the latter physician as to the efficacy of the veratrum. Of the forty cases treated, thirty-five recovered and five died. A table is given of the period when resolution of the pneumonia was established in the successful cases, the commencement of the disease being reckoned from the occurrence of shivering, and the end from the time when the vesicular breathing returned in the formerly hepatized lungs. The period, as shown in the table, varied from the eighth to the twenty-sixth day. The fatal cases were considered very serious on their admission, and were complicated with other diseases besides pneumonia. Vomiting was present in more than half of the cases treated by veratrum, but it ceased generally some hours after the discontinuance of the drug. Hiccough seldom occurred, and when it did it was relieved by ice or soda-water. Diarrhœa supervened in one third of the cases, but gastro-enteritis was never observed in the post-mortem examination, and collapse never occurred. Dr. Kiemann observed diminution of the pulse under the use of veratrum not only in pneumonia, but also in diseases of the cardiac valves, endocarditis, pleurisy, and bronchitis. In a fatal case of scarlatina 20 minims of the tincture of veratrum viride reduced the pulse in two hours from 168 to 104 beats, while the temperature rose from 41° to 42°. In two cases of typhus and in different cases of tuberculosis no effect was observed on the fever. —*Schmidt's Jahrbücher der Gesammten Medicin*, November 25, 1868.

Further Observations on the Treatment of Aneurysm by Iodide of Potassium, with additional cases. By G. W. Balfour, M.D., Physician to the Royal Infirmary, Edinburgh.—Dr. Balfour has previously published a paper on the subject of the treatment of aneurysm by the iodide of potassium, and he has shown by the result of experience the beneficial operation of the drug. He stated in his former communication that in his opinion this treatment held out a better prospect of relief, if not of cure, than any other method hitherto devised, although he also pointed out the fallacies which may embarrass the judgment in determining the value of any remedial measure in such a disease as thoracic aneurism. In the cases related in the present paper Dr. Balfour thinks that there are sufficient facts to convince even the most sceptical inquirer that a real improvement does often take place, the permanence of which, however, will depend on many circumstances over which neither physician nor physic has any control. The value of the treatment is shown, not only by the relief of the symptoms, but by the positive improvement which has been obtained in every case where the plan has been adopted for a sufficient length of time, while there are many facts

tending to prove, according to Dr. Balfour's experience, that the iodide is not only curative in aneurysms already developed, but that it also acts remedially and prophylactically in the aneurysmal diathesis. We may mention that Dr. Balfour gives the iodide in large doses, varying from ten grains to half a drachm, at frequent intervals, and continued for a long period, extending sometimes over several months. The present paper contains the record of eleven cases, some of which are continued from his former paper, with a view of proving the permanence of the relief obtained; some are well-marked instances of improvement in the condition of the patients; in a few the existence of actual aneurysm was not clearly ascertained; and one case (which, however, is a very interesting one) was fatal. As to one of the cases formerly reported the patient is now keeping a shop, the iodide of potassium being still taken. In another, the patient has been heard of from Australia, as being about to go to the gold diggings; in a third, the patient, who was formerly a mason, is now employed on the Caledonian railway. In the instances where a medical report can be obtained as to the condition of the patients, it would appear that the aneurysmal tumour has been diminished in size, and that the artery with which it is connected has resumed its natural functions, although it has remained dilated. With respect to the majority of the other cases, which are very carefully related, the treatment appears to have been decidedly beneficial, and the relief of the symptoms very remarkable. The iodide of potassium was not relied upon alone in any case, but antispasmodic and sedative and other medicines were given as adjuvants when required, rest was strictly enjoined, and the diet was carefully regulated. The fatal case, to which allusion has already been made, affords considerable evidence of the efficacy of the treatment, the death having arisen from peculiar circumstances. The patient had been labouring under symptoms of aneurysm for about six years, but the symptoms were relieved, and the disease kept in abeyance, by the irregular use of the iodide of potassium. The aneurysm was one of the arch of the aorta, and after the patient had been several times in and out of the infirmary he at last came in suffering from œdema of the lower extremities, with some ascites and oppression of the breathing, and he died suddenly, suffocated by hæmorrhage. On the *post-mortem* examination it was discovered that the whole of the ascending part of the arch of the aorta had its inner coat atheromatous and calcareous, and that a large aneurysm projected from it towards the left side. What is most interesting in this aneurysm is that its anterior part contained firmly adherent fawn-coloured clots, and its posterior part contained a large, softer, and more deeply coloured clot. But on the same level as this aneurysm sprang another from the right side of the aorta, with an orifice about the size of a shilling, the whole tumour being about the size of a walnut. This second aneurysm pressed upon the right auricle, and was thus the cause of the dropsy, and it ultimately caused death by bursting into the lower lobe of the right lung. The large aneurysm was in process of cure by the consolidation of the clot, but the cure of the

small one was prevented by the movement continually exerted by the hypertrophied right auricle.—*Edinburgh Medical Journal*, July, 1869.

On the Application of the Hypodermic Method to the Treatment of Syphilis by Mercurial Preparations. By Dr. F. Bricheteau.—The first attempts made to treat syphilis by subcutaneous injections were made by Scarenzio, of Pavia, who employed calomel suspended in water, glycerine, or some solution of gum. The memoir published by Scarenzio on this subject describes eight cases of syphilis successfully treated, with one exception; but in all the cases the patients had abscesses in the spot where the injection was made. Dr. Ambrosoli, of Milan, following the treatment proposed by Scarenzio, obtained fourteen cures out of sixteen patients. Berkley Hill, in England, employed injections of corrosive sublimate in twelve persons attacked with constitutional syphilis, and in four of them a very small amount of the drug produced mercurialism. The quantity of the salt employed each time was about a milligramme ($\frac{1}{100}$th of a gramme, about fifteen grains), and where this quantity was exceeded the patients suffered from colic and diarrhœa, and the place of the injection remained painful for some time. Dr. Casati knew of a case where eight centigrammes of calomel injected under the skin of the arm produced a phlegmonous abscess, and a gangrenous stomatitis was superadded, which for some days put the patient in danger of his life. In Germany, George Lewin, of Berlin, made a number of experiments on this subject, and published a voluminous treatise founded on seven hundred observations. His solution consisted of corrosive sublimate in distilled water. Lewin's experience was strongly in favour of the hypodermic use of mercury in syphilis, and he considered the plan to be rapid in its results, as well as safe and effectual. In France this treatment has been but little employed, and the only physician who is known to have tried it is M. Aimé Martin, who published two cases, which, however, are very conclusive. He recommends a solution of four centigrammes of red iodide of mercury in a gramme (about fifteen grains) of distilled water. In order to render the red iodide soluble, it is mixed with iodide of potassium. This preparation is not irritating, and it presents besides the advantage of containing at once, in nearly equal proportions, the mercury and the iodide of potassium, the two great remedies for syphilis. The two cases recorded are very remarkable examples of the beneficial effects of the treatment. M. Aimé Martin, without abandoning the internal treatment by mercury or mercurial frictions, thinks that the hypodermic method is calculated to render some service in the treatment of a disease so obstinate as syphilis. M. Liégeois, surgeon of the Hôpital du Midi, is continuing some observations, which he has instituted during the last two years, on the hypodermic use of mercury in syphilis, and M. Bricheteau considers that his results are still more satisfactory than those of Lewin, and that his method is free from inconvenience. But M. Bricheteau considers that all the preparations of mercury

hitherto recommended are objectionable, owing to their irritating nature; and, after consultation with a pharmaceutical chemist of experience, he has fixed upon the double iodide of mercury and sodium as the least injurious to the tissues. His formula consists of 1½ gramme of the double iodide dissolved in 100 grammes of distilled water. Each gramme of this solution, or 20 drops, contains I centigramme, or 10 milligrammes. It is recommended to begin with 10 drops, or 5 milligrammes; then to increase the dose by 10 drops, and an injection to be made every second day.—*Bulletin Général de Thérapeutique*, April 15, 1869.

On the Value of Tincture of Cantharides in some Forms of Pyelitis. By Edward Mackey, M.B., of Birmingham.—In support of the opinion that tincture of cantharides exercises a beneficial operation in certain forms of pyelitis, Dr. Mackey relates two cases treated by himself some years ago. In the first case, that of a female, the earliest symptoms were observed when the patient was only ten years old, and consisted of smarting pain in the urethra, with frequent calls to pass urine, and violent pain in the right loin, darting downwards. She did not suffer very severely, however, till long afterwards, when she was treated at the Bristol Hospital, and subsequently at the Leeds Infirmary, for symptoms indicating great irritation of the kidneys, and attended with the excretion of pus with the urine. She was sounded by Mr. Teale for stone, but none was found. In July, 1865, Dr. Mackey saw her, when she was suffering from constant calls to micturition, with great pain along the course of the right ureter, and the urine was found to contain pus. After a number of different remedies had been tried, the tincture of cantharides was administered in doses gradually increased from one to fifteen drops, and at the end of a fortnight she was decidedly easier, and continued so as long as she took the medicine. Although she was relieved, however, she was not eventually cured. In the second case pus was noticed in the urine when the patient was sixteen years old, and micturition was frequent and painful. Dr. Mackey saw her in the year 1866, and administered the tincture of cantharides in the dose of three minims with considerable relief, but she eventually died in 1867, and on a post-mortem examination one kidney was found atrophied, and the other contained several calculi.—*British Medical Journal*, June 26, 1869.

On the Value of Perchloride of Iron in Post-partum Hæmorrhage. By Hugh Norris, L.R.C.P. Edin.—Mr. Norris employs a strong solution of the perchloride of iron as a local application, and he has found it exceedingly efficacious as a hæmostatic, and especially in hæmorrhage after delivery. He records his experience as to its use during the last ten years, and adduces eleven cases in support of the practice. He draws especial attention to the extraordinary corrugating or contractile effect of the perchloride on the superficial muscular fibres, as well as on the mucous surfaces. He has seen, in less than five minutes after injection, the sphincter

vaginæ, which had previously allowed the passage of the hand, to become so contracted by its use as barely to admit a single finger. He believes that in post-partum hæmorrhages the perchloride exercises a conservative effect almost as beneficial in producing a firm contraction of the uterus as in primarily sealing up its bleeding sinuses. His experience leads him to draw the following conclusions, viz. 1. That we possess no topical styptic at all approaching the perchloride of iron in efficacy, its effects being certain, perfect, and instantaneous. 2. That in post-partum hæmorrhages a solution of the salt, applied as an intra-uterine injection, is of the utmost value, both in immediately arresting the flow of blood, and also in causing a permanent contraction of the recently emptied uterus. And 3. That its presence in the uterine cavity, post-partum, is not only not injurious, but, on the contrary, from its well-known antiseptic properties, may frequently be productive of positive benefit.—*British Medical Journal*, April 10, 1869.

Coal-Oil as a Medicinal Agent.—By JOHN MULVANY, M.D., Royal Navy.—Coal-oil, or petroleum, issues from crevices in the rocks in some parts of the world, and is used as an illuminating agent. As a medicinal substance it has hitherto been not much used, owing, as Dr. Mulvany thinks, to its impurity, and to its *modus operandi* not being well known. He was first led to believe that it might possess therapeutical properties by accidentally discovering that it was an excellent application for burns or scalds. An engineer on board a boat on Lake Erie scalded his wrist, and, having some petroleum at hand, he applied it freely to the part, and with such good results that when Dr. Mulvany saw it next day he was surprised at its healthy appearance, and determined to continue the treatment. The improvement was rapid and uninterrupted. Dr. Mulvany afterwards employed the coal-oil as an external application in other cases, as of ulcer and phlegmonoid inflammation, and always with good effect. From these satisfactory results of the external use of coal-oil, Dr. Mulvany was led to infer that it would exercise a similarly curative influence over the same diseased conditions in internal parts, if it could be topically applied. But as he did not know whether it might not be poisonous when given internally, he tried the effect of a small dose on himself, and found that it was neither poisonous nor palatable. He employed it on himself in the form of injection into the bowels, for dysentery; in a case of chronic duodenitis, in the dose of a few drops mixed with chloroform and tincture of cardamom; and in a case of erysipelatous laryngitis, in the form of spray injected by an atomiser. It appears to be, like carbolic acid, destructive to the lower organisms, and is, therefore, a remedy for itch.—*British Medical Journal*, March 27, 1869.

Observations on the Successful Treatment of Diabetes by Alkalies and the Phosphatic Salts of Ammonia, with limited Restriction of Diet. By W. R. BASHAM, M.D., of the Westminster Hospital.—After observing that diabetes in advanced life is more tractable than

in youth, Dr. Basham proceeds to inquire as to the therapeutical management of the disease, especially in old subjects. A paper lately written by Dr. Pavy appears to show that diabetes may be treated by opium without restriction of diet, but Dr. Basham points out that in Dr. Pavy's case the patient, during the whole period of treatment, continued to take alkaline remedies, namely, carbonate of potash and the aromatic spirits of ammonia. Dr. Basham attributes the beneficial results to these alkaline medicines, and not to the opium, and in the case which he himself adduces no opium was given, and the restriction in diet was carried out only to a limited degree. Dr. Basham's patient was seventy years old, and the symptoms of diabetes were well marked, eighteen to twenty pints of urine being passed in the twenty-four hours, of specific gravity 1035, and the proportion of sugar being seventeen grains to the ounce. Some of the ordinary characters of diabetes, however, were not so prominent as might have been expected from the physical conditions of the urine. A scheme of diet was written out, phosphate of soda was given as a purgative in half ounce doses, and the carbonate of ammonia and carbonate of potash were given in effervescence, with fresh lemon-juice three times a day. At the end of three months the amount of sugar was very much diminished, although only a moderate restriction in diet was observed, chiefly in abstinence from wheaten bread and potatoes. The treatment having been commenced in 1867 the improvement was notably observed at the beginning of 1868, but as the summer of the latter year advanced, and the heat became greater, the specific gravity of the urine again increased, and the proportion of sugar was greater than ever. In September, 1868, the patient was ordered to take phosphate of ammonia and carbonate of ammonia, and aromatic spirits of ammonia, three times a day in fresh lemon-juice, and this treatment was continued without intermission for the next four months with the most favorable results, for the specific gravity of the urine fell to 1026, and the sugar disappeared altogether. Dr. Basham mentions another case of diabetes in which he was consulted in the year 1853, the patient being then fifty-five years old, and under the alkaline treatment the disease was cured, and the gentleman is now alive and in excellent health. After alluding to other cases, which were also followed by beneficial results, Dr. Basham concludes by observing that the remedies, namely, the alkalies and the phosphatic salts of ammonia, ought to be uninterruptedly continued, for it is only after long use that their remedial action becomes apparent. He offers no theoretical views as to the mode of action of ammonia and its salts, but he considers that perseverance in their use is absolutely requisite. —*British Medical Journal*, April 10th, 1869.

On the Treatment of Epithelioma by Chlorate of Potash.— The treatment of cancroïd affections by chlorate of potash was recommended by M. Bergeron in 1864, but since that time experimental researches on the subject have been neglected. Lately, however, two cases have occurred in the practice of Professor Magni, of

Bologna, in which the results of this mode of treatment have proved very satisfactory. In one case, after a blepharoplastic operation for an ulcerated epithelioma of the internal angle of the left eye in a man of fifty-two, a relapse occurred and a large ulceration of the lower eyelid was observed, which had destroyed the corresponding *ala nasi*. The moveable wall of the lachrymal sac was involved, as well as the corresponding edge of the upper eyelid. The part was dressed three or four times a day with a solution consisting of 8 grammes (a gramme is about 15 grains) of chlorate of potash in 120 grammes of water, and at the same time 50 centigrammes (about $7\frac{1}{2}$ grains) of the salt were administered internally, and after a month of this treatment the ulcer improved in appearance, its edges became smooth and soft, its base became clear, and the neoplastic vegetations diminished. Two months afterwards cicatrisation was complete except at the angle of the upper lid. In the other case the result was equally successful, but the relapse was more recent and the ulcer less extensive. After cauterisations with nitrate of silver and the acid nitrate of mercury had been employed unsuccessfully, the chlorate of potash, used externally and internally, effected a complete cicatrisation at the end of a month. In a third case, considerable improvement was observed from this treatment in a case of epithelioma of the forehead, but the cure was not complete at the time of the report.—*Rev. Clin. di Bologna*, March, 1869.

On the Effect of Corrosive Sublimate in improving the Constitution. By Dr. H. Almès.—Dr. Almès confirms the opinion given by other French physicians as to the beneficial effects of corrosive sublimate in improving the constitution; by which it is meant, that this drug not only cures the specific malady for which it is administered, but that it likewise restores the general health. Dr. Almès was struck, in the year 1856, with the extraordinary powers of arsenic in improving the condition of the body, and he made experiments with other toxical agents, such as tartarised antimony, perchloride of mercury, bichromate of potash, nux vomica, &c., with a view of determining if they possessed similar properties, and the result was that he found all these poisons, in small doses, acting as restoratives on the nutrition, the appetite, and the strength, while the bulk of the body was increased. He found, moreover, that they seemed to strengthen the vital resistance against the invasion of morbid influences, thus protecting the patient from many diseases. In reference to corrosive sublimate, Dr. Almès states that he has employed it as a tonic in many cases, and especially in some children of two to five years old, who could not be suspected of having syphilis. He has continued its use for half-years and whole years, and he has almost constantly observed in the patients an improvement in their general health, characterised by the return of appetite, increase in bulk and fat, the coloration of the complexion, the development of muscular vigour, and all the external signs of health. The dose of the corrosive sublimate given with this object is very small, being from 1 to 2 milligrammes a day (a milligramme is the 1-1000th of a

gramme, about 15 grains). It is given dissolved in distilled water.—*L'Union Médicale*, July 31st, 1869.

On the Employment of the Sulphites in cases of Purulent Infection. By Dr. Giovanni Ferrini.—Dr. Ferrini relates two cases of purulent infection in which the use of the sulphites appears to have produced very beneficial effects. The sulphites employed were those of magnesia and soda, the former being used internally and the latter externally. Dr. Ferrini considers that the sulphites, in such cases as those which he records, not only strengthen the system and protect it from decomposition, but that they also act as preventives against purulent infection. He insists upon the necessity of giving the salts at the beginning of the disease, as they are then most efficacious. He observes that they are diuretic, and not cathartic, and that all their therapeutical action depends on their *antifermentive* properties. But the sulphites must be given with due care, and should not be administered in insignificant doses, or in combination with other remedies which act in a different or contrary manner. They should also be given with a sufficient quantity of water for their solution: the sulphite of soda is soluble in four parts of water, but the sulphite of magnesia requires at least twenty times its weight of water in order to be absorbed. Another indication is not to give the sulphites with acid drinks, for the acids absorb the base of the salts, and set at liberty sulphuric acid. Lastly, the sulphites should be given in sufficient quantity, and even an ounce a day may be necessary in certain cases.—*Annali Universali di Medicina*, 1869.

On the Destruction of Tumours by Injections of Pepsine and other Substances which act in Digestion.—Dr. de Castro, a physician practising in Alexandria, has lately published some cases in which tumours have been diminished by injections of pepsine. One case was that of an Arabian woman, aged fifty, who had suffered for more than two years from a tumour of the right breast, which finally ulcerated and caused considerable emaciation. Dr. de Castro removed the breast in March, 1868; but in the following September two hard tumours appeared in the axilla, and in October they had attained a great size. Dr. de Castro proposed to inject pepsine, and he made use of the acid amylaceous pepsine, which he injected into the lower tumour by means of Pravaz's syringe, and repeated the proceeding forty days afterwards. Five days subsequently, the lower tumour had diminished by one-half. Twenty-three days afterwards Dr. de Castro made another injection, and another after that, and when he revisited the patient about three months after the first injection, the tumours had diminished very considerably in volume, the complexion was healthy and the muscular strength had returned. Dr. de Castro states, that a case was still under his observation, where a goitre had been considerably reduced by the injection of pepsine. It appears that injections of the gastric juice were proposed by Senebier, of Geneva, in the last century, as he imagined that the solvent action of this fluid might be beneficially employed

in the treatment of cancerous ulcers.—*Bulletin Général de Thérapeutique*, May 30th, 1869.

On the Effects of Podophyllin. By Dr. Pietro, of Venice.—Dr. Pietro has made some experiments in relation to podophyllin, both on himself and on some patients. The drug is employed in the Venetian hospitals in the dose of from 15 to 20 centigrammes; it has been given there on a large scale, and almost always alone, for relieving constipation, and it has generally only been used in chronic cases. In all it has produced purging, preceded and accompanied by colic. A dose of 5 centigrammes (1-20th of a gramme) generally causes three or four liquid stools. Dr. Pietro, in the experiments on himself, found that after the introduction of the medicine he felt nausea and a little irritation of the stomach, but the symptoms disappeared when he went to bed, and in the morning there was an evacuation of liquid matter coloured yellow, and every hour for five hours the evacuation was repeated. A few days afterwards, Dr. Pietro took a double dose, namely, 10 centigrammes, and immediately there were nausea and attempts to vomit, which lasted about two hours. At the end of four hours there was shivering and a feeling of prostration. The night was passed pretty well, but in the morning he was awoke early by violent colic, followed by liquid stools, which were repeated till nine o'clock. Dr. Pietro draws the following conclusions from his experience:—1. Podophyllin is always purgative, even in minimum doses. 2. It is suitable for all cases where drastic purgatives are indicated. 3. It produces an effect, without causing uneasiness, in the dose of 5 centigrammes. 4. It may be united with some sedative substance.—*Giornale Veneto di Scienze Mediche*, 1869.

REPORT ON SURGERY.

By John Chatto, M.R.C.S.E.

Treatment of Deformed Cicatrices.—M. Bourguet observes that cicatrices which constitute a most unsightly deformity are often, either from their position or character, unsuitable for treatment by the bistoury, and describes a mode of procedure from which he has derived great advantage during the last eight years. It consists in the combined employment of cauterisation, compression by means of collodion, and what he terms the Swedish gymnastics. 1. *Cauterisation.*—Only the slighter caustics are to be employed, as nitrate of silver, chromic acid, or tincture of iodine to which a fifth of iodide of potassium has been added. The object is merely to produce a superficial action, so as to avoid the prolonged suppuration and ulceration which would ensue on the application of the stronger caustics. The exuberant portion of the cicatrix, bridle, crest, un-

sightly inequality of the skin, or whatever other form the cicatrix may assume, is rubbed with one of the above substances, taking care to confine the application to the projecting or deformed portion of the cicatrix, continuing it sufficiently long, or repeating it if required a second or third time. 2. *Compression.*—A few minutes after the cauterisation a layer of collodion is spread over the whole of the cauterised parts, which on drying exerts a strong compressing power on the cicatrix. If the compression after the collodion has dried does not seem sufficient, a second and even a third layer should be applied, care being taken, as with the caustics, to limit this to the surface of the cicatrix which it is desired to modify. In some cases, in order to make more energetic and continuous compression, after the layers of collodion have been applied, a strip of goldbeaters' skin, or some very fine linen rag, strongly imbibed with collodion, may be used. Next day or the day after, if the dried collodion has cracked or the strip become loosened, a new layer is to be applied, and so on for succeeding days, if the compression become relaxed. At the end of seven or eight days the collodion separates as a dry parchment-like crust, together with a superficial eschar, consequent on the cauterisation. The cicatrix will be found presenting a more uniform surface, while its prominence is less considerable. A renewal of the application may now be made, or, which is usually preferable, the patient may be allowed to rest for a few day, the interval being employed with gymnastics. 3. *Swedish gymnastics.*—This term seems a little misplaced for the shampooing process the author has in view. It consists in rubbing, compressing, displacing, and softening the cicatrix by means of the fingers, applied in every variety of direction until the patient can no longer endure the pain produced. This operation should be repeated several times a day, the patient executing it himself if he thinks proper. After this treatment has been continued some days, the cauterisation and compression are again to be resorted to, and alternations of these and of the shampooing are to be continued until the deformity of the cicatrix has disappeared or has been sufficiently ameliorated.—*Bulletin de Thérapeutique,* March 15.

Tracheotomy in Syphilitic Lesions of the Air-passages. — M. Trélat relates two interesting cases in which this operation was performed with success, and furnishes a historical summary of the subject. His general conclusions are—1. Syphilitic lesions necessitating tracheotomy may arise at any period of syphilis, but they are most frequently met with in the tertiary. Their nature, seat, and extent vary, but still they are more common the nearer the superior orifice of the larynx is approached. 2. The onset of the symptoms of obstruction may be sudden, but in general it is rather slow, and should be observed with attention, as furnishing an element in the diagnosis. 3. An attentive consideration of the symptoms, and of the signs which characterise obstructions to the larynx and those of the trachea, show that it is possible to distinguish these two orders of lesions, which it is of such importance to recog-

nise in relation to prognosis and treatment. 4. Their diagnosis is based upon the retention or disappearance of the voice, the period of appearance of the dyspnœa, and the laryngoscopic examinations. 5. Tracheotomy is attended with excellent results in laryngeal obstruction, but up to the present time it has always failed in tracheal obliterations. 6. When the operation is indicated it should be performed without delay, as death may be the sudden consequence of a suffocative paroxysm. 7. Although tracheotomy offers so little chance of success in strictures of the trachea, it should, nevertheless, be attempted after a diagnosis which may be rectified and rendered precise, during the course of the operation. 8. This may be modified according to the nature of the lesions, and success can only be hoped for when it is possible to penetrate and obliterate the stricture by means of an appropriate canula; otherwise the result must be fatal. 9. When tracheotomy is succeeded by recovery, the time during which the canula should be retained varies with the nature of the lesion. It must be removed as soon as possible after the operation, the medical treatment being continuously pursued. 10. The employment of Broca's canula (having its opening limited during inspiration) allows of an exact appreciation of the period at which it may be removed and the wound allowed to heal, without incurring danger.—*Gazette Hebdomadaire*, 7th May.

On the Diseased Elongation of the Bones of the Extremities in relation to Surgical Practice.—Professor Langenbeck, in a recent paper read to the Berlin Medical Society, draws attention to a consequence of disease of bone first noticed by Stanley, and further demonstrated by Paget. He observes, that until the twenty-third or twenty-fifth year, the bones may, under the influence of general disturbances of nutrition or local disease, undergo greater variation in form and size than the soft parts. In the rickety subject defective length is a more characteristic sign than either the curvature or the chemical condition of the bones. The influence of paralysis in checking the growth of bone requires more investigation, for while in some cases this is found to be imperceptible, in others it is very considerable. Affections of the epiphyses and of the joints will naturally give rise to considerable shortening, and all the bones of the same extremity may participate in this on account of the forced inactivity. The same effect is also observed when the joint itself is not diseased, but kept in a state of forced contraction; but here probably the result is a mechanical one produced by the altered mode in which the deposit of new bone is made. How small a power need be exerted to produce this effect is seen in the fact, that when fingers are united together, but are yet able to perform all their principal functions, their bones, if the web be not promptly divided, will remain shortened. In a still greater degree the same effect is exerted by cicatrices from burns in the neighbourhood of joints.

It is, however, to abnormal elongation of the bones that attention is chiefly directed in this paper. This may easily take place to the extent of one or two centimeters, or more, without detection, unless

careful admeasurements be made. A long bone, as a general rule, grows longer and thicker in proportion as it has been in an inflamed or hyperæmic condition, and a hyperæmic condition of the soft parts is also competent to produce this change. Thus, in a case of inguinal aneurism, Broca found that the femur had increased two, and the tibia one centimeter in length. Ulcers of the leg occurring early in life produce the same effect; and although chronic inflammation and caries of joints exceptionally arrest the growth of bone, in other cases they lead to its elongation. The great majority of cases of increased growth, however, arise from chronic disease of the diaphysis of the bone, i. e., osteomyelitis or necrosis.

A very interesting case is given in which careful admeasurements were made at the autopsy, and all the bones on the diseased side were found considerably longer. A remarkable appearance noted was the diminution of the circumference of the upper articular surface of the tibia by one, and of the lower surface by half a centimètre. This may be attributed to the fact of the greater longitudinal development of the diaphysis having taken place at the expense of the epiphysis. In the arrested growth of the rickety bone, on the contrary, the circumference of the articular surface is increased. The fibula, in the above case, although not diseased, had increased by two centimeters in length like the tibia. Another important point was, that the femur of the same side also underwent considerable elongation, for while the tibia was found to have increased by two centimètres, the whole limb, measured carefully during life, was found to be five centimètres longer than the other. Similar observations are reported by Paget and Bergmann; and Langenbeck has met with the same circumstances in the upper extremities.

Bearing the above facts in mind, it occurred to Prof. Langenbeck whether they might not have their surgical application in the treatment of shortening of the bones of the extremities. As necrosis occurring in young subjects is the most frequent cause of abnormal elongation of bone, and is probably due to the abiding stimulus of the sequestrum, it might be expected that the insertion of a foreign body in the bone would be attended by a similar result. He therefore instituted some experiments on young dogs, employing Dieffenbach's ivory pegs as having a near resemblance to bony structure. These were followed by most favorable results, the effects being in fact just the same as those observed in necrosis, viz., an elongation and thickening of the shaft, and a lessening of the epiphysis. Moreover, the bone remained undistinguishable in any other respect from normal bone, being neither inflamed nor in any way diseased. So the matter stands at present, for although Professor Langenbeck believes that surgical interference will be advantageously employed in this direction, he has not yet resorted to it. He observes, that while a few centimètres shortening is of little consequence as regards the upper extremity, it is of serious import in the lower, and any reasonable means of removing it or diminishing it should be employed. Excision of the joints in children will acquire an additional importance also, if we are enabled by the introduction of one or two of the

pegs immediately after the operation to prevent the arrest of growth in the limb. Subjects suffering from paralysis are favorable for the trial of the means, as they will with less difficulty sacrifice the five or six months necessary to be passed in quietude to secure the success of the experiment. One of the most important results of the trials made on dogs is the demonstration of the efficacy of extension in elongating bone. The fibula, to which nothing had been done, was found to have increased two centimètres as well as the tibia, and yet to have undergone no displacement. This was effected by the stretching effect exerted upon it by the tibia, to which it had become united in one bony mass. Of the possibility by suitable extension of increasing the length of shortened bones, there can be no doubt, although the determination of the amount of this by admeasurement is very difficult.—*Berlin Klinische Wochenschrift*, June 28.

[In relation to the above subject a very interesting paper by Drs. Weinlechner and Schott, which we have not space to notice, will be found in the 'Jahrbuch für Kinderheilkunde,' 1869, heft 3, entitled, "On Elongation and Shortening of Bones after Fractures, Caries and Necrosis and Inflammation of the Joints."]

On a Complication of Bubo.—Under this title M. Clerc draws attention to the fact that peritonitis may constitute a most important complication, he having indeed met with four cases of general peritonitis in individuals the subjects of chronic bubo, three of these proving fatal. This complication is met with as one of the consequences of chronic bubo occurring in strumous subjects. Several glands are affected, and through the plastic infiltration of the surrounding cellular tissue an ill-circumscribed, hard, voluminous, non-mobile tumour is formed, which seems to consist in a fusion of the deep-seated and superficial glands of the groin, and frequently implicating some of those of the iliac region. This aggregate of glands tends neither to resolution or suppuration, its natural course being to pass into the condition formerly termed scirrhous. Still, under the influence of walking, fatigue, &c., the tumour sometimes becomes partially inflamed; that is, only some of the glands become affected, and passing on to a state of suppuration, give rise to multiple and successive collections of pus. Very frequently in the subjects of these chronic bubos, the lymphatic glands of the iliac region become the seat of a morbid condition, to which it is of great importance to pay attention; for this *adénopathie iliaque*, usually overlooked, sometimes give rise to most serious accidents within the cavity of the abdomen. This is easily understood when it is borne in mind that the iliac glands are only separated from the peritoneum by a thin layer of lamellar connective tissue, which always becomes implicated in the morbid process of which the glands are the seat. The existence of the subperitoneal centre of inflammation renders a general or partial peritonitis not only possible but imminent.

As we have said, M. Clerc has met with four cases of general peritonitis so produced, and he relates two of these in which post-

mortems were performed. This is, however, a rare affection, but he believes partial peritonitis from this cause is of frequent occurrence, although it is frequently overlooked because it is confined to the iliac region, and the patients recover. Both MM. Richet and Petrequin have recognised the fact, that symptoms analogous to those produced by strangulated hernia may have their origin in inguinal adenitis. The complication here described is by no means peculiar to the bubo arising from chancre, but may ensue on chronic inguinal bubo induced by any other cause.—*Annales de Dermatologie et de Syphiligraphie*, No. 5.

On Unexpected Deaths after Injuries and Operations.—M. Verneuil observes that at whatever period death occurs after injuries or operations it is expected or not, explicable or not. When the injuries are slight and do not implicate essential organs, or that only to a limited extent, death may be said to be improbable. Unfortunately, however, it yet too often occurs, and that under two circumstances: (1) The local lesion, in place of tending towards cure, becomes aggravated, and the point of departure of morbid phenomena, which becoming extended, react on the entire economy, leading either to deep-seated changes in the blood, or to remote disorders in some important viscus, or in the nervous and vascular systems. Such generalisation of the local malady takes a certain time to bring about, and it is announced by symptoms which are usually easy of recognition during life, and gives rise to notable lesion discoverable at the autopsy. (2) The most justifiable anticipations may be deceived, and that in various modes. The recovery may be reckoned upon by reason of the slight importance of the injury, the favorable course of the local phenomena, and the absence of all accidents unfavorable to prognosis, and yet death takes place unexpectedly, rapidly, and sometimes even suddenly. It is true that an explanation of this is sometimes found at the autopsy, and some lesion that had been overlooked is discovered; but frequently nothing is discovered, or only disorders which have so little direct and apparent relation to the traumatic lesion that their influence on the fatal result is very doubtful. These cases are by no means rare, and although most of them remain unpublished, yet books and journals abound in cases which terminate with the phrase "The *post-mortem* furnished nothing capable of explaining the fatal result." M. Verneuil does not mean to assert that much has not been written on this subject, and that many causes for these unexpected deaths have not been assigned; but he thinks that the question of death after traumatic lesions requires a much more thorough investigation than it has received. Its mechanism or, so to speak, its pathogeny requires to be worked out, and is as interesting an object of inquiry as the mechanism and causes of recovery. The mere verification of the material lesions after death is often only the satisfaction of a sterile curiosity, unless its interpretation or mode of action in causing the cessation of life is aimed at. The present paper is a contribution to this end, founded upon two interesting cases related at some

length. We have not space to exhibit their details or the principles which M. Verneuil inculcates, and can only quote his conclusions. (1) There are instances of speedy death after accidents or operations which cannot be explained either by the seat or extent of the primary lesion, or by the development and extension of the inflammatory accidents arising from the injury. (2) They seem due to a rapid change in the blood, acting after the manner of septic poisons. (3) As yet ill-understood in its nature, such change would seem to especially occur in subjects predisposed by a prior visceral lesion, or by an abnormal condition of the fluids. This fact seems to be established with respect to alcoholism, diabetes, albuminuria, and renal lesions, but to this list should be added other conditions which, though of less frequent occurrence and less understood, are, in my opinion, just as influential, such as uræmia, leucocythæmia, various cachexiæ, lesions of the liver and spleen, cirrhoris, steatosis, and amyloid. (5) Even when these pathological conditions, complicated accidentally with traumatic injuries, do not lead to speedy death they no less certainly react on the local phenomena, of which the traumatic lesion is naturally the seat. They impede or pervert the different stages of the process of reparation, giving rise to various accidents, which, under the term of complications of wounds, frequently assume very great importance, as erysipelas, lymphangitis, diffuse inflammation, gangrene, secondary hæmorrhage, &c. (6) The knowledge of these facts is of the highest consequence in the establishment of prognosis, laying down indications and contra-indications for operations, the local and general management of the lesion, and the equitable appreciation of statistical results.—*Gazette Hebdomadaire, May 28th, and June 18th.*

Summary.

Acupressure. — Peters. Essay on Acupressure, with some reference to its application in the Continuity of Arteries. (New York Med. Journ., June. Notes of twenty-three cases, and a description of the operation, of the utility of which the author entertains a high opinion.)

Aneurysm.—Spence. Traumatic Varicose Femoral Aneurysm successfully treated by Ligature. (Ed. Med. Journ., July.)

Aorta.—Stokes. Temporary Deligation of the Aorta. (Dublin Quarterly Journal, August, with Illustrations.)

Ear.—F. E. Weber. Acute Inflammation of the Tympanum. (Deutsche Klinik, May 1 and June 12. On the diagnosis and treatment of this affection, which the author says has been unusually prevalent at Berlin during this year.)

Eye.—Horner. On a small Epidemic of Conjunctival Diphtheritis. (Klin. Monatsblatt. f. Augenheilkunde, May. An account of six cases which were admitted into Prof. Horner's Ophthalmic Institution at Zurich.—Alfred Graefe. On Intraocular Tumours.

(Ibid., June.)—Poncet. On an Ophthalmoscope with a Dark Chamber. Gazette Hebdomadaire, August 2. This, its inventor states, is constructed by Nachet at a moderate price.

Fracture.—Heppner. On Impacted Fracture of the Cervix Femoris. (Med. Jahrb. d. Wiener Gesellschaft d. Aerzte, 1869, No. 3. An elaborate account of the pathology of the accident, with a description of the preparations in the Berlin and St. Petersburg Museums, illustrated by Lithographs.)—Fauvel. Three Cases of Compound Fracture of the Leg treated by Metallic Sutures. (Bulletin de Thérapeutique, May 30.)—Demarquay. Clinical Observations on Fracture of the Shaft of the Tibia, the Fibula remaining intact. (Gaz. des Hôpitaux, July 8 and 13.)

Hernia.—Weinlechner. Inguinal Hernia in Children. (Jahrbuch d. Kinderheilk, 1869, No. 3. An interesting case related in which the hernial sac contained the vermiform appendix, and a noose of small intestine).—Demarquay. Case of Hydro-Omental Hernia mistaken for simple Hydrocele. (Gaz. des Hôp., August 3. An interesting example of the difficulty of diagnosis.)—Watson. Case of Strangulated Hernia, with Perforation and successful Ligature of the Aperture. (Edinb. Med. Journal, July.)

Hydrocele.—Friedenthal. On the Treatment of Hydrocele by Electricity. (Wien. Med. Wochenschrift, May 19. Brief abstracts given of two out of five cases successfully treated by electro-puncture.)

Knee-Joint.—Fayrer. Puncture of the Knee-joint in Synovitis. (Indian Medical Gazette, June. Four cases of subacute and chronic synovitis, in which fluid was removed by a trocar, the aperture being closed by lint soaked in a solution of gutta percha in chloroform.)—Sédillot. Excision of the Knee by a new Procedure. (Gaz. des Hôp., June 10 and 15. A fatal case detailed at considerable length.)

Nephrotomy.—Annandale. Calculus successfully removed from a Cyst of the Kidney, with Observations on Nephrotomy. (Edinb. Med. Journ., July.)

Neuralgia.—Blackman. Case of Exsection of the Inferior Dental Nerve and the Second Branch of the Fifth Pair beyond Meckel's Ganglion for severe Facial Neuralgia. (American Journ. of Med. Science, July.)

Ovariotomy.—Isnard (of Marseilles.) Successful Case. (Bull. de Thérap., June 15.)—Prioleau. Successful Case, in which "Pocketing the Pedicle" was performed. (American Journ. of Med. Science, July.)—Gayet. Successful Case. (Lyon Médical, August. From a discussion in the Lyons Medical Society it appears that of twenty-three operations performed in that city, eight have proved successful and fifteen fatal.)

Scapula.—Watson. Case of Amputation of the Scapula. (Edinb. Med. Journal, August. Illustrations.)

Testis.—Salleron. On Tubercular Affections of the Male Genital Organs. (Archives Générales, July and August.)

Urinary Organs.—Jolly. On Cancer of the Prostate. (Archives Gén., May—August.)—Dittel. On a New Dilator. (Med. Jahrb. d. Wien. Gesell. d. Aerzte, No. 3.—Kattinger. On Dilatation of Stricture by Thompson's Instrument. (Wien. Med. Wochensch., June 9 and 12. Gives a favorable account of the employment of this in Germany, and relates five instances occurring in Billroth's Clinic.)

REPORT ON PATHOLOGY AND PRINCIPLES AND PRACTICE OF MEDICINE.

By Francis C. Webb, M.D., F.L.S.,
Member of the Royal College of Physicians, Physician to the Great Northern Hospital.

Cylindrotænium, a new Vegetable Growth found in Choleraic Dejections.—O. W. Thomé says that on examining microscopically the rice-water evacuations of cholera, we find, amongst other things, a hyaline mucus, enclosing small corpuscles, refracting strongly, ·002 mm. in diameter; at other times we find cellular organisms in a more or less advanced state of destruction. The rice-water fluids vomited by a choleraic patient, contained strongly refractive corpuscles, ·008 mm. in diameter, closely resembling in appearance globules of fat, but distinguishable from them by their insolubility in ether, and by their behaving like solid bodies under compression. No protein compound can be detected in their composition by any reagent. They possess a distinct membranous envelope, demonstrable by acids, the episporium, containing a mass of granular protoplasm, which, on the addition of concentrated acids, divides into spores, in every respect resembling the refracting corpuscles found in the rice-water stools. The changes which these corpuscles of ·008 mm. undergo, are, first, the loss of refractiveness; at the same time they soften, and the episporium dissolves into an amorphous hyaline mucus. At this moment, if we examine two corpuscles which come in contact, we see that a soldering (copulation) takes place between the two corpuscles at the point of contact; and they may then be followed in different transformations from the condition where several corpuscles in a state of copulation are still recognisable, and distinct to that in which the mucous transformations of the episporium is accomplished, and a complete soldering is produced. Soon the small spores formed in the corpuscles, and larger than ·001 mm. in size, cross the enveloping mucus, and become free (*spores mobiles Schwarmer*). They move in a manner which it is impossible to confound with molecular movements. Thomé has studied the influence of these spores on epithelium by

placing them in saliva containing epithelium cells. At the end of some hours the spores lose their movements, and attach themselves to an epithelial cell which undergoes a kind of contraction. By cultivating with cholera stools and glycerine, syrup, white of egg, &c., Thomé has obtained a fungus which approaches in form the oïdium and cylindrium, but which he believes to be a new species, and describes under the name of cylindrotænium. From his researches Thomé draws the following practical conclusions:—Boiling is the best means to destroy the parasite fungus in choleraic dejections. We know no agent which can destroy the parasite when it is in the interior of the organism. There is nothing to be done but to evacuate it by the ordinary means (emetics and purgatives). Opium is especially contra-indicated. — *Virchow's Archiv*, 1867; *Gazette Médicale de Paris*, March 13th, 1869.

On the Propagation of Phthisis.—M. Villemin has lately read a memoir on this subject before the Académie de Médecine, in which he gives the results of a series of experiments. 1. By the inoculation of the liquid matters of the expectoration of the phthisical. A large proportion (three fourths and three fifths) of rabbits thus treated became tuberculous. 2. By the inoculation of the dried matters of the expectoration of the phthisical. When the sputa slowly dried were inoculated no result followed. The author concludes that their virulent properties had been destroyed by putrefaction. But when sputa rapidly dried were inoculated on three rabbits they became phthisical. By sprinkling a blistered surface with dried powdered sputa, one of several rabbits experimented on was made phthisical. The blowing of powdered sputa into the trachea by a small opening was followed in two out of four rabbits by tubercle. Powdered sputa kept in a damp chamber for four months did not produce tuberculisation in animals inoculated with it. 3. By the inoculation of the sweat of the phthisical. The animals died of suppuration without tubercle. 4. By the injection of tuberculous matter and of phthisical sputa. Rabbits fed with tuberculous matter both from man and another rabbit became tuberculous in the proportion of three to five. Four guinea-pigs that had eaten forty grammes of phthisical sputa had all their organs sown with tubercles. One died suddenly from intestinal hæmorrhage, dependent on a tuberculous ulceration. The following are some of the author's conclusions:—Glanders is the affection which has most points of resemblance to pulmonary tuberculosis. In glanders the contagious matter is the discharge. The expectoration of phthisis is analogous to the discharge in glanders, and it is most probable that tuberculosis is propagated in the same manner as glanders. When the expectoration of the phthisical is received into vessels and carried away by sewers, &c., it putrefies and becomes innocuous. But too often it is thrown upon the earth, or upon impermeable surfaces, or retained in dwelling houses, trodden under foot, and resolved into a dust, which soon infects the air in confined places. Too often it is received on handkerchiefs, linen, earthenware, &c., and by rapid drying the virulent matters acquire the most favorable phy-

sical conditions for infecting. Expired air seems no more capable of transmitting the disease than it is of conveying glanders. The virulent principles of both diseases do not seem volatile enough to be conveyed by the air. The discharge from the air passages and sputa are the visible and tangible agents of contagion. Phthisis does not spread amongst the attendants in the consumptive hospitals of London, because the expectorated matters are received and thrown into places where they decompose. In ordinary hospitals bed clothes and linen may be a means of transmission. But the most favorable conditions for contagion are to be found in the dwellings of the poor, and in common habitations, such as barracks, convents, prisons, ateliers, &c., where sweeping the floors raises in the form of dust any discharges that may have fallen. The alleged more frequent transmission from husband to wife than from wife to husband, the author explains by the fact that the woman remains more constantly at home, and brushing and cleansing the places which may have been soiled by the expectorated matters. The author concludes that the prophylaxis of phthisis may be summed up in avoiding the morbific agent and augmenting the resistance of the organism.—*Gaz. Méd. de Paris*, April 17th.

In comparison with Villemin's experiments and conclusions the following experiments by Cohnheim and Frankel possess great interest. They will be found to repeat in part the experiments performed in this country by Dr. Wilson Fox.

Inoculation of Pulmonary Tubercles.—Cohnheim and Bern Frankel (of Berlin) have instituted a number of experiments intended to check those made by M. Villemin on the inoculation of tubercle in animals. Guinea pigs were the animals used, and inoculation was performed by introducing the matter to be inoculated through an incision into the peritoneal cavity. The first question they proposed to examine was, whether inoculation would produce in the guinea pig a condition resembling that of miliary tuberculosis in man? For this purpose they inoculated a certain number of guinea pigs with miliary tubercles taken from a man who had died from generalised miliary tuberculosis. One only survived eighty-three days. Miliary tubercles were found in the liver, the spleen, the pleura, the lungs. Subsequent experiments gave similar results. They then proposed another question—whether artificial tuberculosis were due to a specific virus? To determine this, they introduced into the peritoneum of guinea pigs fragments of ulcerated cancers, condylomata, and sarcomata. In those animals which survived three or four months generalised miliary tuberculosis was found, but principally in the peritoneum, the liver, and the lung. They then introduced bits of paper, charpie, and india-rubber. The result was the same. These facts seem to show the non-specific character of miliary tuberculosis, and confirm the experiments made by Sanderson and Fox. The foreign bodies introduced into the peritoneal cavity became encysted; the organised, such as cancer, &c., disappeared; the inorganic substances remained intact in the middle of a mass which the microscope proved to be pus. The internal surface of

the enclosing capsule was sown with tuberculous granulations. Tubercular deposit was found in the neighbourhood of these abscesses, and in a certain number of cases followed exactly the course of the lymphatics. The third question that presented was, whether the introduction of pus into the circulation of the animal was capable of tuberculising it. To determine this, they took pus from two abscesses occasioned by inoculating an animal with normal cerebral matter. They diluted it with a saline solution, filtered and injected it into the jugular of a guinea pig. Two animals were experimented on. One lived nineteen, the other seventy, days. Both had miliary tubercles, especially in the lung and liver, some in the spleen, none in the peritoneum. In another experiment they injected fresh blood drawn from a guinea pig into the jugular of another guinea pig; the result which followed was abscess of the neck and behind the sternum, and tubercles, in the lung and liver. The same experiments were repeated with similar results on dogs. The earliest day on which tuberculosis was found was the nineteenth, in the animal that underwent the injection of pus into the jugular. In the others, thirty-three days was the smallest period. The authors conclude from their experiments that the development of tuberculosis depends on the penetration of pus into the circulating current.—*Virchow's Archiv*, Bd. xlv, H. 51, 2, 1868, and *Archives Générales de Médecines*, March, 1869.

On the part which the Cell Nucleoli play in Desquamation of the Skin.—According to M. Ranvier, the interpretations which have hitherto been given of the mechanism of desquamation are quite insufficient. Thus it has been said that it is the result of an abundant néoformation of epithelial cells; but such a néoformation would, as in icthyosis, increase the thickness of the epidermic layer instead of giving rise to desquamation. Rindfleisch believes that the néoformation is so rapid that the cells have not time to become fixed. But it is not in the deeper layers, but in the most superficial that desquamation takes place; it is not at the time of néoformation, it is later. The conditions of *seat* and *time* are not fulfilled by this observer's view. According to M. Ranvier's observations, he has always observed at the period just before desquamation, dilatation of the nucleolus of the cells of the Malpighian layer; the circumference of the vesicle formed by the dilated nucleolus is not parallel with the circumference of the nucleus. It touches it at one point, probably in the situation of the canal discovered by M. Balbiani. This alteration of the nucleolus induces a modification of the cell (*Etat muqueux*); it cannot become horny. Thus desquamation is the result of a certain mode of nutrition having origin in the mucous layer of Malpighi. This "*Etat muqueux*" may exist without desquamation, properly so called; thus in the "*plaque muqueuse*," for example, on perpendicular sections a larger or smaller portion of the cells may be found to be undergoing mucous transformation.—*Société de Biologie, Gaz. Médicale de Paris*, June 5.

Ascending and Descending Respiration.—Dr. J. Hawtrey Benson relates a case of cardiac affection in a female, æt. 19, under his care at

the City of Dublin Hospital. From the physical signs present he diagnosed constriction of the mitral orifice, tricuspid regurgitation, and, from a slight systolic bruit heard louder at the second left cartilage than the second right, he thought there might be disease of the pulmonary sigmoid valves. After a fortnight in hospital the patient had an attack of hemiplegia; sensation and power of motion were lost on the left side. She was semi-comatose, but capable of being roused, and then was delirious or imbecile, and articulated with difficulty. She at this time exhibited the peculiar form of respiration known as "ascending and descending." "There were intervals of perfect apnœa, and these were almost exactly equal in duration to the periods of respiration, and each lasted for an almost constant period of fifteen seconds. Thus each minute was divided into four periods—two of perfect apnœa and two of puerile respiration." Another interesting point was that it was only while the patient was allowed to remain in the semi-comatose state that this peculiar form of breathing was present. When she was roused up the breathing became almost normal; but it again assumed the ascending and descending character when she was allowed to lapse into the semi-comatose state. This condition continued for twenty-four hours; the semi-comatose state and the peculiar respiration then disappeared gradually. She lived six days afterwards. The post-mortem examination revealed great contraction of the auriculo-ventricular opening, a funnel-shaped mitral valve; absence of chordæ tendineæ; the musculi papillares appeared to be inserted directly into the funnel. Vegetations on the aortic valves; reduction of the calibre of the aorta, which took a sudden bend to the left; thickening and stiffening of the tricuspid valves; no fatty degeneration of the heart. The brain was flabby; the right corpus striatum softened, and three small extravasations of blood were buried in its substance. The author thinks that this case goes far to prove that ascending and descending respiration is in great part a nervous phenomenon, though, for its production, it seems essential that there should be either fatty degeneration of the heart, or constricted mitral orifice, or some cause tending to produce an accumulation of red blood at the left side of the pulmonary circulation, in fulfilment of the conditions considered necessary by Dr. Little, who believes that this peculiar form of respiration is produced by a loss of balance between the efficiency of the two ventricles. In the above case the peculiar breathing was only present when the patient was allowed to remain in the semi-comatose condition. For its production, there seem to be necessary, 1. A certain diseased state of the heart, by reason of which, indirectly, the excito-motor impulse upon the nervous centres, conveyed through the pulmonary branches of the pneumogastric, is diminished. 2. A certain weakened state of those nervous centres, by reason of which the reflecto-motor impulse is diminished.—*Dublin Quarterly Journal of Medical Science*, Aug. 1869.

On Functional Valvular Disorders of the Heart.—Dr. Da Costa discusses the following questions, "Are there functional cardiac murmurs occurring in persons not anæmic, and, therefore, closely

simulating organic valvular troubles?" and, again, "What is the origin of such murmurs, and what means have we to prevent ourselves being deceived? 1st. Do such murmurs happen at the base?" Da Costa has met with very few instances where an aortic murmur seemed to belong to the category alluded to. In these the murmur was generated during excited action of the heart, was soft, was not propagated into the arterial system, occurred with contraction of the ventricles, was followed by a distinct second sound, and did not last. At and near the orifice of the pulmonary artery, also, murmurs are found which are not associated with organic change of the valves or in the vessel, which may be due to constriction by surrounding altered pericardial or pulmonary structure, or again be inconstant or purely functional. 2nd. With regard to the auriculo-ventricular openings. As regards the tricuspid orifice, a murmur at or near the ensiform cartilage has never, in Da Costa's experience, been of this kind in a healthy heart, but such a murmur may be produced in a dilated heart without valvular disease. Such murmurs, on the contrary, are pre-eminently common at or near the apex beat in the situation of mitral murmurs. A murmur of this kind is more likely to be heard at the apex, or somewhat above the apex, than is a murmur depending on the condition of the blood; it differs from organic mitral murmur partly by the peculiarity of seat just mentioned, partly by its non-diffusion, its absence at the back of the chest, and its greater want of harshness. Dr. James Andrew, in discussing these systolic blowing sounds, lays stress on the want of intensification of the normal second sound of the pulmonary artery. Da Costa has notes of fifty cases, and can in a general way subscribe to the correctness of this opinion. In a number of cases the second aortic sound was clearer and better marked than the second sound of the pulmonary artery, but in a few cases he found the reverse. A more valuable sign, though subject to exceptions, is the not finding the murmur audible at the back or near the lower angle of the left scapula. But the author thinks that the most valuable sign is the localisation of the murmur, which he says is not an apex murmur strictly speaking, but occurs rather above the apex over the body of the left ventricle. "The third interspace is the point at which it is very apt to be most marked; from there it extends faintly to the second interspace on the left side, in some cases distinctly enough to make one believe in its seat being the pulmonary artery. It may occupy the whole of the first sound, but it more commonly does not, and at the apex, this, or a portion at least of this, is almost sure to be detected. In only about the proportion of three instances out of fifty did I find that it was audible at the right side of the sternum towards the aortic cartilage, and in one of these it was only audible with a double stethoscope." Synchronous with the first sound or impulse it is generally soft or at a low pitch. In some cases it is rendered louder and harsher by pressure; it is modified by the respiratory acts. These murmurs the author has met with in healthy-looking persons without anæmia; but in many the heart's action was frequent, in many it was irregular. The maladies with which is associated the state of the heart giving rise to a functional murmur, are all those in which deranged action of the

organ occurs sympathetically, as disorders of the digestion or of the uterus; in perverted innervation of the heart in diseases of the brain. The author has met them in diphtheritic paralysis, and frequently in those respiratory affections in which decided obstruction in the pulmonary circulation occurs, *e. g.* tubercular infiltration, asthma, pneumonia. He believes that they are commonly mistaken for signs of valvular disease. During the American war he states that a number of soldiers got their discharge who turned out to have merely murmurs of this kind. Murmurs from temporary excitement of the heart are not uncommon. He thinks that such a murmur might be produced by excitement in at least one out of twenty healthy persons. The author discusses at considerable length various theories of the mode of production of these functional murmurs. His paper is illustrated by twelve cases.—*American Journal of the Medical Sciences,* July, 1869.

Reduplication of the Sounds of the Heart.—It has been asserted that reduplication of the second sound of the heart possesses no importance in prognosis or diagnosis. According to Geigel, this symptom is, no doubt, occasionally observed, although at long intervals, amongst healthy subjects; but it is constantly found in a series of patients who suffer from mitral narrowing and insufficiency. The majority of such patients are middle-aged, thin, anæmic, and have suffered for a long time from cardiac affection. In these cases, a reduplication of the diastolic sound may be generally heard at the situations where the tricuspid orifice, the aorta, and the pulmonary artery are auscultated. The two diastolic sounds are more intense over the aortic and pulmonary orifices than over the mitral; the second diastolic sound is also more marked over the situation of the pulmonary orifice than over the situation of the aortic. We may explain the reduplication of the diastolic sound by assuming a non-simultaneous occlusion of the semilunar valves of the aorta and of the pulmonary artery; the valvules of the latter shutting an instant after the valvules of the former. Hence it is that the second diastolic sound is more accented over the situation of the orifice of the pulmonary artery than the first. The retardation of the closure of the pulmonary valves is due to the left ventricle ridding itself rapidly of its blood, whilst the right, gorged with blood, empties itself more slowly. Also the aorta retracts more energetically and more rapidly than the pulmonary artery, the elasticity of which diminishes day by day in proportion as the engorgement of the right heart increases. A constant reduplication of the second sound of the heart may serve as a diagnostic sign of mitral narrowing or insufficiency; but reduplication of the second sound of the heart may also be produced in any case in which engorgement of the right heart and dilatation of the pulmonary artery exist. In the latter case the symptom will not be so constant as in that of valvular alteration. Reduplication of the second sound is also observed in young robust people attacked with tuberculosis, in the emphysematous, in pleurisy, and in fatty degeneration of the heart.

Guttmann, without denying the assertions of Geigel, attributes much less importance to the sign in question. He does not admit that re-

duplication of the second sound of the heart is an habitual sign of mitral contraction. On the contrary, he regards it as a sufficiently rare phenomenon, never constant, and only to be observed where the patient is in a state of complete repose. When the heart's activity is thoroughly called into play, the reduplication disappears. A. Geigel ('Verh. de Würzb. Med. Ges.' N. F., 1, 2, p. 49, 1868), and P. Guttman ('Virchow's Archiv,' p. 105, 1869), quoted in *Archives Générales de Médecine*, June, 1869.

On the Differential Diagnosis of Abdominal Aneurysm.—Dr. W. Moore relates a case of abdominal aneurysm, of which the following are the leading points. J. L—, admitted into Sir P. Dun's Hospital on December 31st, 1868, complained of pain in the back. Three years before had fallen into the hold of a ship, and shortly after the pain in the back commenced. On admission he was pale and spanæmic, but his general health was good; sight, speech, and hearing unimpaired, but the voice was low and subdued; respiration regular, temperature normal, urine healthy. His one complaint was of severe pain about the last dorsal vertebræ, which at times radiated under the floating ribs on the left side. A pulsation, eccentric, equable, and persistent in all positions, was visible in the epigastrium; over its seat there was dulness on percussion, and a systolic bruit only audible, however, when the patient was in the recumbent position. The pulsation in the iliacs was feeble but equal; there was increased cardiac dulness, and a peculiar diastolic click supplanted the second sound. Visible pulsation in the radials. There was no appreciable dulness or visible pulsation along the spine. "On examining him with the stethoscope from the nape of the neck downwards, no abnormal sounds could be heard until we came down to the *last dorsal vertebra, when a well marked bruit became audible* (particularly to the left of the spine), which became louder as we descended for about two inches, when it 'shaded off,' and was lost about the fourth lumbar vertebra." The area of the bruit was about five inches. The patient died suddenly. At the post-mortem the heart was hypertrophied, but the valves perfect. There was atheromatous deposit in but no dilatation of the thoracic aorta. Immediately opposite the giving off of the cœliac axis, an aneurysm was found, about the size of a small apple, fitting into the left vertebral hollow, and lying on the upper lumbar vertebræ, the bodies of which were eroded. The aorta was narrowed for about half an inch below the aneurysm; the right renal artery was obliterated, and the right kidney was diminished in size.

In reference to the epigastric pulsation the author observes that too much stress is laid on the "expansive character" of the pulsation. He considers that "persistency and equability," after a careful examination in all positions, are the most characteristic features of abdominal aneurysmal pulsation. With regard to the stethoscopic signs, he notices that systolic murmur can be heard over the aorta *in front* in cases where tumours overlie the vessel; this diminishes the value of the diagnostic sign. "But if we place the patient in the *prone* position, and examine him along the spine, in the great majority of cases of

aneurism a 'bruit' will be heard (as in the case detailed) along the spine, especially to the left side." In the case of an abdominal tumour, with the patient in the *prone* position, no such "bruit" will be heard, inasmuch as no pressure is exerted on the vessel from the tumour falling forward. Thus, in a "*localized bruit, heard along the course of the spine,*" we have one, if not the most valuable, physical sign of abdominal aneurysm we are as yet possessed of. In the case of aortic obstruction, where a bruit may be propagated along the spine, it will be heard *continuously* from the base of the heart along the aorta. *Continuity* would also be the characteristic of a spanæmic murmur. In the case of aneurysm the *bruit* is localised. The author relates another case in which temporary attacks of dry barking and spasmodic cough, dyspnœa, and aphonia, occurred in the course of abdominal aneurism, which had its seat high up between the pillars of the diaphragm. He had no opportunity of examining the patient with the stethoscope, and the post-mortem examination was imperfect, but he suggests that the thoracic symptoms were the result of pressure by the aneurism on the semilunar ganglia of the solar plexus, which would influence the larynx through the pneumogastric and recurrent laryngeal nerves.—*Dublin Quart. Journal*, August, 1869.

Death from Rupture of Varices of the Spleen.—On April 11th, 1865, there died suddenly, under the care of Prof. Traube, a man, æt. 27, who had been frequently under treatment for a chronic affection of the brain. For three days previously he had complained of a localised pain in the left side, when, on the 11th, having dined heartily, he sunk down suddenly in his bed and died. *Autopsy.*—The peritoneal cavity was filled with about a litre of sanguineous fluid, and there was a large quantity of soft clots, principally accumulated in the left hypochondrium. The spleen, which was completely buried in the coagulated mass, was enlarged; it measured six inches in length, five in breadth, and two in thickness. Its surface was unequal, and its fibrous capsule was raised by a number of elevations of a deep blue colour, and soft, almost fluctuating consistence. On one of these elevations, near the upper extremity of the organ, there was a rent of three quarters of an inch in length. On cutting into the spleen it was found that its interior was traversed by irregular anastomosing cavities filled with coagulated blood. The largest of these cavities, which was almost the size of a goose's egg, occupied the centre of the organ, and sent prolongations as far as the posterior and superior surfaces. One of these prolongations terminated in the rent. The greater part of the central cavity was filled with a recent soft blood-clot, whilst the wall of the cavity showed here and there clots of decolorized fibrine, slightly adherent. When the contents were removed the wall presented depressions separated by a number of elevations, otherwise it was smooth and almost shining, and in colour reddish-white, like the walls of the veins. In the upper part, however, of the cavity, the coagulated blood was in immediate contact with the torn pulp of the spleen. The rest of the parenchyma of the organ was traversed by a number of similar cavities, but smaller, from the size of a pea to that of a nut. These

cavities communicated with each other, and with the central cavity, and with the superficial elevations. The parenchyma of the spleen was otherwise firm, reddish-grey, and presented a number of large follicles. The splenic artery and vein were quite normal at their entrance into the hilus of the gland. One of the largest arterial branches presented an aneurysm of the size of a pea. The veins were easily followed into the disseminated cavities in the interior of the organ, and one vein was evidently continuous with the great central cavity. The right lobe of the liver also presented on its convexity, in a circumscribed space, a number of small cavities with smooth walls, filled with clots, and in relation with the branches of the portal vein. Microscopically, save epithelium, of which the existence could not be established, the walls of those cavities had exactly the structure of the walls of the veins. It seems remarkable that so extensive a lesion of the spleen could exist without giving rise to other accidents besides the varicose rupture that occasioned death.—J. Cohnheim, *Virchow's Archiv*, and *Gazette Médicale de Paris*, March 4th, 1869.

On Dysenteric Arthritis.—Under this name Dr. Huette describes cases in which rheumatism attacks the joints during the course, or shortly after the cure of epidemic dysentery. A connection between epidemic dysentery and arthritic rheumatism has been noticed by Zimmermann, Lepecq de la Clôture, Stoll, &c. The author relates ten cases observed during an epidemic of dysentery in the Canton of Montargis in 1854. The following are his conclusions:—1. There exists a variety of arthritis, having for its peculiar and necessary cause an epidemic inflammation of the mucous membranes of the rectum and of the colon. 2. This rheumatismal manifestation does not show itself during all epidemics of dysentery; it is dependent on a peculiar medical constitution; individual diathesis may favour its development. 3. Dysenteric arthritis differs in its causes, its progress, its general physiognomy, and in its consequences, from simple articular rheumatism. It is closely analogous to blenorrhagic rheumatism. 4. Dysenteric arthritis, which is almost always polyarticular, has a variable duration from several weeks to several months. It terminates by resolution in a large majority of cases, but under certain rare conditions it may end by suppuration and anchylosis. 5. Metastasis does not furnish an explanation of the occurrence of the arthritis, according to the old doctrine; it is more rational to explain its occurrence by a morbid affinity, which, the mucous membranes being affected, determines reflex pathological effects on other tissues.—*Archives Générales de Medecine*, August, 1869.

Rheumatic Paraplegia, cured by Nitrate of Silver. By Dr. Louis Caradac, of Brest.—A cook, æt. 38, fell thirteen years previously on his back, and from that time had a marked tumour in the dorsal region, without any disturbance of the general health. A year later pains came on in the loins, with pains, paresthesia, and weakness in the legs, which, however, again disappeared. The patient then remained healthy, with the exception of slight twitching pains, till after eleven years he took a house in a damp and generally unhealthy locality.

Then he became subject to very severe pains, which presently fixed themselves in the shoulder and back. In this state of things he again had a severe fall on the back, bruising it considerably. This local injury was quickly cured, but the pains returned, and were specially localised in the back and arms. A variety of means were employed without benefit; the pains more and more affected the loins and the legs, and became especially and extremely severe on any movement. Then came on marked hyperæsthesia of the skin of the legs, twitchings of the muscles, and gradually increasing palsy of them, with paresis of the sphincters, and diminished expulsive power of the intestines and the bladder. After a time there was complete paraplegia, with also disappearance of the hyperæsthesia. After the paralysis had lasted a year, in spite of the various remedies employed by several physicians and quacks, Dr. Caradac determined to try lunar caustic. He gave it in gradually increasing doses, from one up to eight centigrammes in the day; after three weeks there was decided improvement of sensibility and mobility, and after three months the patient could move about so freely, though somewhat stiffly, that he was able to take a situation as ship's cook. This he kept for five years, and remained healthy all the time, though at the beginning of it he was shipwrecked, and took an involuntary bath of half an hour's duration.

Dr. Caradac considers that the paraplegia was the effect of a rheumatic spinal meningitis and secondary compression of the nerves, and that the remedial action of the nitrate of silver was indisputable, and ought to be resorted to in similar cases.—*Gaz. Hebdom.*, 2nd series, t. v, 1868; *Schmidt's Jahrb.*, Bd. 142, 1869, p. 26.

Diabetes in a case of Tumour of the Medulla Oblongata.—J. B. Dompeling reports the case of a patient who met with a fall on the back of the head when about fifteen years of age. Since that time he suffered from sharp pains in the head and in the back of the neck; the lower limbs became considerably enfeebled, and there was diplopia. During the space of some years paresis of the limbs of the right side became established with marked blunting of tactile sensibility; sensitiveness to heat was augmented; all the muscles of the right eye were paralysed; at the same time symptoms of diabetes appeared. The urine contained from five to seven parts per cent. of sugar; this proportion diminished during a season passed at Carlsbad, but soon after the disease advanced and was accompanied by fever and cough. The patient died suddenly six years after the first symptoms were observed. After death a tumour about the size of a small nut was found occupying all the right half of the medulla oblongata. It was continuous with the medulla, not limited. It was formed by a fasciculated sarcoma. On its inferior surface were found two small vesicles filled with fluid, but containing no trace of cysticercus. The longitudinal furrow of the floor of the fourth ventricle was thrust to the left; the roots of the accessory nerve and the lower root of the pneumogastric were very atrophied.—*Nederl. Arch. voor Geneestr.*, 1868, IV, and *Archives Générales de Médecine*, May, 1869.

REPORT ON MIDWIFERY.

By Robert Barnes, M.D. Lond., F.R.C.P.
Obstetric Physician to St. Thomas's Hospital.

I.—The Non-Pregnant State.

1. *The Surgery of the Cervix in connection with certain Uterine Diseases.* By T. Emmett.
2. *The Rectum in its Relations to Uterine Disease.* By H. Storer, M.D.
3. *Reflex Irritation of the Rectum as a Cause of Uterine Disease.* By Dr. J. C. Nott.
4. *Historical Review of Uterine Injections.* By J. Cohnstein.
5. *A Remarkable Case of Retroversion of the Uterus of Eighteen Years' Standing Successfully Treated by Elytrorrhaphy.* By J. Byrne, M.D.
6. *Vaginal Respiration.* By Dr. Kristeller.
7. *Ovariocentesis Vaginalis.* By Dr. E. Noeggerath.
8. *Case of Pelvic Hæmatocele.* By Dr. Aitkin.

1. Dr. Emmett gives a summary of his experience of dilatation of the cervix uteri by incision. The uterus being, he says, an erectile organ, flexure may vary in degree owing to the variation in the circulation. The flexure is above the vaginal junction. Surgical interference in such cases is unjustifiable. In endometritis with flexure he uses large vaginal injections of hot water. This after a time produces contraction of the vessels. Then a solution of chromic acid, or iron, or iodine may be applied to the inner surface of the uterus by aid of two instruments, the uterine probe and the "applicator." The probe is a small ductile silver sound. This takes the curve of the uterus. The "applicator" is moulded to the same curve, and carries the fluid soaked in cotton twisted on it. After using chromic acid, Dr. Emmett insists upon keeping the patient quiet. At a later period it may be useful to dilate the cervix by tents. If relief is not obtained, division of the cervix may then be useful. With regard to the intra-uterine pessary, he says pelvic cellulitis is the rule, and not the exception from its use. When the flexure is below the vaginal juncture, the case is different. This is generally congenital, and dysmenorrhœa and sterility commonly attend it. His impression is that fully two out of three of the married, operated upon under twenty-five years, have become pregnant within the first year. Division of the cervix should not be attempted in any case when perimetritis is suspected. If the flexure is in the cervix, Dr. Emmett divides the posterior lip in the median line with scissors. If the flexure is high up and at a sharp angle, division of this anterior angle with the knife will be necessary. The open canal should be firmly packed with little pledgets of cotton soaked in glycerine, and over all the vagina tamponed, as if hæmorrhage at the time actually

existed. This precaution is of the greatest importance, for a divided vessel in erectile tissue may contract promptly at first, but with reaction after the operation bleeding comes on suddenly, and the mouths of the vessels enlarge in a remarkable manner from the force and continuance of the current.

Dr. Emmett has abandoned the practice of incising the anterior lip for dysmenorrhœa depending on retroflexion. He says this condition rarely exists for any length of time without the snpervention of perimetritis, and frequently of pelvic cellulitis; hence adhesions. The fundus can in such cases often be restored by gradual and repeated manipulations by a finger in the rectum, the adhesions gradually yielding.

Dr. Emmett objects to incision of the cervix at the lips, on account of the tendency to gaping of the flaps, and subsequent rolling out of the lining-membrane of the canal.

Amputation of the cervix is rarely necessary, except for malignant diseases. Dr. Emmett believes the cauliflower growth at least is a local disease at first, and says in several cases where he had been able to amputate the neck beyond in healthy tissue no return has occurred for several years. But these cases have been exceptions, as the disease has returned in the majority of instances between the fourth and sixth months.—*Amer. Journ. of Obstet.*, 1869.

2. Dr. Storer contributes a valuable essay on the rectum in its relations to uterine disease. Having illustrated the frequency of diseases of the rectum, and their bearing on uterine disease, he points out a mode of examination which he thinks superior to those in ordinary use. He deprecates for diagnosis, as well as for treatment, the use of the anal speculum. He says that by everting the rectum by passing the finger within the vagina we are able to explore the rectal cavity far more thoroughly than by any other means, and to apply remedies and perform operations with an ease, safety, and satisfaction that are otherwise impossible. He gives several interesting clinical illustrations of his views and practice. He relates a case in which an ovarian tumour opened into the rectum, and was cured by a fistulous communication; also a case of utero-ovarian fistula. The patient had a large abdomen, and pus escaped from the os uteri. A large male catheter passed through the os its full length, gave exit to a large hand-basinful of a fœtid sanies, with the effect of lessening the abdomen, and allowing the point of the catheter to be felt upon one side of the umbilicus.—*Amer. Journ. of Obstet.*, 1869.

3. Dr. J. C. Nott insists upon and illustrates the influence of hæmorrhoïds and fissure of the rectum in the production of severe symptoms referred to the uterus.—*Amer. Journ. of Obstet.*, 1869.

4. Dr. Cohnstein gives a careful historical survey of the practice and opinions of those who have related their experience upon the injection of fluids into the uterus. The general results seem to be that the injection of very powerful caustics is likely to cause inflammation of the uterus and peritoneum, or severe prostration and uterine colics, and

these dangers are less urgent if care be taken first to dilate the cervix uteri so that the return of the fluid injected into the cavity is easy.—*Beiträge z. Chronischen Metritis,* 1868.

5. Dr. Byrne's case of cure of retroversion and prolapsus of the uterus by operation is interesting. The subject had a child at seventeen. Soon after she complained of great dysuria and bearing-down. Complete prolapsus ensued. At the end of eighteen years she came under treatment. The tumour was returned within the pelvis. A bag was passed into the rectum and inflated so as to raise the fundus uteri, whilst a tenaculum seized the hypertrophied anterior lip of the uterus, and by this double action the uterus was restored to its normal position. It was found that when the anterior vaginal wall was firmly seized by a hooked forceps, and if at the same time by a sound in the cavity of the uterus, efforts were made to produce retroversion, no amount of force compatible with the integrity of the tissues could succeed in doing so; but when the forceps was removed, and the tension on the vesico-vaginal septum thus removed, there was not the slightest difficulty in producing retroversion. It was, therefore, concluded that an operation similar to that practised by Sims for cystocele and prolapsus uteri might succeed. The anterior wall of the vagina was depressed so as to make two ridges, longitudinally extending from the meatus urinarius to within half an inch of the os uteri. These ridges were denuded, and the surfaces were brought into apposition by seven interrupted sutures. When the parts had healed, it was found that even by a sound in the uterus retroversion could not be produced. The patient made a good recovery, the retroversion and prolapsus being cured.—*Amer. Journ. of Obstet.,* 1869.

6. Under the term vaginal respiration, Dr. Kristeller describes the movements of rise and fall of the vagina under the influence of the rise and fall of the diaphragm. When the spoon-speculum is introduced, pressing back the posterior wall of the vagina, the rise and fall of the anterior wall, synchronously with the corresponding movements of the diaphragm, are clearly seen. Under ordinary circumstances, the vulva being narrow and the vaginal walls in contact, no air enters; but if the walls be kept apart, as by a tumour or pessary, great relaxation, laceration of the perinæum, or other agency, air will enter, especially after labour. The influence of air is seen in the foulness of secretions, the decomposition of plugs, &c.—*Monatsschr. f. Geburtsk.*, June, 1869.

7. Dr. Noeggerath contributes an elaborate memoir, historical, critical, and practical, on the procedure for tapping ovarian cysts through the vagina. He places the patient on the edge of the fauteuil somewhat in lithotomy position, passes a curved trocar and canula to the most prominent part of the tumour and pierces the cyst. A curved bistoury, with a button at the end, is then passed through the canula, the canula is withdrawn sufficiently to allow the cutting edges of the bistoury to incise and enlarge the wound. Removing the bistoury, the canula is again pushed forward into the wound, and through it past the sound, which serves as a guide to the introduction of a tube into the cyst after the

removal of the canula. The canula used in one case was a piece of elastic stomach tube, about ten inches long. This is retained in the wound to afford an exit to the contents of the cyst. Afterwards Dr. Noeggerath used a special tin canula of large diameter, having a self-retaining apparatus. Through this injections were made when the discharges were offensive. In one case the incisions made caused copious hæmorrhage, filling the cyst which had previously emptied. This was stopped by compressing the canula against the angle of the wound by compresses. In another case the hæmorrhage was fatal. Dr. Noeggerath says the condition of the cyst-walls must be taken into account when we decide about the choice of a method of operating; if we admit that a cyst with thin walls will collapse more readily, it may, on the other hand, prove a source of danger from the spreading of inflammation lighted up in the inner membrane to the peritoneum. Peritonitis has frequently followed the operation. Cysts containing fat, hair, or encephaloid matter must be excluded from the operation. Colloïd cysts, even if their contents be not thoroughly fluid, can be treated in this manner. In a case operated upon by Dr. Schnetter, rapid liquefaction of the colloïd matter took place after the operation.

When dealing with two or more cysts there is danger of twice perforating the peritoneum, when decomposed fluid or gases would escape either from the upper or the lower cyst into the abdominal cavity. This accident is the reason why the operation of Récamier, recently repeated by Sims, must necessarily prove fatal. They passed a long curved trocar through the abdominal walls towards Douglas's pouch, and a second trocar into the cyst through the vagina, so as to meet the first. Thus two openings were established in the cyst, the lower one giving issue to the contents into the vagina, the upper one into the abdominal cavity. It is better to act upon one cyst only at a time. It is probable that by the collapse and destruction of the principal cyst, obliteration of the vessels feeding the smaller cysts takes place; hence they disappear by atrophy. The operation can only be performed in those cases where the cyst is distinctly felt through the vagina behind the neck of the uterus. The risk of septic fever must be avoided by procuring the evacuation of the contents of the cyst, and by altering the character of the secretions. This is done by cleansing and disinfecting injections.

The paper concludes with a table exhibiting the chief features of 48 cases in which an ovarian cyst has been tapped by the vagina. 55 operations were performed upon 48 patients; 34 were unsuccessful. The disease returned in 3; result undecided in 4. Death occurred in 14 cases; in one from hæmorrhage, 4 from peritonitis, 7 from septicæmia, 1 from typhoid, 1 from an attack of peritonitis not caused by the operation.—*Amer. Journ. of Obstet.*, 1869.

8. Dr. Aitkin relates a case of pelvic hæmatocele, the more interesting because a post-mortem examination was made. The patient, probably, died in consequence of getting about too actively when she ought to have been quiet. On opening the abdomen a large quantity of grumous blood escaped. The intestines were matted together by recent lymph. In the left iliac and hypogastric regions, extending from behind the uterine cervix up nearly to the level of the umbi-

licus, was a large tough, partially decolorized blood-clot weighing thirty-six ounces. The recto-vaginal pouch was filled partly by the apex of this clot, but chiefly by soft puffy lymph, and at the bottom of the pouch was an incision. On the left side, almost completely imbedded in the blood-clot and close to the line of the incision, was an ovarian tumour, about the size of a closed fist, containing a yellowish purulent-looking fluid. The uterus was pushed forward, so that the fundus rested on the symphysis. In its interior a quantity of muco-pus was found. No pus or blood in the Fallopian tubes. The case was, therefore, one of intra-peritoneal hematocele, complicated with peritonitis.—*Ed. Med. Journ.*, Aug., 1869.

II.—Labour.

1. *A Case of Thrombus during Labour.* By Dr. George T. Elliot.
2. *Prolapsus of the Uterus containing a Child, between the Seventh and Eighth Months of Pregnancy.* By W. Collison.
3. *A New Method of Embryotomy, adapted to Extreme Cases of Pelvic Contraction.* By Robert Barnes, M.D.
4. *Birth of a Double Monster ended by Removal of One Head by Braun's Key-hook.* By Dr. M. Lindmann.

1. Prof. Elliot relates a remarkable case of thrombus. The patient was in labour with the first child. The pains continued active, and it seemed as if the child would soon be born; but it was discovered that the head had not advanced, and the vaginal walls and perinæum were enormously distended by a rapidly increasing thrombus. The forceps was applied; on drawing, the right labium cracked through the mucous membrane, and a large clot flopped out with such violence as to be projected a distance of three feet. The labium was then freely incised, and the open spaces were stuffed with lint steeped in persulphate of iron, and the whole compressed by a T-bandage. No more blood was lost. Anæmia was met by generous diet. The vagina was injected on the third day with weak carbolic acid. The patient did well.—*Amer. Journ. of Obstet.*, Nov., 1868.

2. Mr. Allison relates a case in which the gravid uterus, between the seventh and eighth months, was entirely prolapsed. He managed to return it into the mother's abdomen. She was delivered at term of a live child.—*Brit. Med. Journ.*, 1869.

3. Dr. Barnes demonstrated to the Obstetrical Society a new method of embryotomy devised by him, by which a mature fœtus could be extracted through a pelvis measuring an inch in conjugate diameter. It consisted in making sections of the head by a strong wire écraseur. —*Brit. Med. Journ.*, 1869.

4. Dr. Max Lindmann relates an instructive history of labour with a double monster. When called the patient was in strong labour; the pelvic end of the child was lying forth in the first position. Traction on the feet was met by an irresistible obstacle; the body could not be

drawn out beyond its pelvis, although the force used broke the ligaments of both hip-joints. That the woman was well formed was known from her having previously borne a full-grown child easily. The violent uterine contractions foiled external exploration. The fœtal abdomen was so large and out of proportion with the legs, as to fill the mother's pelvis, preventing the entry of the hand. It was, therefore, concluded to perforate when, after exvisceration, the body had somewhat collapsed, the operator's hand was gradually passed up to the neck of the child, when two necks were felt diverging from the trunk. A blunk hook was passed up the angle formed by the bifurcation of the necks, and after considerable difficulty the further head was separated. Light traction, then, upon the trunk extracted this with the remaining head. The mother recovered well.—*Monatsschr. f. Geburtsk.*, June 1869.

III.—Childbed.

1. *Puerperal Mortality.* By Dr. E. Kennedy.
2. *The Brain of a Puerpera who died of Convulsions.* By Dr. Mendel.

1. [An animated and interesting debate in the Dublin Obstetrical Society, occupying 204 pages of the 'Dublin Quarterly Journal,' has elicited the opinions of the leading obstetric authorities in Dublin. In the British empire Dublin stands in remarkable contrast with other large towns, being distinguished for hospital-midwifery as against domiciliary midwifery. It may be said that in no other town in the kingdom are the influences of lying-in hospitals equally open to observation. And since the recent discussions on the Continent, and the direct challenge thrown out by the Reporter, in his lectures on puerperal fever in the 'Lancet' in 1866, the advocates of hospital-midwifery have been thrown upon their defence.

Dr. E. Kennedy, in a singularly able memoir, attacks the hospital system, and has to maintain the fight almost single-handed against the Dublin celebrities; but surely, as Antony bade the dumb mouths of Cæsar's wounds speak for him, so may Dr. Kennedy bid the hecatombs of women who have perished of puerperal fever in the hospitals speak for him.

If statistics ever had the merit of proving one thing in medicine it is this, that the mortality from puerperal fever is greatly higher in lying-in hospitals than out of them. The most strenuous advocates for the hospital system (those who support them by money and work) are continually compelled to acknowledge this inexpugnable fact, by closing their doors when the dire scourge is slaughtering the inmates with somewhat too alarming rapidity. We do not know that any one on the Continent, where the hospital system prevails, now disputes the proposition that hospitals, by spreading fevers, increase the maternal mortality. If hospitals are to be defended, they must be defended on other grounds than the vain contention that lying-in women encounter equal dangers at home. Those who still advocate hospitals have to

show that the advantages flowing from them, whatever these may be, are so great as to be worth, and to justify, the sacrifice of many lives committed to them as a sacred trust; they must show that it is right or necessary to destroy one portion of our fellow-creatures in the pursuit of knowledge that may be useful to the rest.—R. B.]—*Dublin Quarterly Journal*, 1869.

2. Dr. Mendel relates the history and describes the condition found in the brain of a woman who died in convulsions after labour. In a first pregnancy the patient, aged 26, who had always been healthy, was delivered by forceps. Three hours afterwards convulsions set in, with loss of consciousness. Consciousness returned in a few hours, but the patient continued for nine days completely speechless. There was no other kind of paralysis. Speech gradually returned, and at the end of the third week she appeared to have quite recovered. Two years later she was again delivered normally of a full-grown child. She went on well for a week, when, after a strong exertion, prolapsus uteri took place, which the midwife reduced next day. Three days later general convulsions with loss of consciousness recurred. These lasted two hours; consciousness returned, but aphasia remained. There was no difference in the pupils, both reacted under light; pulse 90; temperature 38·2. The tongue could not be projected through the teeth. Lochia present; not offensive. No albumen in urine; no œdema; no pain. Next day suddenly, the convulsions were repeated, and were more marked on the right side of the face. Loss of consciousness complete. With increase of temperature sopor set in; and in the night, the temperature having risen to 41·2, death followed.

The calvarium had nowhere grown to the dura mater. The dura mater showed hyperæmia and plentiful Pacchionian granulations. The dura mater was closely adherent, especially on the right, with the arachnoid and the brain substances, so that with the membrane small shreds of brain were torn away. The arachnoid on the right was opaque, but in most parts separable from the brain; on the left the fissures of Rolando and Sylvius were filled with a purulent yellowish-white mass. On the summit of the frontal lobe was a scar-like contraction of the arachnoid. The white substance was very hyperæmic. In the left hemisphere of the cerebrum, outside and above the corpus striatum, was a cavity the size of an almond, containing grey pus-like matter.

The cyst extended to the scar-like depression of the arachnoid. No disease was observed in other parts of the body. It cannot be doubted that the cyst and scar were the residua of two hæmorrhagic effusions dating from the first eclamptic fit; the locality of them explained the aphasia. The psychical excitement attending the prolapsus uteri was the probable cause of the tissues in the neighbourhood of the cyst giving way.—*Monatsschr. f. Geburtsk.*, June, 1869.

IV.—The Child.

1. *A Malformation caused by Amniotic Threads and Bands.* By Dr. C. S. F. Credé.
2. *Vaccination.* Dr. Guérin and others.

1. Dr. Credé describes and figures a remarkable example of malformation of the fœtus caused by amniotic bands, a condition first explained by the late Dr. Montgomery. He discusses minutely the conditions which might lead to the formation of these bands. He thinks that in the human ovum contractions of the uterus or powerful emotions may produce changes of volume, such as Darest produced in his experiments on hens' eggs. They surrounded the eggs with an air-tight envelope, or exposed them to changes of temperature, and thus often produced malformations. Darest, in this way, once produced a thread proceding from the skull.—*Monatsschr. f. Geburtsk.*, June, 1869.

2. Animal Vaccination; or Vaccination direct from the Heifer. It is deserving of record that this practice is now being pursued in London by Dr. Blanc and Dr. Ballard, who both speak favorably of it. Dr. Ballard says the animal virus takes a longer time to go through its stages of evolution than the human virus. He says that, like the humanised virus, the animal virus keeps better on points than in tubes.—*Lancet and Med. Times and Gaz.*, 1869.

In a discourse delivered at the Académie de Médecine, M. Guérin discusses the modern views upon vaccination. He makes a triple distinction: 1. Jennerian vaccination. 2. Human. 3. Animal vaccination. He insists that, in any case, the cowpox serves as the basis; but that in one case it is inoculated, in the other it is spontaneous. Jenner never inoculated direct from the animal to man, he simply used spontaneous cowpox. Cowpox must not be confounded with animal vaccination. Animal vaccination is slow in production, therefore the virus is less energetic, or finds a soil badly prepared for its germination. Its course is shorter, therefore the virus is weaker. The period of virulence is ephemeral, therefore the vitality of the virus is less. It is very difficult to preserve; you must go back to the beast; therefore it is less active, less prompt than the Jennerian vaccine, which may be indefinitely preserved. As to the last question, the comparative protection afforded against smallpox, the facts relating to animal vaccination are as yet too few. Time is wanted to prove its efficacy; but no one doubts that the question is settled as to the efficacy of the Jennerian vaccine.—*Revue Médicale*, July, 1869.

REPORT ON TOXICOLOGY, FORENSIC MEDICINE, AND HYGIÈNE.

By Benjamin W. Richardson, M.D., F.R.S.

I. Toxicology.

Poisoning by Laburnum (*Cytisus Laburnum*).—It has been known for some years past that the seeds of the laburnum tree are actively poisonous. Christison reports that the whole plant is very deleterious, and he gives the history of a case in which a boy produced poisonous symptoms in one of his fellow-servants by administering laburnum bark in broth. The same author relates also his experiments with an infusion of the bark. He found that when an infusion of a drachm of the dried bark was injected into the stomach of a rabbit, the animal, in two minutes, began to look quickly from side to side, as if alarmed and uncertain which way to go, then twitched back its head two or three times, and instantly fell on its side in violent tetanic convulsions, with alternating opisthotonos and emprosthotonos, so energetic that its body bounded with great force upon the side up and down the room. Suddenly, in half a minute more, all motion ceased, respiration was at an end, and, excepting that the heart continued for a little time to contract, and with some force, life was extinct. No morbid appearance was visible anywhere. The heart was gorged, but irritable. Of late years we have had several instances of poisoning by the same plant, especially by the seeds; and we now add the most extended series of such cases since the publication of eleven cases in the 'Lancet' for 1840-41, by Mr. Bonney, of Brentford. The cases we relate occurred at Carlisle a few weeks ago. They were all seen and treated by Dr. Philip Hair, of Abbey Street, Carlisle, who has been kind enough to draw up the following notes of the cases at our request, for the present report. We may premise that the children poisoned ate the "peas," seeds or peas, and pods of the laburnum, one of them, Cassady, aged ten years, being the distributor. The youngest child was four years, the eldest eleven years of age. Dr. Hair writes:

"On Sunday, August 8th, 1869, at 8.50 p.m., I was called in great haste to see some children who were very ill and sick (Daniel Maugin, in particular, was supposed to be dying), from having, as the father said, eaten some pods of the common broom. On arrival I found the child's (D. Maugin's) face pale, cold, and of dull expression; the eyes sunken and the pupils much dilated but acting readily in strong light. When spoken to he seemed stupid and unconcerned; when roused by a shake, and when asked a question he would answer by a nod or shake of the head. He had pain in the "belly" (stomach), and tried but was unable to vomit. When not disturbed he would incline to doze; the extremities were cold; no shivering; breathing occasionally hurried and deep, breath sounds clear; heart's action rapid and tremulous; pulse 120, small.

"I administered ipecacuanha in powder, with plenty of warm water, and then excited vomiting by putting my fingers in the mouth depressing the tongue and exciting the fauces. He vomited only sparingly at first, so I repeated the warm water and ipecacuanha, and at last got him to vomit freely. Now and then, when the vomiting was settled for a few minutes, his pulse would gain strength and become slower, but would again relapse to rapidity and smallness, with drowsiness supervening; after repeated vomits his face assumed a more natural aspect. When asked to count six he hesitated a little, and then could not do it. He vomited ropy mucus, with kernels of nuts and a few pieces of "swads" (pods). This boy had not had tea, but had from his father the nuts a short time before the accident.

"H. Cavangha, æt. 11 years, had eaten four pods. Felt his belly sore, but had no marked sickness. His pupils were dilated and pulse rapid, 130. There was no anxiety manifested in any way, but a remarkable amount of indifference to all around. Mustard and warm water were given, and when excited he vomited very freely. He vomited pieces of gooseberries, tea-leaves, and some small pieces of peas.

"I saw several others who had been very ill, but were able to vomit freely.

"In all the cases the pupils were dilated, considerably in some, not so much in others; and the pulse, in all but two cases, was over the 100 per minute.

"The parents said the greater number of the children were giddy—some wheeling perfectly round several times before and during the times of vomiting; others had a peculiar twitching in their walk. One boy (Dawson), six years old, never vomited at all, but was very much purged.

"Another boy (Rawson, 7 years) felt very giddy, turned round twice and vomited, and expressed himself as quite well.

"The boy Maugin being in the greatest danger, I remained with him some time, and directed that the children who had eaten any peas or felt unwell should have plenty of mustard and warm water at once. This was done very satisfactorily: with three exceptions, all the children had taken tea before eating the peas.

"The largest quantity of the peas eaten individually was from four to six legumens (pods), containing, on an average of the collected pods (from the street), five peas in each pod. The boy Maugin did not think he ate four pods, but was sure he ate 'two peas and *one swad*.'

"Cavangha might eat four peas, and no swads.

"Cassady, æt. 10 years, the boy who distributed the peas, ate six peas and two swads (*quite sure*), but vomited most freely of all, having had from his mother more than six pints of water (warm) and mustard; in two hours he was apparently quite well, with the exception of a rapid pulse and dilated pupils.

"The period of commencing symptoms of poisoning from the time of taking the peas is doubtful; but, as far as I am able to judge from various statements, the effects must have been manifested in less than half an hour, and the most imminent symptoms and effects within the hour.

"The whole of the cases were very striking, from the absence of any alarm on the part of the children, who readily took anything offered them. After remaining three and a half hours in the street, and seeing

the poisonous effects subside, I ordered a little brandy and water to be given to those who seemed to remain a little sick. Some were kept awake till 3 o'clock in the morning, then allowed to sleep; and at 7.30 a.m. I found all in a good way. The pupils of all were a little dilated, and pulse still quick, but every one was better and ready for breakfast. They all ultimately recovered."

On Poisoning by Phosphorus. Oil of Turpentine the Antidote.—Dr. T. E. Jenkins, of Louisville, Ky., observes that poisoning by phosphorus has become as frequent, of late days, as poisoning by means of arsenic in former times; indeed, the former has taken the place of the latter as the popular toxic agent at present. M. A. Tardieu informs us that in criminal statistics phosphorus takes the first rank as the fashionable poison. This substitution of phosphorus for arsenic is, doubtless, brought about by the wide-spread use of chemical matches, and of phosphorus paste for the destruction of rats, mice, and other noxious vermin, and it is the more dangerous since, up to this time, no real antidote for the poison has been known.

In view of this state of things, M. Personne has made a number of experiments upon dogs, to discover (if possible) some agent with which to combat the deadly effect of this substance. Among other substances he tried the oil of turpentine, and the sequel will show the success which has followed his trials. He made three series of experiments, using five healthy dogs in each.

The phosphorus and the oil were introduced by means of a stomach-tube, and the dose for the former was from 1 to 3 decigrammes (1½ to 4½ grains) to each animal, given in the state of match-ends in some cases; in the others the phosphorus was administered in solution in oil of sweet almonds emulsified by means of the yolk of egg. The poison was thus put into a condition most favorable for absorption, and for producing its toxic effect.

The oil of turpentine was employed in the dose of 10 grammes (154 grains) emulsified in like manner, and the experiments continued from the 13th of January to the 27th of February last.

The following results were obtained:—The dogs submitted to the action of phosphorus alone all died; those to which the poison was given, and its injection followed in from one to two hours by the antidote, showed the severe symptoms, and some were very sick, but one only succumbed; the four survivors recovered perfect health, and were kept from ten to fifteen days, to be watched if anything untoward would supervene. In series No. 3 the animals were made to receive the poison, and immediately afterwards the antidote; one of these died; the four others suffered a slight indisposition only, and were kept up from ten days to a month, without presenting any alteration in their usual health.

All those to which no antidote was given died; eight of the ten to which the turpentine was administered suffered no serious inconvenience.

The deaths which took place in the second and third series occurred on the 22nd of January, when the temperature fell below freezing-point, and the water to which the animals had access was congealed. This circumstance should not be lost sight of in attempting to account for the death of the two dogs which had taken the antidote. These dogs

also were subjected to the maximum dose of the poison with no increase in the dose of the antidote.

In explaining the action of the antidote in combating the toxic effect of the poison, the subject presents two points of the greatest interest. The first is the *modus operandi* of the poison and of the antidote; the second, the philosophical reasoning which, doubtless, led to the employment of the antidote.

Apart from the powerfully irritant action on the mucous lining of the stomach of the acid produced by the oxidation of the phosphorus while still lying unabsorbed in the cavity of that organ, this poison possesses an inherent deadly effect upon the blood itself, when taken into the circulation. Absorbed phosphorus kills by preventing proper hæmatosis; it engages the oxygen, and does not allow it to perform its usual functions of aërating the blood, of converting chyle and venous blood into the vitalized fluid. When this takes place rapidly there is prompt death by asphyxia; when it occurs slowly, it gives rise to fatty degeneration, the result of faulty hæmatosis. The disposition to and accumulation of fat in individuals using phosphorus in minute doses as a medicine was some time ago announced as a fact. Then the question whether the increase of fatty deposits be a normal process or a pathological one would be pertinent. If it be a fatty degeneration in the sense it is generally understood, may we not ascribe the apparent improvement frequently observed in emaciated patients after a course of the hypophosphites (easily oxidizable compounds) rather to the change of one pathological condition for another, or the superinduction of a new pathological state?

It has been long known that phosphorus, under ordinary circumstances, is slowly oxidized in the air, giving rise to a sensible increase of temperature, with perceptible evolution of light. The phosphorus is also found to be covered with a film of acid, resulting from its oxidization. When, however, the atmosphere surrounding the phosphorus contains a minute proportion, the 1·4444 or more of its volume of the vapour of the oil of turpentine, this slow oxidization is suspended until the surrounding temperature of the phosphorus is increased; then the amount of the vapour of turpentine must be augmented to produce the same effect. The observations were made between 66° Fahr. and 200° Fahr., by Graham, of London, prior to 1850.

Oil of turpentine or its vapour would then serve to prevent the absorption of oxygen by the phosphorus in the blood, in the same way as it prevents the slow combustion at moderate temperatures in air; thus the poison is stript of its property of depriving the blood of its essential, oxygen, and time is allowed for the elimination of the phosphorus without causing serious disorder in the system.

It is here suggested that other bodies than the oil of turpentine may be employed as antidotes for phosphorus upon the same principle, for we know that at the ordinary temperature, 60° Fahr., and even at 150° Fahr., 1-150 of the vapour of ether, 1-450 of olefiant gas, and 1-1820 of the vapour of petroleum, will produce the same effect as does the 1·4444 of the vapour of the oil of turpentine upon phosphorus in the atmosphere.—*The Medical and Surgical Reporter*, May 29th, 1869.

Poisoning by Cimicifuga.—Dr. Garrison, of Woodville, Tennessee, reports that on the 21st of December, 1868, he was called in consultation to a lady, æt. 24, wife of an eminent physician of an adjoining county. She had been having labour pains during the greater part of *one month.* The pains were continuous during the day, but would cease after lying down at night. She had already reached the end of the *tenth* month of gestation, labour pains having set in at the expiration of the normal period. During the pains the uterus would contract vigorously, and the os would dilate to the size of a silver dollar, but would contract again after the cessation of the pains at night. This was her second pregnancy. A similar condition existed at her former labour, which was terminated safely after the administration of ergot. At the time of the visit the patient was in good health and spirits, and the fœtus was vigorous. It was decided to try the virtues of cimicifuga as a parturifacient, as being safer than ergot, and from the fact that the uterine contractions were already tolerably energetic. Accordingly a drachm of Squibb's fluid extract of cimicifuga was administered. In less than two hours the patient began to complain of great pain in the head, back and limbs, with vertigo to such an extent that she could not sit up. Her pupils were enormously dilated and vision very much disordered. *The labour pains ceased entirely for thirty-six hours,* and the pupils remained dilated for that length of time, although the intense pain in head and limbs ceased in about twelve hours. During the first twelve hours after the toxic dose was exhibited there was nausea and vomiting, with feeble pulse and prostration. Brandy, coffee, and aromatic spirits of ammonia gave relief. After the lapse of a few days the pains returned as vigorously as ever. The presentation being normal, it was decided to give ergot, which was done. It produced tonic contraction of the uterus for several hours, but its influence gradually wore away and nothing was accomplished. The membranes, which were very dense, were punctured, after a vain attempt to rupture with the finger, and a large quantity of liquor amnii was evacuated. From this time the labour progressed rapidly and favorably, and in two hours the patient was delivered of a healthy child. No permanent injury to either mother or child, in this case, resulted from the cimicifuga; but it is proper to record such an instance of its power, and consequent value as a therapeutic agent *when indicated.* It would be well enough to remark in this connection that this patient is remarkably susceptible to the influence of the narcotics; one eighth of a grain of the sulphate of morphia has produced profound narcotism, requiring energetic treatment; and one two-hundredth part of a grain of the sulphate of atropia induced delirium and alarming symptoms. These facts might have been taken into consideration when the cimicifuga was given, and a minimum instead of a maximum dose administered, but the sequel proved that it would have done no good. Dr. Garrison's estimate of cimicifuga in the treatment of some forms of amenorrhœa and certain nervous disorders is favorable, but he has had no experience to justify him in attributing to it any *specific* stimulant influence over that part of the nervous system which gives to the uterus contractile energy.—*Ibid.*, June 12th, 1869.

II.—Forensic Medicine.

On the Detection of Red and White Corpuscles in Blood-stains.—Dr. Joseph C. Richardson, Microscopist to the Pennsylvania Hospital, has a paper of great value on the above-named subject, introducing views which may tend to modify materially received opinions on matters which are often of the utmost importance in criminal trials. For the reason of the interest of the questions raised in the paper, we shall treat it at some length, and shall adhere, as far as is possible, to the author's own verbal descriptions. He says—"When, however, as most commonly occurs, the microscopist is called upon to determine the presence or absence of blood in a dried spot upon cloth or other material, and especially if the exigencies of the case demand a decision whether, if blood, it is that of a human being, the task often becomes extremely difficult, and has hitherto been abandoned as insurmountable by some authorities upon the subject; while others, more sanguine of general success, as they seem to be, yet fail to give the minute directions which would alone enable their readers to follow even at a distance in their footsteps.

"Being recently called upon to investigate this subject, as connected with a criminal trial in one of the Eastern States, I was led to some extended researches upon the dried blood-corpuscle, developing some of their characteristics which may prove useful to other microscopists engaged in similar studies, and contribute to extend the field of the instrument as an aid to medical jurisprudence.

"One of the primary steps in entering upon an investigation of blood-stains is the selection of a proper menstruum for moistening the dried clot, and here at the outset we meet with a great discrepancy of opinion; by some authorities pure water, which certainly has the advantage of far greater convenience in its employment, is highly recommended, whilst others, who prefer saline solutions, fixed or volatile oils, &c., condemn the use of water as utterly destructive to the red corpuscles. This opinion in regard to the action of water on the red discs seems to be one widely accepted at present.

"In the progress of some researches upon the distension of the white blood-cells, when acted on by water ('Pennsylvania Hospital Reports,' 1869), I have often incidentally noticed that many of the red corpuscles become, after a time, so transparent and colourless by the solution and abstraction of their 'hæmato-crystallin,' that they are quite invisible under a power of 400 diameters, and appear to be in reality dissolved as stated by Prof. Wyman, M. Ch. Robin, and other authorities, yet when closely scrutinised under a $\frac{1}{25}$ immersion objective their faint transparent outlines can still be detected.

"This observation appeared to have such an important bearing upon the subject of my present paper that I entered upon its special investigation, which I propose briefly to detail, premising that while the results seem to prove a very marked difference in density, if not in constitution, between the external and internal portions of the blood-discs, I do not consider the data here collected sufficient for controverting the opinions of those experienced histologists who deny to the red corpuscle a proper cell-wall."

In illustration of the author's procedure we quote an experiment:

"Some minute fragments of dried blood from a stain made upon a piece of muslin about three months before were placed upon a slide and adjusted on the stage of the microscope; after finding a suitable portion of clot with a thin bevelled edge, water was introduced at the margin of the cover and allowed to flow very slowly towards the chosen fragment; when this was reached by the wave of fluid, a remarkable appearance of boiling up from its centre was presented for a few moments, and then, as the tinged liquid was replaced by pure water, an aggregation of compressed corpuscles, very faint and colourless, but yet of unquestionable distinctness, became apparent; a few straight interlaced filaments of fibrin were visible, and at intervals the granular spherical lymph-globules occurred among the other elements; these white cells frequently became detached and floated freely around the edges of the clot; where, as well as whilst still imbedded, they were so much more readily recognised with a low power that I suspect they have often been mistaken for the red discs. By introducing at the margin of the cover a minute portion of iodine solution (Beale, 'How to Work with the Microscope,' p. 207), the outlines of the decolourised corpuscles are rendered far more obvious, and can often be distinguished even by inexperienced observers."

"In a similar manner the blood of an ox, sheep, pig, chicken, turkey, and canary bird, most of them dried in a thin film upon a slide, and all dried in a mass upon paper or muslin, were carefully examined, and little difficulty found in distinctly perceiving that the colourless stroma with its 'straight or slightly waving filaments, sometimes more fibrous, sometimes more wrinkled and homogeneous' (Virchow), so long mistaken under lower powers for a mass of fibrin, was actually an aggregation of decolourised red corpuscles, with rare filaments of fibrin, and white blood-cells imbedded in it. It is true that the older microscopists, who rarely obtained first-rate definition with their lenses magnifying much beyond 500 diameters, were probably wise in recommending that none but the most expert should attempt a decision between the blood of various mammalia, even when fresh, for the difference between an apparent magnitude of $\frac{1}{10}$ and $\frac{1}{12}$ of an inch may well be counted too minute to lightly determine a question often so momentous; but, as during the last three or four years, opticians have furnished immersion lenses of $\frac{1}{25}$ and $\frac{1}{50}$ of inch focal length, which, with the highest eye-piece, give an amplification of about 2500 and 5000 diameters respectively,—thus rendering, with the former, the apparent size of a red disc from fresh human blood five sevenths of an inch, while that of a corpuscle from ox blood is but half an inch across, and, consequently, little more than half the area, as seen upon the stage,—it seems as if any careful observer might now, with the aid of such objectives, be qualified to pronounce a positive opinion."

After showing that desiccation in different ways does not cause a difference in the mean diameter of more than $\frac{1}{1400}$ of an inch, and that in no instance was a circular red disc observed to exhibit such an approximation in magnitude to those of ox blood as could, by any possibility, render its different origin a matter of doubt, the author

made the following calculation, which tends to show that the outer portion of the corpuscles (whether it be merely condensed viscid material, or a true cell wall, composed of membrane, distinct in composition from hæmato-crystallin) is of an inelastic character. "Ten red globules of freshly drawn human blood magnified almost 1800 times were measured with the micrometer, while standing on their edges, both in length (as so placed) and in thickness, their mean diameter being found equal to $\frac{1}{3346}$ and their mean of greatest thickness $\frac{1}{13385}$ of an inch. From these data, estimating the total surface of the globule as approximately equivalent to ninety-six one hundred and sixty-firsts of a ring ·00029886 in outside diameter, and ·00007478 of an inch thick, plus double the superficies of a segment with a versed sine of ·00003739 cut from a sphere having ·00017718 radius, I calculated the area of the hypothetical cell-wall to be ·00000017932 of a square inch; by further computation, it was found that this amount of membrane would cover a globe ·00023891 of an inch in diameter, which number so nearly coincides with that expressing the diameter of the red disc, when rendered spherical by the action of pure water, viz. ·00023332 ($\frac{1}{4286}$) of an inch, that I think we may fairly conclude that, although the shape of the corpuscle is thus altered, its parietes undergo no real dilatation in the process; further, the corrugated appearance assumed by the corpuscle when any portion of its internal constituent is removed by exosmosis affords some evidence that, however much the cavity is decreased, its limiting membrane suffers no actual diminution in superficial area.

"Although it must be admitted that the blood-corpuscles of a few mammals approach so nearly in size to those of man as to render their distinction doubtful, yet for the practical testing of blood-stains in criminal trials we will rarely find that such a decision is necessary, since, as a rule, justice only requires that a positive diagnosis shall be made between human blood and that of animals which are commonly slaughtered for food, such as the ox, the sheep, the pig, or of birds, as, for example, chickens, ducks, &c., in regard to all of which I believe, when the discs have not undergone disintegration, a first-rate $\frac{1}{25}$ inch objective will enable us to determine easily and beyond all question.

"I would suggest to any one about undertaking such an investigation that he first accustom himself to the appearance of decolourised blood-corpuscles, and at the same time test the power of his instrument by repeating the experiment detailed above, on a fragment of blood-clot recently desiccated upon paper or glass. Experience has shown that dried stains upon hard, smooth surfaces, such as buttons, studs, &c., most readily exhibit the corpuscles; next to these in case of detection are stains upon paper collars or cuffs, and upon highly glazed linen, then those upon unstarched muslin or linen; and lastly, those upon cloth and other woollen fabrics. In order to be forearmed against the objections of ingenious counsel, he should in murder cases, wherever practicable, be provided with spots made before witnesses, with fresh blood from the corpse upon different unstained portions of the identical articles upon the supposed murderer's clothing, and also with specimens of blood dried in a thin film upon glass slides, for the purpose of disproving any hypothesis of

leucocythæmia, or other blood diseases, which might alter the normal character or relative proportion of the blood elements.

"In examining the moistened clot great care must be taken to avoid any movement of cover upon the slide, which, when it occurs, often rolls the interposed disc into an apparently homogeneous mass; and it is advisable to keep up a current of fresh water, at least until all tinge of colour is removed from the clot, otherwise none but the granular lymph-corpuscles may be visible.

"Through the courtesy of Dr. Linderman, Director, and Mr. J. R. Eckfelt, Chief Assayer of the United States Mint, I was enabled to estimate the delicacy of the microscopic test for blood, as follows:—Upon a square of waxed paper determined by Mr. Eckfelt, on the accurate balance used for the national assays, to weigh exactly forty-eight milligrammes, I made twenty dots of fresh blood from my finger, which, when dry, added ·4 of a milligramme to the original weight, and, consequently, were each on an average equivalent to about ·02 of a milligramme, or $\frac{1}{3200}$th of a troy grain nearly. The fourth part of one of these spots, weighing, of course, in round numbers $\frac{1}{12000}$th of a grain, was detached with the point of a cataract needle, and when moistened under the $\frac{1}{25}$th showed many hundred well-defined red blood-corpuscles; ten circular ones among these measured with the micrometer averaged $\frac{1}{3494}$th of an inch in diameter, and could, therefore, by this criterion of superior size alone, be diagnosticated from the corpuscles of an ox, sheep, or pig, with the same feeling of certainty with which any surgeon could testify that a perforation of the skull only half an inch across could not possibly have been made by a bullet measuring an inch in diameter."—*American Journal of the Medical Sciences*, July, 1869.

III. Hygiene.

The late Epidemic of Smallpox in London.—Dr. Munk and Mr. Marson communicate some striking evidence on the epidemic of smallpox which has been present in London since the autumn of the year 1862, and which terminated at the end of July or beginning of August, 1868. The writers report on the diminution of the epidemic and the protective value of vaccination with particular care.

"The disease at the commencement of the epidemic was severe, and the mortality proportionately high, but it became gradually milder and more benignant, and consequently less fatal. The general mortality diminished from 17 per cent. in 1863 to 11 per cent. in 1868; the mortality in unvaccinated subjects from 48 per cent. in 1863 to 34 per cent. in 1868; and that in vaccinated subjects from 9·9 per per cent. in 1863 to 5·6 per cent. in 1868.

"The progressive diminution in the severity and mortality of the disease will be better shown by the following table. As a standard for comparison we may take the mortality in 1861, a year wholly uninfluenced by epidemic causes. In that year we had no deaths from superadded disease. The general mortality was 10·7 per cent.; the mortality in the unvaccinated 33·9 per cent., and in the vaccinated 5 per cent.

	1863.	1864.	1865.	1866.	1867.	1868.
General mortality . . .	17·0	12·9	13·0	13·0	12·66	11·0
Mortality in the Unvaccinated .	48·0	36·0	38·0	35·7	36·08	34·0
After deducting superadded disease	47·0	35·0	...	...	...	...
Mortality in the Vaccinated . .	12·0	8·7	7·4	7·3	8·29	6·2
After deducting superadded disease	9·9	7·9	7·2	6·7	7·46	5·6

"Vaccination has naturally occupied a large share of our attention during the last five years, and it is satisfactory to be able to state that our experience of the late epidemic, and the careful study of the 8000 cases of smallpox which it has brought under our care, has in no degree diminished our confidence in its value. The opinion which, early in the course of the late epidemic, we felt it our duty to express on vaccination, neither requires qualification nor admits of limitation. 'Although it has not entirely fulfilled the sanguine anticipations of its earlier advocates, it is the greatest boon which was ever conferred by man upon his species. Properly performed, with good active lymph, and with not less than four punctures producing vesicles, and these running the course so minutely and graphically described by Jenner, and leaving not less than four typical cicatrices, vaccination robs the most fatal and acute disease known in this country of its malignity, and reduces the mortality of smallpox from 35 per cent., or even a higher rate, to less than 1 per cent."—*Report of the Medical Officers of the Smallpox Hospital for* 1868.

III. Summary.

Schonbein's Test for Prussic Acid. By M. Scouttetenn.—M. Scouttetenn's report on this subject was read before the Academy of Medicine, and related to a posthumous paper by Schönbein on a new test for prussic acid. The test consists of a slip of test-paper made as follows:—Dissolve forty-five grains of guaiacum in three ounces of alcohol, and into the solution put good but thin white filter-paper, and when the paper is well saturated take it out and gently dry it. Next prepare a solution of sulphate of copper by dissolving fifteen grains of sulphate of copper in one ounce and a half of water. When about to apply the test cut off a slip of the prepared paper, dip it into the copper solution, and hold the slip over the vessel or substance containing the hydrocyanic acid. The paper is turned of deep blue colour, the colour, according to the author of the test, being produced by the presence of the one millionth of a grain of the acid.

A case of Suicide by Strychnia. By J. M. Howard, Esq., of Stamford. *British Medical Journal*, September 18th, 1869.—The author narrates the case of a woman who destroyed herself by taking Battle's Vermin Killer. She seems to have died instantaneously. The post-mortem showed great rigidity of the muscles, the stomach contracted in the form of a dumb-bell, and the left heart most firmly contracted and empty, the right heart being also nearly empty. The bladder was empty and hard (the woman had voided urine), and the membranes of the brain were greatly congested. The brain substance was healthy. The blood of the body generally was fluid and dark.

Modes of Criminal Poisoning in France. By M. M. CHEVALLIER.—M. Chevallier, in his report on the modes adopted in France for the destruction of human life by poison, from the year 1855 to 1865, gives the following:—Total number of cases, 494; cases by arsenic 135, phosphorus 180, verdigris 15, sulphuric acid 22, sulphate of copper 83, cantharides 10, laudanum 6, hellebore 6, strychnia 5, hydrochloric acid 4, sulphate of iron 3, ammonia 3, morphia 2, eau sedative 2, tartar emetic 2, mercury 2, digitalis 2, powdered glass 2; nux vomica, mercurial ointment, colchicum, Fioraventi balsam, syrup of poppies, potash, nicotine, prussic acid, croton oil, antimony, and carbonic acid, of each 1. The most curious facts, in looking over this list, are the great number of cases of poisoning by phosphorus, the enormous proportion of painfully killing poisons selected by the criminal populace for the destruction or self-destruction of life, and the ease with which the larger number of the poisons in use admit of being detected by chemical analysis.

Poisoning by Carbolic Acid. By W. H. BARLOW, M.D.—In Dr. Barlow's case a man, probably while in a state of intoxication, swallowed carbolic acid in solution. Inside the lips, the tongue, and palate were whitened and hard. The stomach was contracted, and the mucous surface of the stomach was corrugated, so that it resembled the ridges upon the palate of an ox. The author is of opinion that the poison was swallowed in mistake, and that the death was sudden, owing to the shock which followed upon the direct injury to the stomach, Carbolic acid was found in the stomach, the acid seeming to cling to rather than to be mixed up with the contents of the viscus.—*Lancet.* September 18th, 1869.

On the Reaction of Phenic Acid on Strychnia. By PAULO BERT.—Bert states that when phenic acid is added to a solution of hydrochlorate of strychnia, a liquid is obtained which is less active than the same dose of the pure salt when administered by the hypodermic method. When the phenic acid is removed from such a solution by means of ether, the fluid becomes limpid, and is as poisonous as it was at first. The author has also shown that this process may be applied with success to the extraction of strychnine from putrefied animal matter.—*Annali di Chimica applicata alla Medicina,* April, 1869.

On the Physiological Action of Atropine, Digitaline, and Aconitine on the Heart and great Blood-vessels. By FREDERICK B. NUNNELEY, M.D.—Dr. Nunneley's experiments with atropine lead him to hold that the poison exerts no influence on the blood-vessels. On the heart the action of the poison is neither considerable nor energetic, a progressive weakening of power being the most prominent visible effect. Digitaline, on the contrary, acts with great energy on the heart, throwing it into violent and disorderly contractions, which quickly end in a cessation of movement. The frequency of the contractions is not increased, but is progressively diminished, and the functions of the heart are abolished very early, voluntary power surviving the death of the organ. This, again, is different from what occurs from aconitine, which,

though it abolishes the function of the heart in a very short time, abolishes still more quickly all the voluntary and reflex acts. The author's observations were made on frogs.—*Scientific Opinion*, August 4th, 1869.

On Snake Poison, and on the Injection of Liquor Ammonia into the Venous Circulation as an Antidote. By Dr. FAYRER.—Dr. Fayrer continues in these papers his researches on snake poison, and gives an experiment, from which he concludes that the injection of ammonia into the jugular vein "hastened, if it did not cause, death." Respecting a very interesting question, viz. whether the poison of a poisonous snake will prove innocuous to another poisonous snake, the author comes to the conclusion that he must have further and convincing evidence before he assents to an affirmative view on the question. Of this, however, there can be no doubt, that the effect of the poison on a venomous snake is much less active than on an innocent one.—*Indian Medical Gazette* for July, and *Scientific Opinion*, September 1st, 1869.

On Poisoning by Phosphorus. By Professor RANIERI BELLINI.—Bellini contributes a long paper on this subject. He comes to the conclusion respecting antidotes, specially chemical antidotes, that nitrate and chloride of silver are the most promising. Phosphorus in the presence of nitric acid and oxide of silver is acidified at the cost of the oxygen, and produces a phosphate of silver, a compound not influenced by weak acids nor by the acids of the stomach. He reckons that for every centigramme of phosphorus three centigrammes of nitrate of silver are required. Hence, for an adult who has swallowed a poisonous dose of phosphorus (say five centigrammes), six centigrammes of nitrate of silver would be demanded, a dose of the silver salt which has been tolerated.—*Sperimentale and Annali di Chimica applicata alla Medicina*, May, 1869.

On Poisoning by Phosphorus arrested by the Essence of Turpentine. By Dr. ANDANTE.—The author of this paper relates a case in which a man, sixty-three years of age, took (for the purpose of committing suicide) no less than 120 phosphorous ends of lucifer matches, chewing them deliberately and swallowing without expectorating. He took these in two doses, and, to make assurance doubly sure, he followed up each dose with a dose of essence of turpentine. He did not vomit, had pains in his stomach, which were bearable, and his mouth was dry. After a time he was intensely thirsty, and exhaled an odour of phosphorus and turpentine combined. Ultimately he recovered, in the course of ten days. The case is worthy of notice, as affording support of the view that turpentine is an antidote to phosphorus. —*Journal de Pharmacologie*, November, 1868.

CONTRIBUTIONS TO MEDICAL LITERARY HISTORY.

Adversaria Medico-Philologica.

BY W. A. GREENHILL, M.D. OXON.

Part VII.

(*Continued from* vol. xliii, p. 282.)

[Those persons who may consult this collection of medical words are again reminded that it does not pretend to completeness in any way. Not only have all botanical and chemical words been designedly omitted, but also those belonging especially to the Hippocratic Collection, which are sufficiently explained in the excellent 'Œconomia Hippocratica' of Foës. And again, in the treatment of each word some meanings will, no doubt, be found occasionally to have been passed over; so that the Writer wishes the collection to be considered simply as a contribution (however imperfect) to Greek medical technology.]

γάγγαμον, generally said to mean *the omentum*.[1] I have not yet found the word in any ancient medical author, and the explanation given by Julius Pollux[2] only states that it is the part in the neighbourhood of the umbilicus, so called as being a plexus of nerves, like a net.

γάγγλιον is, perhaps, first found in Celsus,[3] and is generally used in the modern surgical sense of the word *ganglion*, to signify an encysted tumour occurring on a tendon or aponeurosis.[4] Sometimes it is applied to a similar tumour on the head,[5] but probably never to an anatomical ganglion, or natural knot-like enlargement in the course of a nerve, though Galen distinctly describes these bodies,[6] and compares them to "the so-called ganglion." The definition of the word (first given by Galen,[7] and repeated by following writers) is νεύρου συστροφή, which is unusually obscure, inasmuch as both the words are probably used in an indefinite sense: νεῦρον means either a *nerve* or a *tendon*,[8] and συστροφή may either signify *a twisting or knot*, or *a tumour or gathering*.[9]

[1] So Vesalius, 'De Hum. Corp. Fabr.,' v. 4.

[2] 'Onomast.,' ii, 4, § 169.

[3] 'De Medic.,' vii, 6.

[4] Philagrius, in Aëtius, iv, 3, 9, p. 745, ed. H. Steph.; Paul. Ægin., iv, 16: vi, 39; Joannes Actuar., 'De Morb. Diagn.,' ii, 29, in Ideler's 'Med. et Phys., Gr. Min.,' tom. ii, p. 457.

[5] Paul. Ægin., vi, 39.

[6] τῷ καλουμένῳ γαγγλίῳ, 'De Usu Part.,' xvi, 5, tom. iv, p. 291, l. 5.

[7] 'Defin. Med.,' tom. xix, p. 441, l. 6.

[8] Accordingly, in Paul. Ægin., vi, 39, M. Briau translates it *nerve*, Adams *tendon*, which latter is probably correct. There is the same ambiguity in the Arabic. Albucasis, in translating this chapter of Paulus Ægineta, does not use the word *ganglion*, or any other single word, but a periphrasis; and the word عصب *'asab*, is rendered *nervus* by Channing (ii, 50, p. 255), *tendon* by M. Leclerc ('La Chirurgie d'Abulc.,' p. 131).

[9] See Foësii 'Œcon. Hippocr.'

γαγγλιώδης, *of the nature of a ganglion*, in the sense of an *encysted tumour*, is found in the Hippocratic Collection.[1]

γάγγραινα, *incipient mortification* or *gangrene*, being midway in intensity between severe inflammation and complete mortification or *sphacelus*,[2] σφάκελος. The word is found in the Hippocratic Collection,[3] but is not always used in the precise sense given above.[4] It is one of the Greek medical words adopted by the Arabians without any change, غانغرانا.[5]

γαγγραινικός, *gangrenous*.[6]

γαγγραινόυμαι, *to become gangrenous*.[7]

γαγγραινώδης, *gangrenous*.[8]

γαγγραίνωμα, *gangrene*, properly (perhaps) *a part become gangrenous*.[9]

γαγγραίνωσις, *gangrene*, properly *the becoming gangrenous*.[10]

γαλακτουργέω, *to make or secrete milk*, as a woman.[11]

γαμμοειδής, *shaped like a* Γ, applied by Paulus Ægineta[12] to a cauterizing iron.

γαργαρεών is used, apparently, by Aristotle[13] to signify the *trachea*, but in other ancient authors it means the *uvula* in its natural state. The word σταφυλή was properly applied to the part only when it was inflamed and swollen;[14] but this was not the case with the corresponding Latin term *uva*, which is used by Celsus[15] as the common name for the *uvula;* and in one of the spurious works of

[1] 'De Artic.,' § 40, tome iv, p. 174, l. 12, ed. Littré.

[2] Galen, 'Comm. in Hipp. *De Art.*,' iv, 16, t. xviii A, p. 687, l. 10 sq.

[3] 'Mochl.,' § 33, t. iv, p. 376, l. 9, ed. Littré.

[4] See Index to Kühn's Galen. Paul. Ægin., iv, 19; Jo. Actuar., 'De Diagn.,' ii, 31, in Ideler's 'Med. et Phys. Gr. Min.,' t. ii, p. 458. See also Foësii 'Œcon. Hippocr.'

[5] Avicenna, t. i, p. 240, l. 7; t. ii, p. 66, tit.; Abulfar., 'Hist. Dynast.,' p. 493, l. 13.

[6] Dioscor., 'De Mat. Med.,' iv, 92 (94), t. i, p. 588, l. 6, ed. Sprengel.

[7] Hipp., 'De Artic.,' § 63, t. iv, p. 270, l. 7, ed. Littré; Gal., 'Comm. in Hipp. *Aph.*,' vii, 50, t. xviii A, p. 156, l. 7.

[8] Hipp., 'Epid.,' vii, 110, t. v, p. 460, ed. Littré; Gal., 'De Simpl. Med. Temp. ac Fac.,' vi, 1, § 13, t. xi, p. 818, l. 7.

[9] Palladius, 'De Febr.,' c. 7, p. 26, ed. Bern.

[10] Hipp., 'De Fract.,' § 11, t. iii, p. 456, l. 5; 'Mochl.,' § 30, t. iv, p. 372, l. 14; Aret., 'De Caus. Acut.,' ii, 10, p. 60, l. 4, ed. Kühn.

[11] Soranus, 'De Arte Obstetr.,' c. 93, p. 212, l. penult., ed. Dietz.

[12] Lib. vi, cc. 62, 66, p. 268, ll. 15, 17, 22; p. 284, l. antep., ed. Briau. These passages serve to correct one in Albucasis ('De Chirurg.,' ii, 62, p. 298, ed. Channing), where, in the Arabic text, we should read غين, instead of عين, and in the Latin translation *Gamma* instead of *Tau*.

[13] 'Hist. Anim.,' i, 11, p. 14, l. 20, ed. Bekker.

[14] See Foës, 'Œcon. Hipp.,' who refers to the principal passages in which the word occurs. To these may be added Galen, 'De Usu Part.,' xi, 11, t. iii, p. 888, l. 3 &c., quoted by Oribasius, 'Coll. Med.,' xxiv, 10, t. iii, p. 319, ed. Daremb.; Meletius, 'De Hom. Fabr.,' c. 10, p. 83, l. 20, ed. Cramer; Joannes Actuarius, 'De Diagn. Morb.,' ii, 18, p. 453, ed. Ideler; Leo, 'Consp. Med.,' iv, 8, p. 154, ed. Ermerins.

[15] 'De Med.,' vi, 14; vii, 12, § 3.

the Hippocratic Collection *γαργαρεών* signifies the morbid condition of the uvula, while *σταφυλή* means the healthy condition.[1] The word was by some derived from *γαργαλίζω*,[2] from the *tickling* sensation caused by the uvula to the trachea; by others from *γαργαρίζω*,[3] from the noise made in *gargling*. It was supposed to play a very important part in the production and modulation of the voice, for which reason it was compared to the plectrum of the lyre.[4] The excision of the uvula was practised in early times, and is mentioned in the Hippocratic Collection.[5] The other words relating to the uvula, whether in its natural or morbid condition, *ἰμάς*, *κιονίς*, *κίων*, *σταφυλή*, will be explained (it is hoped) in their proper places.

γαστήρ, a word as old as the Homeric poems, and used in them in the same senses as in later writers.[6] Like the English *belly*, it signifies sometimes (1) the whole *abdomen*[7]; sometimes (2) one of its principal cavities, as (*a*) the *stomach*,[8] or (*b*) the *uterus*;[9] sometimes (3) the *intestinal canal*.[10]

γαστροκνήμη, *the calf of the leg*,[11] is recognised by Liddell and Scott in their Greek Lexicon, but is, perhaps, only a corrupted form of the following word.

γαστροκνημία, *the calf of the leg*,[12] compounded of *γαστήρ*, in the sense of a *swelling* or *protuberance*, and *κνήμη*, the *leg*; opposed to *ἀντικνήμιον*, the *shin*.

γαστροκνήμιον, *the calf of the leg*, another form of the preceding word.[13]

[1] 'De Affect.,' § 4, t. vi, p. 212, l. 8.

[2] Erot., 'Voc. Hipp.,' p. 60, ed. Klein.

[3] Meletius, *loco cit.*

[4] *οἷον πλῆκτρον*, Galen, 'De Usu Part.,' vii, 5, t. iii, p. 526, l. 2; *ὥσπερ τι πλῆκτρον*, Paul. Ægin., vi, 31, p. 158, l. 1, ed. Briau, "like *a sort of* plectrum." This passage is mistranslated both by Adams and Briau, who render it as if the Greek were *τὸ πλῆκτρον*.

[5] 'Prognost.,' § 23, t. ii, p. 178, ed. Littré. A full account of the opinions of the ancients on the excision of the uvula and tonsils, by William Sprengel, is found in Kurt Sprengel's 'Hist. de la Méd.,' tome viii, ch. 18.

[6] See M. Daremberg, 'La Médecine dans Homère,' p. 17.

[7] Arist., 'Hist. Anim.,' i, 13, p. 15, l. 28, ed. Bekker; Galen, 'De Usu Part.,' iv, 9, t. iii, p. 287, l. 7, where it is synonymous with *κοιλία*, l. 5.

[8] Rufus Eph., 'De Part. Corp. Hum.,' lib. ii, pp. 60, 61, ed. Clinch, where it is distinguished from *στόμαχος*; Galen, *loco cit.*, c. 7, p. 279, l. 2 sq., where it is synonymous with *κοιλία*, p. 284, ll. 7, 8.

[9] Perhaps (in medical writers) only in the phrases *ἐν γαστρὶ λαβεῖν*, *to conceive*, Arist., 'Hist. Anim.,' ix, 48, p. 304, l. 20, ed. Bekker; *ἐν γαστρὶ ἔχειν*, *to be pregnant*, Hippocr., 'Aph.,' v, 30, 31, 34, &c., t. iv, p. 542, ed. Littré.

[10] Galen, 'De Usu Part.,' vii, 3, t. iii, p. 520, l. 8; 'De Muse. Diss.,' c. 28, t. xviii B, p. 997, l. 12; quoted by Oribas., 'Coll. Med.,' xxiv, 11, § 14; xxv, 49, § 4, t. iii, p. 322, l. i; p. 467, l. 3, ed. Daremb.

[11] Pseudo-Gal., 'Introd.,' c. 10, t. xiv, p. 708, l. 6. It is also found as a Various Reading to Hippocr., 'De Offic. Med.,' § 9, t. iii, p. 302, n. 6, ed. Littré.

[12] Galen, 'De Anat. Admin.,' ii, 7, t. ii, p, 316, l. 5; p. 317, l. 4; Aristotle, 'De Part. Anim.,' iv, 10, p. 113, l. 26, ed. Bekker.

[13] Meletius, 'De Hom. Fabr.,' c. 30, p. 128, l. 16, in Cramer's 'Anecd. Gr.,' vol. iii; Julius Pollux, 'Onomast.,' ii, 4, § 190.

γαστρορραφία, *gastrorrhaphy* (compounded of γαστήρ, the *abdomen*, and ῥαφή, a *suture*), is first found in Scribonius Largus, who uses it as a foreign word,[1] in the first century after Christ. The operation had, however, been previously fully described by Celsus.[2] In Galen's time the word seems to have been scarcely recognised, as he speaks of "*the so-called* gastrorrhaphy," τὴν καλουμένην γαστρορραφίαν.[3]

γενειάω, *to grow a beard*.[4]

γένειον, a word found in the Homeric poems,[5] where it sometimes signifies *the beard*, but more commonly *the chin*, which is the sense it (probably) always bears in the medical writers.[6]

γεννάω, *to beget*, used generally of the father;[7] hence, *to give rise to*, as a muscle or tendon;[8] sometimes *to bring forth*, as the mother.[9]

γέννησις, *the act of procreation*,[10] distinguished from κύησις, *conception*, and τόκος, *childbirth*.[11]

γεννητικός, *fit for procreation*;[12] generally, *relating to generation, generative*, as γεννητικὴ δύναμις,[13] *the faculty of generation*, γεννητικὴ πρᾶξις,[14] *the act of generation*, γεννητικὰ μόρια[15] or ὄργανα,[16] the *parts* or *organs of generation*. Sometimes the word is found with a genitive, as τῶν ἀρρένων or τῶν θήλεων γεννητικά, *productive of male* or *female children*.[17]

γένυς, *the jaw* in general; it being indicated *which* jaw is meant, either by the sense of the context, or by prefixing ἄνω or κάτω. Thus, in Galen,[18] *the lower jaw* is first called ἡ κάτω γένυς, but when

[1] "Quod a Græcis dicitur γαστρορραφία." ('De Compos. Medic.,' cap. 76, p. 228, ed. H. Steph., in 'Med. Art. Princ.')

[2] 'De Medic.,' vii, 16.

[3] 'De Anat. Adm.,' vi, 4, t. ii, p. 551, l. 9; 'De Meth. Med.,' vi, 4, t. x, p. 416, l. 6; copied (respectively) by Oribas., 'Coll. Med.,' xxiv, 20, § 4, t. iii, p. 350, l. 12, ed. Daremb., and Paulus Ægin., vi, 52, p. 230, l. 12, ed. Briau.

[4] Aristotle, 'De Gener. Anim.,' ii, 7, p. 72, l. 13, ed. Bekker; Meletius, 'De Hom. Fabr.,' c. 8, p. 77, l. 6.

[5] See M. Daremberg, 'La Médecine dans Homère,' p. 13.

[6] Rufus Eph., 'De Appell. Part.,' p. 26, l. 22, ed. Clinch; Pseudo-Galen, 'Introd.,' c. 10; t. xiv, p. 703, l. 7. In Aristotle, 'Hist. Anim.,' i, 12, p. 14, l. pen., the word cannot signify *the upper jaw* (see Liddell and Scott's 'Gr. Lex.'); but the meaning of the passage seems to be, that "of the jaws the more prominent part (τὸ πρόσθιον) is called γένειον, and the less prominent part (τὸ ὀπίσθιον) is called γένυς." This passage is extracted by the anonymous author of the 'Introd. Anat.,' c. 56, p. 124, ed. Bernard.

[7] Aristotle, 'Hist. Anim.,' iii, 1, p. 53, l. 5, ed. Bekker; Galen, 'De Usu Part.,' xv, 3, t. iv, p. 221, ll. 10, 14.

[8] Galen, 'De Anat. Admin.,' i, 11, t. ii, p. 275, ll. 6, 11.

[9] Aristotle, 'De Gener. Anim.,' iii, 5, p. 92, ll. 2, 7, ed. Bekker; 'Hist. Anim.,' v, 1, p. 113, l. 21.

[10] Aristotle, 'Hist. Anim.,' vi, 22, p. 186, l. 31.

[11] Plato, 'Conviv.,' p. 206 D, E, ed. Steph.

[12] Aristotle, 'Hist. Anim.,' vi, 14, p. 124, l. 18, ed. Bekker.

[13] Galen, 'De Facult. Natur.,' i, 9, t. ii, p. 20, l. 6; 'De Hippocr. et Plat. Dogm.,' vi, 3, t. v, p. 521, l. 12.

[14] Aristotle, 'Hist. Anim.,' v, 2, p. 114, l. 7.

[15] Galen, 'De Usu Part.,' vii, 22, t. iii, p. 607, l. pen.; xiv, 8, t. iv, p. 180, l. 10.

[16] Id., 'De Anat. Admin.,' iv, 1; vi, 14, t. ii, p. 420, l. 10; 587, 16.

[17] Id., 'De Usu Part.,' xiv, 7, t. iv, p. 172, l. 5.

[18] 'De Anat. Admin.,' iv, 4, t. ii, p. 440, ll. 57.

mentioned again immediately afterwards it is simply called ἡ γέννς. And thus, too, in Aretæus, when it is said that during an attack of epilepsy or tetanus the *jaw* (γέννς) rests or is fixed upon the breast, it is plain that the *upper* jaw is not intended. Except in cases like these it is not perhaps quite certain that ἡ γέννς alone ever means *the lower jaw*.[2] In Hippocrates[3] the sense sufficiently shows that the *chin* or *lower jaw* is intended, without considering (with Galen[4]) that the writer intended to use the word as otherwise than synonymous with γνάθος; and in Homer, 'Od.,' xi, 320 (quoted by Liddell and Scott), there seems no reason why γέννς (that is γέννας) should not mean *both jaws*, and λάχνη, the *moustache*, as well as *the beard*. In an obscure passage of Aristotle, γέννς is distinguished from γένειον, and said (apparently) to signify the *posterior part of the jaw*, γένειον being the *anterior part*,[5] but I have not noticed this meaning of the words elsewhere. Among the ancients it was disputed whether the lower jaw consisted of one bone or two, Galen himself pronouncing, without sufficient explanation, in favour of the latter opinion.[6]

γιγγλύματα in Galen[7] was long ago corrected by Foës,[8] and therefore Kühn ought to have read γεγιγγλύμωνται in his edition.

γιγγλυμοειδής[9] or γιγγλυμώδης,[10] and γιγγλυμοειδῶς,[11] words of kindred meaning to γίγγλυμος, but applied to human anatomy at a much earlier date.

γίγγλυμος, *a hinge*;[12] hence used by writers, called 'recent' in Galen's time, to signify the third species of διάρθρωσις, or moveable articulation (distinguished from ἐνάρθρωσις and ἀρθρωδία), in which the bones that are placed in contact mutually penetrate each other, and of which the vertebræ and the elbow-joint are given as examples.[13]

γιγγλυμόομαι, *to have a hinge-joint*.[14]

γίγγλυσμος is not recognised by Liddell and Scott, and is probably a mistake for γίγγλυμος.[15]

γλαυκός, when applied to the urine, signifies a shade of colour be-

[1] 'Caus. Acut.,' i, 5, 6, p. 3, l. 15; p. 9, l. 12, ed. Kühn.

[2] See Galen, 'De Usu Part.,' vii, 19, t. iii, p. 591, l. ult.; Theophilus, 'De Corp. Hum. Fabr.,' iii. 15, p. 111, l. 7, ed. Oxon.

[3] 'De Artic.,' § 31, t. iv, p. p. 146, l. 3, ed. Littré.

[4] 'Comm. in Hipp. *De Art.*,' ii, 16, t. xviii A, pp. 443, 444.

[5] 'Hist. Anim.,' i, 11, p. 14, l. ult., quoted in the anonymous 'Introd. Anat.,' c. 56, p. 124, ed. Bernard.

[6] See note in the Oxford ed. of Theophilus, 'De Corp. Hum., Fabr.,' iv, 29, 9, p. 180, l. 8.

[7] 'Gloss. Hippocr.,' t. xix, p. 90, l. 13.

[8] 'Œcon. Hippocr.,' in voce γίγγλυμος.

[9] Hippocr., 'De Fract.,' § 2. t. iii, p. 421, l. 7, ed. Littré, and Galen's 'Comment.,' i, 10, t. xviii B, p. 349.

[10] Arist., 'Hist. Anim.,' iv, 4, p. 93, l, 17, ed. Bekker.

[11] Galen, 'De Oss.,' procem., t. ii, p. 735, penult.

[12] Hippoc., 'De Locis in Hom.,' § 6, t. vi, p. p. 288, l. 21, ed. Littré.

[13] Galen, 'De Oss.,' procem., t. ii, p. 735, l. 13; 736, 737.

[14] Hippocr., 'De Artic.,' § 45, t. iv, p. 190, l. 11, with Galen's 'Comment.,' iii, 34, t. xviii A, p. 532.

[15] Galen, ibid., p. 533, l. 2.

tween γαλακτώδης, *milky*, and χάροπος, of *the colour of the onyx:* it is compared by Theophilus [1] and Joannes Actuarius [2] to transparent horn. When applied to the eye in medical writers it probably always includes the idea of colour. M. Sichel published a 'Mémoire sur le Glaucome' [3] (referred to by M. Littré and M. Daremberg in the notes to their translations of the 'Aphorisms' of Hippocrates) [4] in which he showed that γλαυκός did not mean *green* or *greenish* (as stated by some modern lexicographers), but "une teinte bleuâtre claire, tirant sur le bleu ou le gris." [5] It would seem, however, as if the word must have meant something more than merely a colour, as Aristotle [6] mentions γλαυκότης as a πάθημα, and ἀσθένεια, *a blemish* (?) and *weakness*. See also the following words:

γλαυκόομαι, *to become* γλαυκός, meaning probably *to suffer from* γλαύκωμα, which is certainly the signification of the compound form ἀπογλαυκόομαι.[7] It is found twice in the Hippocratic Collection, and is in each place rendered by M. Littré *devenir glauque*.[8]

γλαύκωμα, according to M. Sichel's 'Mémoire,' mentioned above,[9] signified, in the ancient and mediæval writers, what is now called *lenticular cataract*, and was not used in the modern sense of the term *glaucoma* (viz., a greenish opacity of the vitreous humour) before the time of Peter Brisseau.[10] The word is found in Aristotle,[11] but without any indication of its exact meaning. Rufus says[12] that the ancients considered γλαύκωμα and ὑπόχυμα (*cataract?*) as the same disease, but that in his time a distinction was made between them, and that γλαύκωμα was the more serious disease of the two, and altogether incurable.

γλαύκωσις, *blindness from* γλαύκωμα, is found in Hippocrates,[13] and is rendered by Littré *cataracte*, by Daremberg *glaucose*, and by Adams *cataract* (*glaucoma*). The word is explained in Galen[14] and other ancient writers.[15]

[1] 'De Urin.,' c. 6, § 3, in Ideler's 'Phys. et Med. Gr. Min.,' t. i, p. 266, l. 26.

[2] 'De Urin.,' i, 8, § 7, ibid., t. ii, p. 12, l. 23.

[3] In the 'Annales d'Oculistique,' Bruxelles, 1842. A detailed notice of the 'Mémoire,' by M. Daremberg, is to be found in the 'Archives Générales de Médecine,' t. ii, p. 251, Paris, 1843.

[4] Sect. iii, § 31.

[5] So M. Littré, who also says, "*non pas la couleur bleue;*" M. Daremberg, on the contrary, represents M. Sichel as maintaining that γλαυκός "sert à désigner *le bleu clair.*"

[6] 'De Gener. Anim.,' v, i, p. 142, ll. 2, 3; p. 145, l. 8, ed. Bekker.

[7] Paul. Ægin., vi, 21, p. 132, l. 13, ed. Briau.

[8] 'Epid.,' iv, 30, t. v, p. 174, l. 5; 'Prorrhet.,' ii, 20, t. ix, p. 48, l. 3.

[9] As represented by M. Littré and M. Daremberg, for I have not myself seen the 'Mémoire.'

[10] 'Nouvelles Observations sur la Cataracte,' Tournay, 1706.

[11] 'De Gener. Anim.,' v, i, p. 146, l. 14, ed. Bekker.

[12] Quoted by Oribasius, 'Synops.,' viii, 49, t. v, p. 452, ed. Daremb.; and by Paulus Ægin., iii, 22, p. 35 B, l. 32, ed. Ald. Nearly the same distinction is found in Galen, 'Defin. Med.,' cc. 344, 363, t. xix, pp. 435, 438; and in Joannes Actuar., 'De Diagn.,' ii, 7, in Ideler's 'Phys. et Med. Gr. Min.,' t. ii, pp. 447, 448.

[13] 'Aphor.,' iii, 31.

[14] 'De Usu Part.,' x, 6, t. iii, p. 786, l. 9, quoted by Oribasius, 'Coll. Med.,' xxiv, 4, § 29, t. iii, p. 302, l. 12, ed. Daremb.

[15] Pseudo-Galen, 'Introd.,' c. 16, t. xiv. p. 775, l. 16; Aëtius, ii, 3, 50, p. 323, ed. H. Steph.; Paul. Ægin., vi, 21, p. 232, l. 11, ed. Briau.

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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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STORAGE