PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Lithotomy Simplified: or, a New Method of Operating for Stone in the Bladder; to which is appended, an interesting and unique Case of Cæsarean Section. By GEO. ALLARTON, M.R.C.S., &c. London: Ash and Flint. 1854. 8vo, pp. 80. Illustrated with seven woodcuts.

On Electro-Lithotrity: or, the Application of the Mechanical Force of the Electrical Discharge to the Disintegration of Stone in the Bladder. By GEORGE ROBINSON, M.D., L.R.C.P.L., &c. London: John Churchill. 1855. 4to, pp. 16. With a Lithographed Plate.

NOTHING is more alluring to the mind than any proposal by which the method of accomplishing a great result is simplified and rendered certain of success. This obtains in surgery, as in every other practical art or science. "Lithotomy simplified!" what a dazzling announcement! what a field does it not open to suggestive reasoning. Lithotomy, one of the grandest undertakings in operative surgery, the most complete of all operations in its ultimate steps, and one of the most important in results, "*simplified!*" This is in truth a startling declaration. Let us, however, take care not to become prematurely fascinated. Before we leave the beaten track for a new road we should ascertain very certainly what are the advantages that the new one opens, lest, leaving that which is well-known, and not finding a better path, we become bewildered, and unable to retrace our steps. We are far from giving opposition to the spirit of innovation; improvement cannot advance where it is suppressed; but we wish to damp that excessive ardour for novelty by which every new suggestion is hailed with enthusiasm, and every new

method of attaining an object adopted without comparison, and without reference to substantial advantages.

The phrase "lithotomy simplified" would imply that the ordinary method of performing the operation is *complicated*—let us see, 1st, Whether such is the case; whether the lateral operation for stone is complicated, and needs amendment; 2nd, Whether the plan proposed by our author is *simple*, and so far superior to the other method as to demand its adoption in preference.

With respect to the first point we unhesitatingly assert, that the lateral operation of lithotomy is beautifully simple and perfect, and, as regards rapidity of execution and precision, no operation possesses these attributes in a more striking manner, where the necessary manual dexterity exists. Take the lateral operation as performed on the child, and in what does it consist? It consists, in fact, when skilfully performed, of three incisions, which follow each other in rapid succession,—an external incision down to the urethra; one to expose the groove in the staff; and a third which divides the prostatic part of the urethra and neck of the bladder to the necessary extent. This done, the stone lies ready for the forceps. Can anything be simpler than this? But, says Mr. Allarton, this is a most dangerous operation, that the mortality from it is frightful; and this statement he confirms by arraying the opinions of a long list of eminent surgeons, British and French. We do not deny that the statistics of the lateral operation, if we include *all* cases, those of persons after puberty, in middle age, and in advanced life, and taking also the tables furnished by the Continent, as well as by Great Britain, are far from encouraging; but if, as we should do, we confine lithotomy to the case of children, leaving lithotrity to deal with stone in the adult, the mortality from the lateral operation dwindles to a comparatively small per centage. The division of the prostate gland and neck of the bladder with the knife it is which our author conceives the principal source of danger in lithotomy; and he contends that if dilatation be substituted for cutting, any calculus can be removed without the least risk to life. The following is the description of Mr. Allarton's operation:—

"I introduce a grooved staff in the usual manner, and of the usual size, and confide it to an assistant, with directions to keep it perpendicular and hooked up against the pubes; I then introduce the index finger of my left hand into the rectum, placing its extremity in contact with the staff, as it occupies the prostate, and press it firmly against the staff, so as to steady it, then, with a sharp-pointed straight knife, with tolerably long and rough handle, I pierce

the perineum in the middle line, about half an inch above the anus, or at such distance as may appear necessary to avoid dividing the fibres of the external sphincter,—I carry the knife steadily and firmly on till it strikes the groove of the staff, the deep sphincter lying between the knife and the directing finger, which enables me to judge of the distance as the knife passes along. If the incision be not made exactly in the median line, the contracting fibres of the injured muscles draw the point of the knife from its direct line and interfere with the accuracy of striking the staff, hence the advantage of the long rough-handled knife, which affords a firmer hold and better purchase. Having struck the groove of the staff, I move the point of the knife along the groove towards the bladder a few lines, and then withdraw it, cutting upwards (as shown in Plate 1), so as to leave an external incision of from three-quarters of an inch to one and a half inches, according to the presumed size of the stone,—the escape of urine indicates the entrance to the urethra. I then introduce a long ball-pointed probe or wire through the external opening into the groove of the staff and slide it into the bladder, to sufficient depth to insure its safe lodgment in that viscus, and withdraw the staff. I then well grease the index finger of the left hand and pass it along the probe, with a semi-rotary motion, through the prostate into the bladder; which procedure is achieved without difficulty, and when the stone is free it comes at once into contact with the finger, and, if of moderate size, passes at once into the wound on withdrawing the finger, the patient having power to strain upon and thereby facilitate the extraction of the stone; this last-mentioned power being one of the great advantages of this operation; the incision being made strictly in the median line, no muscles are divided, and the integrity of the bladder being preserved, it is under the control of the patient, who exerts, at the wish of the surgeon, a powerful propulsive effort, which keeps the stone in or in contact with the internal extremity of the wound, where it is easily seized by the forceps and extracted by mild persevering traction. Now, as the aperture is necessarily the size of the finger which produces it, if the stone be large, some other dilating power must be employed in addition to the dilating effect of the forceps and stone combined; for this purpose Weiss' three-bladed female dilator, Arnott's hydraulic dilator, or, what is at once ready and effective, the addition of the vulcanized India rubber finger stalls one over another until the finger is sufficiently enlarged for the purpose, the outer covering being well lubricated with lard before being introduced. But Arnott's dilator, where it can be procured, is by far the most efficacious though not the most expeditious means. Should the stone be of unusual size, it may be readily broken by a short, strong, and straight lithotrite, or by a strong and suitable pair of forceps closed by a screw, if the stone be soft and yielding—I say readily, because the stone is, in this operation, within so short a distance of the external aperture that mechanical aid can be brought to bear upon it without the slightest difficulty or risk; again, should the stone resist the efforts

to crush or extract it, the wound can be readily enlarged upwards or downwards, by dividing the deep fascia, or even be converted into a bilateral aperture sufficient to extract any average sized stone. I believe the deep fascia to be the great obstacle to the extraction of the stone: I have observed that it acts like a ligature round the finger or forceps, and resists the extraction of the stone. The patient suffers little in this operation, and merely complains of the pricking-stabbing sensation of the first thrust of the knife, the subsequent extraction of the stone does not appear to cause pain; he passes his urine freely by the urethra as well as by the wound, from the time of the operation, and there can be little doubt that the wound might be nearly healed by the first intention with perfect safety. Two of my patients were up and out the day after the operation, and one was walking out on the third day (a cold, snowy, frosty day). The wound left entirely to nature, without tents, &c., heals in about three weeks. The patient, from the completion of the operation, excites no anxiety for his safety—he usually sits up and moves about on the following day, and I cannot well imagine the advent of inflammatory or other bad symptoms."

It will be seen by the foregoing that the method of operating for stone, proposed by Mr. Allarton, is but a modification of the old Marian operation, and differs little from that practised by De Borsa, as our author candidly acknowledges. Why then, may we ask, if the principle which these methods of operating involved was found by experience to be good, was it superseded altogether by another? We readily admit that Mr. Allarton's operation, or one on that principle, would, in many instances, answer remarkably well; nay, that in particular cases it would be preferable, as it would be undoubtedly safer, than the ordinary method of operating; but we repudiate the idea of making it a universal substitute for the lateral operation—of superseding a brilliant by a slow, clumsy and roundabout undertaking. Let us consider the steps of Mr. Allarton's operation. First, the finger is thrust into the rectum; then a knife is plunged through the perineum to the urethra; next the staff is laid bare; then a "long ball-pointed probe" is passed into the bladder, and lastly, the finger is forced through the prostatic part of the urethra into the neck of the bladder. Then comes the extraction of the stone, which, if it be of moderate size, requires the employment of some dilating instrument, such as Weiss' or Arnott's, in addition to the finger, and if it be very large, must be broken up by the lithotrite and removed piecemeal. What a clumsy, roundabout method of accomplishing the extraction of a calculus, compared with the lateral operation, is this "*lithotomy simplified.*" But the advantages of this operation, according to its proposer, are the following :—

"The impossibility of missing the bladder; the smaller amount of cutting than in the lateral operation; the neck of the bladder being uninjured; the smaller amount of blood lost; the prostate being merely dilated, not incised; the urine being at once passed by the urethra as well as by the wound, unless union by the first intention be effected; the facility with which the stone is reached, the patient being able to propel it towards the wound; the very short distance between the external opening and the interior of the bladder; the capability of breaking or crushing the stone, and washing out the bladder and freeing it from any minute particles; the small amount of pain; the absence of danger from urinary infiltration; no muscle or vessel of any consequence being divided, no subsequent imperfection can arise; no danger of wounding the rectum; the rapid recovery,—the patient being able to go about the next day; and the great facility with which the operation can be done by any practitioner of ordinary skill and ability."

Mr. Allarton certainly requires no trumpeter to sound forth the merits of his operation. The foregoing is a long array of individual advantages which, in his opinion, it possesses. We cannot follow this long list, but will content ourselves by reducing the reputed advantages of the operation to two, and endeavour to weigh their value fairly:—First, the ease and certainty with which the operation can be performed; secondly, its safety.

With respect to the first ground, we deny that Mr. Allarton's operation is so very easy and certain; and if it be, why, may we ask, should he have deemed it necessary to construct a peculiar sort of knife for insuring the accurate striking of the staff? The median operation may, no doubt, be found easier of accomplishment than the lateral, by those who have not sufficiently practised either; but surely there is not that great difference between the two operations, that any surgeon who can perform the median *skilfully* could not also perform the lateral *properly*. Upon this ground we cannot admit that Mr. Allarton's operation possesses any comparative advantage of much weight.

As regards the second ground—its greater safety,—this is a consideration of far greater importance. Safety, as connected with any operation, should outweigh all other considerations. Now, we do not wish to depreciate Mr. Allarton's operation in every particular; we freely admit that the median is, on the whole, less liable to fatal results than the lateral; but is the former devoid of all danger and unpleasant consequences? If not, can the greater amount of safety on its side have weight sufficient to overbalance all the advantages of the lateral operation, and to turn the scale entirely in favour of the median? We

think not. If freedom from danger were exclusively on the side of one operation, then we say, without hesitation, let that one be adopted. But is Mr. Allarton's, or any modification of the Marian operation, perfectly free from risk? Is there no danger from the supervention of the different forms of diffuse inflammation? Is there no fear of any serious consequence from the efforts made to extract a calculus when the parts are in a state of inflammation? Is there no probability of dangerous hemorrhage? Lastly, can no mischief be done with the knife in the performance of the operation by an awkward operator? Then, leaving positive danger to life out of the question, is there no likelihood of very unpleasant consequences from the degree of dilatation necessary for the extraction of a large calculus?

But we cannot afford space to pursue this subject further. We give to Mr. Allarton the fullest credit for the ability he has displayed in modifying an operation which had fallen into disuse; in giving to it greater precision in the performance of its different steps; but, notwithstanding the energy with which he puts forward the claims of the operation in question, we cannot for a moment allow that it is "lithotomy simplified," nor can we receive it as a substitute for the lateral method of operating. So long as the author does not press his operation on general or exclusive grounds, we shall give it our full recognition, for, as we have already observed, it has advantages in particular cases; but to adopt it universally, and to consign the lateral operation to oblivion, would, in our estimation, be the abandonment, on *very inadequate grounds*, of those principles which have raised operative surgery to its present pitch of brilliancy and perfection.

We have said that lithotrity is the operation to be adopted in the case of stone in the adult: this leads us to pass a few remarks on the treatise of Dr. Robinson, which proposes a really novel modification of the method of crushing a stone in the bladder. He suggests "the application of the mechanical force of the electrical discharge" for this purpose—electro-lithotrity. Truly we live in the age of invention, of the application of science to practical purposes. How much has, within the last few years, been accomplished, and how much more proposed for achievement! We can transmit communications along thousands of miles with the lightning's velocity; we have proposals for the destruction of impregnable fortresses and formidable fleets; and, on an humbler scale, we have a suggestion now for the employment of electricity with the view of over-

coming a very annoying enemy in his stronghold—a calculus in the bladder! For the last half century, every conceivable means of reducing urinary calculi, by a purely mechanical process, has been resorted to. They have been drilled, bored, sawn, pulverized, and broken up through the instrumentality of the hammer and the screw; but this is the first proposal we are aware of by which electricity is to be employed as a force, with the view of disintegrating a stone in the bladder.

The author first passes in review the different methods which have been adopted from time to time for the removal, disintegration, or chemical solution of urinary calculi, commenting on each, particularly on lithotrity; and then gives the circumstances under which he was induced to think of trying the agency of electricity for the purpose of effecting the disintegration of these foreign bodies:—

"The great and diversified powers of electricity have long suggested the possibility of its being employed as a means of effecting the destruction of calculi in the human bladder, and thus obviating the necessity for the painful and dangerous operation of lithotomy. But the attempts hitherto made in this direction have contemplated the solution of the stone through electrolytic action rather than its disintegration by the mechanical force of the electrical discharge. A moment's reflection will, however, suffice to convince us that the force which shatters a steeple or cleaves an oak is also capable of reducing to fragments the largest urinary concretion. Nor can I imagine any other than the following sources of objection to the practicability of employing this force for the purpose of breaking down vesical calculi *in situ*, namely: 1. The danger to the living structures from the necessity of using a powerful discharge. 2. The difficulty of conveying the force to the required spot, or, in other words, causing the discharge to pass through the calculus. The first objection is, in a great measure, met by the fact of our being enabled to regulate with the utmost precision the degree of intensity of the discharge, and it would be almost entirely removed were it possible to apply the disruptive force of electricity without any portion of the body being included within the circuit traversed by the electrical current. The second objection rests upon the mechanical difficulty of bringing the calculus within the direct route of the electrical discharge, but would scarcely apply were it demonstrated that the disruptive effects of electricity can be obtained without any such direct transmission of the current."

After alluding to an experiment performed some time ago by Mr. Crosse, he goes on to say:—

"It being thus shown that a lateral disruptive action takes place within a certain distance of the seat of discharge, the idea at once suggested itself to me, that by using two parallel wires separated at

their extremities like those in Mr. Crosse's experiment, and similarly connected with an electrical machine or Leyden jar, bringing their ends in contact with the surface of a calculus, and then allowing a series of moderate discharges to take place between the extremities of the wires, a disintegrating effect would be produced upon urinary calculi of the same nature as that witnessed in glass and quartz."

He next gives the results of four experiments in which he tried, with success, the mechanical force of the electrical discharge upon urinary calculi, and then draws the following conclusion:—

"On the whole, I am of opinion that the electrical force, applied in the manner indicated, will be found quite as efficient for the disintegration of calculi in the bladder as the more formidable analogous operation of lithotrity, occasionally practised; and, as regards simplicity and security, the electrical apparatus certainly appears preferable to the instruments used for crushing the stone by ordinary mechanical force."

The part of the treatise from which the foregoing extracts have been taken is a reprint of a communication to the Royal Society of London, made last year. Since that time Dr. Robinson has frequently repeated the experiment, and has, "in every instance, succeeded in breaking into fragments the calculi submitted to the process."

"The *instrument* for conveying the electricity to the calculus may be variously arranged, but must always consist essentially of two metallic wires or plates carefully insulated, and touching the surface of the stone simultaneously, and at a short distance from each other. For an adult, a tolerably efficient instrument may be made from a large elastic catheter, by cutting about an inch off its end, and then passing through it two copper wires, insulated by being carefully coated with silk thread, gutta percha, &c. To the ends of these copper wires short pieces of platinum should previously be soldered, each of which may terminate in a small conical bulb of gold or platinum. The wires may then be retained in position by pouring melted gutta percha into the interior of the catheter, and the end of the instrument may be formed of a similar material, moulded to the proper size and shape, so as merely to leave the two gold or platinum cones projecting like very small pin-heads from the extremity of the instrument. The remaining portions of insulated copper wire projecting from the handle of the catheter should be bent in opposite directions, and so elevated as to prevent the possibility of any urine or other liquid coming in contact with the wires in that part of their course."

Now we consider Dr. Robinson entitled to the highest praise, for proposing so ingenious and scientific an application of the powerful agency of electricity. The idea which first suggested such a plan to his mind seems to have been perfectly original, and was based on a thorough knowledge of the properties of the electrical fluid; while upon the means of rendering it most efficient and practically applicable he evidently expended much thought and trouble. Still, we feel bound to say, that any such plan as the one here recommended is practically *useless.* It might be easy enough to keep the metallic points against a very large calculus for the necessary length of time; but could this be done with any certainty in the case of a small stone? Nay, more, suppose a large calculus split or broken up into moderate sized fragments, how is each of these to be operated on separately? The author himself admits that,—

"When the calculus has been split or broken by the electrical discharge, it will afterwards be necessary to place the end of the instrument on the large fragments singly, in order to effect their further disintegration, but on no account should the discharge be passed at random among a quantity of sand or minute particles; for the mutual repulsion existing at the moment between these fine particles causes them to fly from each other a short distance, and with some force."

How, then, are the smaller particles to be got rid of? If they exceed the size of a pea, they will not pass through the urethra in ordinary cases. It is quite evident that Dr. Robinson has succeeded in establishing the practicability of breaking down even large calculi by the lateral disruptive action of the "electrical discharge," but this is not what we have to consider; the question with us is, whether any such plan can be applied in a strictly practical manner. We consider that it cannot. It may be urged that it has not yet received a trial upon the living subject; this is only an argument against its adoption, for few will be found willing to employ a method not already tested, which might, through some accident, be productive of serious results, and the aim and end of which can be attained by other means with certainty, and without as much danger, if properly executed, as attends almost any operation. For our own part, then, if the practicability of curing a case of stone in the bladder, by the means proposed, were demonstrated to our satisfaction, we should give the preference to the ordinary method of performing lithotrity, since we cannot but think that it is far simpler and easier of accomplishment, and much more

certain in its results. We repeat our conviction, however, that this plan is practically valueless,—a thought which seems to have flashed across the author's own mind, as he penned the last paragraph of his treatise, for he observes:—

"The preceding suggestions are necessarily based upon the results obtained in my experiments, the chief and immediate object of which was to demonstrate the practicability of breaking down even large calculi by the lateral disruptive action of the electrical discharge. In practice, however, it appears to me probable that the greatest benefit will ultimately be found to result from the gradual wearing down of a stone, by inducing in it a disintegrating electrical action, similar to that by which in Mr. Crosse's experiment the glass was perforated. In other words, I look to the efficient substitution of a series of a comparatively feeble electrical sparks for the less numerous, but more concentrated, discharges of the Leyden jar, as the great desideratum and perfection of electro-lithotrity."

Such a modification of electro-lithotrity might answer in cases of very large calculi which would lie beyond the reach of the ordinary operations of lithotrity and lithotomy.

Chloroform; its Properties and Safety in Childbirth. By EDWARD WILLIAM MURPHY, A.M., M.D., Professor of Midwifery, University College, &c., &c. London: Walton and Maberly. 1855. 8vo, pp. 72.

THE subject of chloroform has, to a great extent, engaged the attention of medical writers, but the controversy regarding its merits has not been carried on in that spirit which would have been desirable. On one side were to be found indiscreet advocates; on the other, crotchety and some few fanatical opponents. It may with truth be observed that this agent in its relation to the members of the medical profession should be best characterized as an irritant. The combativeness of the late Professor of Midwifery in the University of Edinburgh appears to have descended on a number of obstetrical practitioners; and accordingly, among the most pugnacious in this literary warfare we find some of those who devote themselves to that branch of medical science. Sprung from a race proverbial for not resisting the temptation to a "passage of arms," Professor Murphy entered the lists as an advocate for chloroform in midwifery practice; we feel, however, bound to add, that his enthusiasm was guarded by discretion, and consequently we were gratified by the appearance of the present work. Con-

fident, from a knowledge of the author as a former teacher in the Irish School of Midwifery, that the investigation of the subject which he undertook would be characterized by scientific research, judgment, and necessary caution, we have not been disappointed in our expectations. The work contains a candid exposition of the effect of chloroform in childbirth, as witnessed by the author; and we shall now proceed to bring under the notice of our readers a few of the most important opinions which are advanced by him. After some remarks on the properties of chloroform and its action in comparison with alcohol, ether, &c., the author alludes to its action on the nerves:

"The action of chloroform on the nerves, and its manner of causing anæsthesia, is best observed by the effect of small doses gradually increased. The blood conveys the vapour to the heart, the heart transmits it to every nerve in the body; but these are not all equally under its influence. Of the three divisions of the nervous system, the cerebro-spinal is the first affected, then the reflex, and lastly the ganglionic nerves.

"The first communicates sensations, motive power, volition, reflection. A small dose of chloroform will annul sensations without disturbing the power of motion or consciousness. An example will explain this. A lady suffered from intense pain from abscess in the breast, which was on the point of bursting. She could not bear to have it touched ever so lightly. I gave her an inhaler containing chloroform; she held it to her mouth, and inspired the vapour two or three times; I could then touch the breast without difficulty. Her face was directed from me, breathing the chloroform, and while thus occupied I plunged a lancet into the abscess. She did not feel the least pain, and was delighted to find the object of her dread so easily removed.

"If the dose be increased, the power of motion is controlled; the hand drops, the patient cannot move herself; volition and consciousness begin to be affected; an imperfect sleep supervenes, the patient remaining in a kind of doze, yet will answer a question if asked distinctly; she will tell you that she hears everything that is said, but this is evidently not the case. As the cerebro-spinal system is getting more completely under the influence of chloroform, the next, the reflex division, becomes engaged. This presides over all the movements termed sympathies, over the passions or emotions, and over the whole respiratory apparatus. The exciter nerves of this division are first affected, the irritability of the eyelids, of the nostrils, of the fauces, and lastly of the glottis, is controlled; the motors then lose their power; the eye is drawn upwards; the respiration becomes stertorous; the action of the thoracic muscles is slower, less perfect; the inspirations are incomplete, and a form of asphyxia takes place, which may be fatal. Hence the importance of observing the influence of this agent on the respiratory nerves. Fortunately,

this loss of power becomes evident from the stertor which it causes, and although this may occur as safely as in natural sleep, still it must be looked upon as a beacon to indicate danger. Thus far chloroform may be safely used, but if we pass one step beyond this, and increase the quantity of vapour, or, what amounts to the same thing, if we do not carefully guard against its too great accumulation, that danger is instantly present. The respiratory tract is the last portion of the reflex division of the nervous system which becomes affected, stertor is its earliest evidence; the thoracic muscles then lose their tone; the inspirations are less perfect, and at longer intervals; the chief muscular action is carried on by the diaphragm. At length this also ceases, and death takes place."

Perhaps the fact above mentioned, and now generally admitted, that the inhalation of chloroform can annul sensation without disturbing the powers of motion or consciousness, is the point of greatest practical interest. If the benefit from this agent was merely limited to this effect, with perfect safety to the person using it, we should rank it among the greatest boons conferred on mankind; but the important question arises, can chloroform be administered, even in a moderate way, to every individual without the possibility of danger? The records of surgery, unfortunately, too forcibly give a reply in the negative. Professor Murphy would appear in the above quotation to express a different opinion, qualified, however, by the belief that the danger from chloroform depends on its being improperly administered in a rapid manner, and not sufficiently diluted with atmospheric air, producing thereby spasm of the glottis, sense of suffocation, fatal influence on the reflex nerves, and ultimately paralyzing the heart.

We fully admit, as a general rule, the safety of the use of chloroform under such wise precautions as laid down by Dr. Murphy; we even allow the probable correctness of his statistics, taken from the London hospitals, proving the fatal cases as one in a thousand; still, the important fact remains established, that deaths have occurred from its use after careful administration and from a small quantity of the agent. With this knowledge in his mind, how can the practitioner be free from the anxious feeling but that the case at the moment under operation may prove the exception, not the rule. It is to be hoped that future investigation will remove the difficulties which surround this subject.

Our author alludes to the danger of using chloroform in persons with diseased heart. We are of opinion that the investigation of the condition of this organ should never be neglected; and a weakened action, or obstructed circulation, should serve as warning against the exhibition of chloroform to its full ex-

tent. It would be very desirable that we could form some estimate, beforehand, of the susceptibility of patients to the influence of this agent. A knowledge of the susceptibility of persons to the effects of alcoholic fluids from previous experience might throw some light on this subject. We know what variety exists in the effects of the same quantity of wine or spirituous liquors on different individuals; and it may be probable that he in whom intoxication is easily induced would be soon influenced by a small portion of chloroform, and *vice versâ*. This rule could not apply to the broken-down drunkard, probably labouring under organic disease, but from the analogy in the actions of alcohol and chloroform on the human body, it is not too theoretical an opinion that a person accustomed to moderate stimulation from the former would be more likely to resist the poisonous influence of the latter. Our experience on this point is limited, but, so far as it goes, in favour of the view here taken. There may be also an idiosyncracy in relation to the effects of chloroform, as in some of the fatal cases death was almost instantaneous, and not to be well explained. Before dismissing this part of the subject, we shall allude to a point, obscure in itself, and presenting difficulties both as to its support and refutation:—we refer to the supposed freedom from pain *in all cases* while the patient is in the sopor from chloroform. It is assumed that, because the person exhibits no suffering at the moment, and after recovering from the sopor denies the recollection of pain, therefore, no pain was felt during the operation. We cannot subscribe to the accuracy of this deduction; it is inconclusive. The opinion of an individual enjoying perfect intelligence, is taken as to his cognizance of an event occurring at a moment when, although perception may have existed, he was deprived of volition and the exercise of reflection. The temporary suspension of these latter powers does not necessarily imply unconsciousness; and Sir Benjamin Brodie, in his "Psychological Inquiries," observes, that he does not like using the word unconsciousness as the result of such agents as chloroform; he further remarks:—"The mind may be in operation, although the suspension of the sensibility of the nervous system, and of the influence of volition over the muscles, destroys its connexion with the external world, and prevents all communication with the mind of others. It is, indeed, difficult to say even when the external senses are completely and absolutely closed."

From cases mentioned by Sir Benjamin Brodie, as well as others recorded, it may be assumed as established, that in some affections of the brain, consciousness, with perfect memory, may exist, although profound stupor and other symptoms would

lead the observer to a contrary opinion. Why may not the same principle be applied to cases under the influence of chloroform where some supporting evidence is afforded? The chief foundation for an opposite conclusion is the loss of memory; but antecedent contemplation is necessary for retention, a power of the mind not likely to be regarded as existing under such circumstances. The effects of alcohol on the human system present some analogy to those of chloroform. A man who, to a certain extent, is intoxicated, meets with an injury, complains of pain felt at the moment, falls into a sleep, awakes forgetful of the accident, and is surprised at finding himself bandaged. What may be termed the psychical action of alcohol presents great variation, and sometimes results arise which are incomprehensible. Ordinary evidence of intoxication is not always necessary for the production of loss of memory. We knew a gentleman who was engaged in mercantile pursuits, and was remarkable for sound judgment and forethought. He was of spare habit and marked nervous temperament. This gentleman, in early life, on taking more than a certain quantity of wine or spirituous liquor, although presenting no symptom of intoxication, joining in conversation and expressing himself clearly in argument, would, nevertheless, on the next day, not have the slightest recollection of the passing events of the previous evening from the moment when this peculiar alcoholic influence commenced. On one occasion he was at a dinner, followed by a ball in the evening, he confined himself to a limited quantity of wine at dinner, as was his habit; but at supper he took more, after which he danced, and left the house presenting no sign of inebriety, with the slight exception of being gay and loquacious. In two hours after, he was awakened from a kind of somnambulism by the rumbling of carts, and found himself, on a fine summer's morning, five miles from Dublin, instantly restored to consciousness, but feeling much fatigued. He turned back, and got into conversation with the drivers of the carts, who remarked that he had passed, walking at a rapid rate, without taking any notice of them; and he looked so pale and fatigued that they fancied he was walking for a wager. All was a blank in his memory from the time of his sitting at supper. This case was essentially a modified form of drunkenness, and the gentleman was never a somnambulist in the ordinary acceptation of the word. An injury to the head may also affect the memory. Sir Benjamin Brodie mentions the following case:—"A young gentleman was thrown from his horse while hunting. He was stunned, but only for a few minutes, then recovered, and rode home in

company with his friends, twelve or thirteen miles, talking with them as usual. On the following day he had forgotten not only the accident, but all that happened afterwards."

It is not to be inferred from our remarks that we completely deny the anæsthetic powers of chloroform; we merely express the opinion, that in some cases the evidence afforded to us is in favour of the fact that anæsthesia is not really, although apparently, induced. In offering this hypothesis, we abstain from intruding on the domain of the pure metaphysician. We regard the brain, when under the influence of chloroform, as in an abnormal condition, and look upon consequent phenomena in the light of symptoms. We feel that this question demands all the elucidation which can be brought to bear on it. We deem it as possible that pain may be more exquisite under chloroform, and regard forgetfulness as poor compensation for such an ordeal, unless it be admitted that the patient is in a better subsequent position as regards the operation.

Looking at the subject in another view, and bringing physiology to our aid, it would teach us that the desired effects of chloroform do not always bear a ratio to the amount inhaled. For example: a patient inhales it to the full extent of sopor, without stertor; she is submitted to a surgical operation, and during its continuance talks incessantly, holding an imaginary conversation. If it be true, as asserted by high authorities, that there is a part of the brain whose office it is to combine the action of the muscles of speech, we can safely infer, that in the case alluded to, the anæsthetic influence of chloroform had not reached that portion of the brain, at least so far as to impair its functions; and we reasonably conclude that there is absence of pain from the fact of the patient indulging in conversation totally unconnected with herself or her sufferings.

On the other hand, we have seen the patient in a deep sopor from chloroform, exhibiting, at the moment of the surgeon's incision, an indescribable nervous excitement lightly passing over the face, and giving to us the idea of an attempt at muscular action, and of the patient's sufferings. We have also witnessed in another case, under similar circumstances, a slight blush coming on the cheek, and a secretion of tears: phenomena which can only be satisfactorily accounted for as being connected with mental emotion.

We shall now quote the following remarks from the work before us:—

"In the second degree, when the reflex system begins to manifest its influence, it has been stated that occasionally the exclamations of the patient are rather exaggerated than controlled. So,

also, when profound sopor is induced, it sometimes happens that she cries out as if suffering from pain; and yet, when consciousness returns, is not aware that she did so. She has no recollection of pain; she will tell you she had none. I was once called to a case of difficult labour in which this occurred. It was the first child, and the woman had suffered very severely for twenty-four hours. The head was arrested in the pelvis, and it was necessary to extract it with the forceps. Chloroform was administered to its full extent. The woman was in a profound but not stertorous sleep. She lay on her side, perfectly unconscious of anything that was done. She did not notice the first efforts at extraction, when, suddenly, as the forceps was pulled, she exclaimed: 'Oh, my back!' She did this two or three times; but as the child was being delivered she said nothing, and seemed asleep. She remained thus for about half an hour, during which time the placenta was separated and the bed settled. When she awoke she was very much astonished to find her troubles over. She did not know when the child was born; said she suffered no pain, and when told that she had exclaimed loudly during the operation, she could not believe it. This fact has been observed by others, and an explanation of it attempted. It is needless to do so; it is sufficient for our purpose to notice it as evidence that, when a patient is under the influence of chloroform, her expressions are no measure of the amount of pain which she really endures. In the transition stage she sometimes exclaims when there is no pain, and is silent when there is. A lady in this state bore the expulsive pains, when the head was being delivered, without complaint, and yet cried out, or rather moaned, after the child's birth, at regular intervals, as if the pains were going on."

We can have no hesitation in the conclusion, that the exclamations of this patient were demonstrations of her suffering from pain; we shall not attempt to account for her silence at other moments, when there was apparent cause for complaint. In labours in which chloroform is not used, we find patients who complain of pain in the absence of uterine contraction; and some, very noisy in the earlier stages, will bear the last expulsive pains in comparative silence.

We cannot further pursue this subject at present. It is one worthy of investigation; but, from its obscurity, uninviting. Our impression is, that the theory of ascribing phenomena which indicate pain as being merely of a reflex character, and apart from sensation, is not supported by the evidence afforded to ordinary observation; simple reflex actions may exhibit themselves in some instances, but they are not indicative of painful feeling being experienced by the patient. In the local use of chloroform we have positive evidence of its anæsthetic power, but in some individuals it fails to exhibit that property,—why, we cannot answer, no more than we can explain the cause of

some persons preserving their intelligence without suffering under operation.

Dr. Murphy states that chloroform need never be administered to the extent of inducing profound sopor in childbirth. We must refer our readers to the book itself for an account of its influence on the parturient woman, and on its mode of administration. This part of the work is both interesting and instructive, exhibiting accurate views. In one opinion expressed by the author we cannot agree, namely, that "the action of the uterus is not generally interrupted under chloroform;" our experience leads to a contrary conclusion, and we are supported by others who had extensive opportunities of observation;—however, the influence of moderate inhalation on the uterus is an unsettled question, and Dr. Murphy's views on this subject are well worthy of attentive and due consideration.

The next part of the work is devoted to answering objections to the use of chloroform in midwifery; here Dr. Murphy is, perhaps, too zealous; his style is bold, but he evidently gives expression to the honest convictions of his mind, and it must be allowed that some of the objections urged against chloroform were remarkable for hasty absurdity. There is a third class in the profession, who, not joining either the determined supporters or opponents of chloroform, are cautious of its administration in midwifery practice, and who feel that more matured experience is required to elucidate points of practical interest in relation to this subject. To all engaged in this pursuit, we strongly recommend the work before us. Dr. Murphy is a decided advocate for the use of chloroform, but the rules he lays down for its administration are remarkable for caution, and worthy of being treasured in the mind of the reader.

In conclusion we may observe, that in dissenting on some points of opinion from the author, we are not the less sensible of his deservedly high professional reputation, and of the respect due to his opinions; we are, however, confident, that there is no member of our profession who more fully appreciates the principle of free discussion in the cause of truth than the learned Professor of Midwifery in University College.

Mémoire sur l'Osteo Myelite. Par M. CHASSAIGNAC. Paris: E. Thunot. 1855. pp. 36.

THE title of this pamphlet is not quite correct. M. Chassaignac has directed attention, and his remarks apply only, to

the idiopathic inflammation of the medullary canals of bones. The traumatic form of osteo-myelitis has already been ably handled by MM. Reynaud and Flourens. The former described the affection as the result of amputation, and the latter performed many experiments upon animals with a view to elucidate the pathology of the subject. Besides these special treatises, scattered information bearing on the subject is to be found in the works of Dubreuil, Macdonald (Thesis de Callo et Necrosi), Thomson on Inflammation, Craigie, and Howship. As far as we are aware, however, no monograph exists upon the idiopathic form of the disease. This want M. Chassaignac has endeavoured to supply, and we find in his pages the diagnostic symptoms and treatment laid down with clearness and precision.

The affection is by no means common, and from its resemblance to acute necrosis has generally been confounded with it. There are, however, some well-marked points of difference. The pain is of a peculiarly severe character, pulsatile and lancinating; the patient feels his limb heavy and powerless, and on attempting to move it there is a sensation as if the bone were breaking. The heat and redness are considerable; the œdema of the integuments is remarkably hard, and presents a well-defined border where the inflammation stops. The constitutional symptoms are of a typhoid nature, and similar to those of severe diffuse inflammation. In this it specially differs from acute necrosis. If left to nature, the disease advances steadily upwards: the suppurative destruction of the shaft extends into the epiphysis, and through the cartilages into the joint. The superior cartilage is then destroyed, and the disease spreads through it to the next bone. If an incision is made into the soft parts, the periosteum is found sloughy, of a green colour, and under it are globules of oily pus. This oily condition M. Chassaignac considers pathognomonic of the affection, when taken in connexion with the character of the œdema and of the constitutional symptoms. Should the bone be found bare, dry, and hard, it is an evidence of its complete death. He considers amputation the sole resource, as the joints are invariably affected by the twelfth day. His conclusion is, that in a case which presents the symptoms of acute subperiosteal abscess, with severe typhoid fever, where the peculiar hard œdema mounts above the epiphysis, in spite of free incisions down to the bone, the limb should be removed at the joint above the inflamed bone. He gives a preference to the double flap amputation in this case. The operation would, of course, be contra-indicated if the disease had attacked more bones than one, or if there were symptoms of purulent infection.

A Manual of Pathological Anatomy. By C. Handfield Jones, M. B., F.R.S., &c.; and Edward H. Sieveking, M. D., F.R.C.P.L. London: Churchill. 1855. Fcap. 8vo, pp. 788.

At the present day there can scarcely be conceived a work calculated to be of greater utility to medical science in these countries than a treatise such as the one before us. It is well known what superior opportunities the alumni of Continental schools have long enjoyed in the department of pathological anatomy. Not that we have not possessed monographs of the highest value upon almost every particular disease; but it is a fact evident to us all, that for many years we have felt the want of such a summary of best established points in the domain of morbid anatomy as this volume purposes to supply. It is manifest, on the slightest reflection, that the advance of rational medicine must be in direct ratio with the dissemination of sound knowledge of structural disease. A careful comparison of the traces which maladies leave upon the bodily frame, with the indications observable during the patient's medical history, is the only safe ground for therapeutic deduction.

These are trite though important truths, and we cannot but greet with much satisfaction the appearance of this Manual, which professes, in the words of the Preface, "to place before the reader a summary of ascertained facts, together with the opinions of the most eminent pathologists of this and other countries; and while offering this extensive selection, they have at the same time endeavoured, in an independent manner, to investigate as much as possible the correctness of the statements they adopted."

To condense such a mass of data as was necessary to give even a general view of the knowledge pertaining to this extensive department, must have been a work of unusual difficulty; yet we are bound to say, after a close perusal of the whole book, the authors have so blended recorded fact with independent experience, that they have rendered their task a readable volume, combining the strictness of scientific research with the freshness of the most recent clinical observation.

We need scarcely say, that the work is, like all Mr. Churchill's manuals, well brought out. The illustrations, with few exceptions, speak for themselves, which is the strongest expression of approbation of Mr. Bagg's abilities we can employ. An Atlas of coloured drawings would of course have been more conformable to the character of the work, but such a course would have necessarily so augmented the price as to have

placed it quite beyond the reach of students and most junior practitioners, for whose special benefit it is of course more especially designed.

This is the joint production of two hospital physicians,—a plan of authorship which we observe to be frequently adopted by the French school, and which possesses peculiar advantages in the present instance. A subject so extensive as is embraced under the term pathological anatomy will of necessity be better handled by a combination of the efforts of a number, each of whom has more especially devoted himself to particular branches. The book comprises twenty-three chapters, thirteen of which are from the pen of Dr. Sieveking, and the remainder by Dr. Jones. We do not profess to present a complete analysis of so extensive a work, as such would be elementary, and therefore unsuited to our pages; we propose merely to indicate the general style and mode of treating the principal subjects respectively claimed by the authors.

The opening chapters are by Dr. Jones, and admittedly after the model of Dr. Williams' "Principles of Medicine." After an explanation of some general terms, we have a well-written section on *functional derangement;* and the original observations of Drs. Hall, Todd, and Bowman, are not merely acknowledged, but endorsed, as the groundwork for remedial treatment. The alterations observable in the *blood* occupy about one hundred and thirty pages, and constitute one of the most important subjects in the entire work; more especially the doctrine of 'Crasis,' as first particularly described by Rokitansky,—a doctrine which Dr. Jones considers will frequently best explain the utility of tonic, or even stimulant, treatment in many cases which, under the old system of phlogosis and solidism, would have been treated by routine antiphlogistic means. The fact is, we have been too long guided by the reins of authority in medical practice. Accumulated, but partial data, combined with the most talented medical pleading, so to speak, have not unfrequently imparted an extraordinary reputation to some favoured individual, whose dictum has thereby become the rallying watch-word of troops of votaries, and become incorporated with the medical mind of an entire age. This tendency to take for granted the opinions of preponderating talent has been common in all eras in medical annals, and in later times was especially exemplified in the Broussais dynasty. We rejoice, therefore, to see eclectic principles so ably and clearly brought forward in the present work, as thereby an impression may be made amongst the ranks of

Young Medicine highly favourable to the development of independent thought.

The subject of *textural changes*, and especially new formations, is largely discussed by Dr. Jones in the chapters immediately succeeding. With the exception of Mr. Paget's myeloid tumours, which are touched upon in consequence of their novelty, the only point we can draw attention to here is, the interesting section entitled cancerous tumours, as this topic has recently created much discussion in the medical world. Dr. Jones' view of the nature of cancer will be gleaned from the following quotations. After describing the principal forms, he goes on to say:—

"We feel convinced that it is far more important for the student and the practitioner to contemplate steadily the great characteristics of cancerous disease than to load his memory with details of the incidental and trivial. Partly on this account we have not attempted to give any very minute description of the structure of cancerous tumour; for our own examinations have thoroughly convinced us of the non-existence of any special structural character, absolutely and in all cases distinctive of cancer. This point, which is in accordance with the teaching of the best authorities, seems far from being correctly understood in the present day; and we cannot but think that there is still much tendency to over-estimate the microscope as a means for the diagnosis of cancer. It is our opinion that the cases are very rare indeed where the microscope will avail to detect cancer with any certainty, when the naked eye features are insufficient. On the other hand, we have more than once seen unquestionable cancers made up of substance which we should have been led, from microscopic examination alone, to consider as of a simple nature. What may be said relative to the distinguishing of cancerous from other tumours by their mere physical characters, and not by their living actions, amounts to this: If a tumour, on being incised and compressed, yield a whitish, milky juice (the so-called "*suc cancereux*"), it is probably malignant; we have, however, failed to obtain this sign from actual encephaloid. If the cell-growth of a tumour is what may be called exceedingly *multiform*, i. e. one particle unlike another, the field of view being filled with utter varieties of shape and construction, there arises a strong presumption that the structure is malignant. If a tumour consist of an abundant cell-growth, lying in a basis substance of slight consistence, and containing very little fibre, it so far bears a close resemblance to encephaloid. If, on the other hand, a tumour consist chiefly of fibre or fibrillating blastema, the presumption of its cancerousness diminishes. We have, however, seen a growth in the liver which had all the aspect of a scirrhous formation, and probably was so, which yet consisted solely of fibre forming solid blastema. If a tumour infiltrate adjacent parts, it is probably malignant; but all cancers have not this character. The

presence of large cells containing several nuclei, similar to those figured by Lebert and Bennett, would be a strong argument for the cancerous nature of the tumour from whence they proceeded. So, also, we should regard the development of a nucleus into a large granular globule or vesicle, or into any structure very dissimilar to its original condition, or that of the nuclei of natural tissues. In concluding these general remarks we may state, we think, the following position with confidence, viz., that starting from encephaloid as the representative of cancer, *par excellence*, we find the cancerous character gradually declining as we pass through a series of formations, such as we have above described, until we come to those of whose innocent nature there is no question. The exact limit, we believe, at which cancerousness is lost cannot be marked by any characters of a growth itself."

The above extract gives, perhaps, as much of what is really known as to the distinctive characteristics of cancer as can well be laid down; it supplies also to our readers a fair sample of Dr. Jones' style. The whole section, indeed, is full of interest, and indicates enlarged views of a most difficult subject; more especially is this the case in regard to the dissemination and growth of cancer. Dr. Jones gives an opinion as to the eligibility of excising cancerous tumours. As a general principle he is against interference, while he admits, with every clinical observer, if the operation do not aggravate, it may be reasonably expected to delay, the cause of the disease.

The essay on *parasites* in the fifth chapter is from the same pen. Lebert is the author principally quoted, but we do not see that Dr. Jones has availed himself of the contents of the recent excellent and complete monographs of Robin, Bremser, &c.

We come next to Special Pathology, and we find the same author, in the chapters devoted to the *digestive* and *urinary* organs. The divisions are, of course, anatomical, and under these we observe a notice of each separate lesion. The opinions and experience of the best English, French, and German authors are drawn upon as required, and add much to the interest of these sections; but we are concerned to notice what seems to us an unpardonable omission—a systematic, though tacit, ignoring of Scotch and Irish authors. In saying this we do not wish to be understood that we are at all jealous of the distinguished reputation of other schools; but we do think that names which have rendered illustrious the medical institutions of Edinburgh and Dublin should have been more fully noticed in the present work, which will be put into the hands of the rising medical generation.

The essay on *Bright's disease* is deeply interesting, and sup-

plies a very complete view of the most probable nature of this highly important affection. Dr. Johnson's ideas are the basis of the article, and his theory, in the main, endorsed. Dr. Jones objects, however, to the significance with which the former invests the deposition of oil in the degenerating epithelium, which he considers accidental, and not in any way essentially modifying the morbid state. This objection we do not think is conclusively maintained; we think he is more happy in the opinion he expresses when comparing the enlarged and contracted kidneys. The former, he thinks, has strong relations to scrofulous degeneration, while the latter is akin to hepatic cirrhosis.

The subject of *hepatic* lesions is well treated by Dr. Jones. There, as in every structure of the body, the microscope has been employed with marked success in elucidating the nature of many diseases of the liver, hitherto obscure. Kiernan's triumphs led the way; and now, with the aid of such clinical observers as Budd, &c., we can comprehend the relative distinction between diseases of this organ, which were formerly confounded under some such general heading as hypertrophy, or atrophy, or induration.

The last contribution supplied by Dr. Jones is that on the *joints:* it is clearly and ably written, and contains the most recent researches. In this, as in most other parts of the work, the illustrations are exceedingly instructive, though they cannot, in general, be considered other than diagram views. Sir Benjamin Brodie, as he so well merits, figures largely in this chapter. It is well known that, before his works appeared, the most confused and unsatisfactory ideas were held regarding the nature of most chronic articular diseases.

The special morbid anatomy of the *nervous* system, organs of *circulation* and *respiration*, female organs of *generation*, and the *osseous* system, is from the pen of Dr. Sieveking. Succinct description is equally observable here as in the parts of the work already referred to, and the most recent observations and researches are prominently introduced. We cannot afford space, nor would it subserve any useful purpose, to present an analysis of the numerous subjects ranged under these divisions. Suffice for the present to give the reader an idea of the style in which Dr. Sieveking discusses his subjects. Let us take, for example, the following passage on cyanosis:—

"*Cyanosis* is a term applied to a livid purplish hue of the cutaneous surface, which is found to accompany some organic and congenital disturbances in the central organ of the circulation, of a more

intense character than the slaty tinge which the complexion is very frequently observed to assume in acquired disease of the heart. It was formerly attributed, on theoretical grounds solely, to one lesion, a permanent patency of the foramen ovale: and although this frequently gives rise to the affection, by allowing an intermixture between the blood of the two sides of the organ, and causing it to be circulated through the system without having undergone the purifying process to which it ought to be subjected in the lungs, it is satisfactorily demonstrated both that the foramen ovale may remain open to a considerable degree through life without inducing any serious disturbance of the circulation, and on the other hand, that various other irregularities in the heart may give rise to cyanosis."

The following observations upon the term hydrocephalus are appropriate to the modern view of the disease:—

"Much confusion has arisen from the misapplication of the term *hydrocephalus*, as it has been used to designate a variety of diseases, simply on account of their resembling one another in a comparatively accidental feature; and we would therefore follow in the steps of those authors who limit the term to the dropsical effusion of serous fluid within the cranium, unaccompanied by marked symptoms of inflammatory action during life. We have already seen that an accumulation of serum beneath the arachnoid or within the ventricles is a common feature in both acute and chronic meningitis; and though an affection of serious import, we have abundant evidence of the value of therapeutic proceeding in arresting and completely removing the disease and all its effects. Not so with what is commonly called chronic hydrocephalus, or what ought exclusively to receive the name of hydrocephalus. While certain forms of meningitis should designate the disease acute hydrocephalus, nothing is more liable to mislead the student, or perpetuate error, than a want of precision in our nomenclature.

"We must never forget that the effusion of serum is only a product of morbid action, and that inflammation, mechanical obstruction, anemic blood-poisoning, scrofulous cachexia, diseased conditions essentially differing from one another, may each of them give rise to a secretion of fluid into serous cavities.

"It is erroneous, and likely to lead to the most injurious practice, if we apply a name to a system by which it becomes identified with the most opposite diseases."

These few extracts present an average example of the manner Dr. Sieveking employs in discussing any disputed point. It is a combination of the argumentative, didactic, and suggestive, and is frequently interwoven with allusions to authority or personal experience.

In the compass of a Manual such as this, it was manifestly

altogether impossible to touch upon every new fact, or to give such prominence to the more important as would be necessary in a monograph; the wonder is here, however, rather that so much has been given as we find accumulated under each division. The work, in consequence of the very limitation to which we have referred, is scarcely sufficiently appropriate as a text-book for students. It seems to us, for a time at least, to be more adapted for the scientific practitioner. We say *for a time*, because, in the general absence of collegiate courses on Pathological Anatomy, and so long as its study is not statedly required by the medical Examining Boards, so long will the student neglect this branch. With pleasure have we noticed that in a few schools, both in this and the sister countries, its study has been encouraged to a considerable extent, and much trouble has been taken by Hospital Physicians and Surgeons to draw the attention of the pupil to the vast importance, in a clinical point of view, of cultivating a knowledge of the structural changes which disease leaves upon the frame. We see, indeed, the time rapidly approaching when that great waste which Latham so graphically speaks of in connexion with hospitals will no longer be mentioned to the discredit of the profession; when, in short, the bedside and the pathologist's theatre will become the principal fields for cultivation by our students; when all theories, and dicta, and ingenious speculations will succumb before the light and power of nature's own teaching, and when the data which she supplies in such copious profusion will form the sole basis for diagnosis and treatment, and the sole test of medical truths.

We notice a slight omission in this Manual with reference to an important tissue of the body, the *Skin*. We do not find any special notice of its morbid anatomy, further than what is mentioned in connexion with cancer, syphilis, vascular disease, and such like subjects, in the discussion of which the cutaneous tissues are incidentally mentioned; the omission is not, however, of very much importance, when we remember that we have for reference such able and complete works as those of Cazenave, Wilson, Neligan, &c.

In conclusion, we believe this volume, both from its moderate price and the excellence of its material, will be largely read by the advanced student and the junior practitioner. We believe that it will tend to render more popular than hitherto the important subject of which it treats, and that it will foster a spirit amongst the rising profession to adopt rational medicine as the principle and guide of practice; and if this be, even

to a limited extent, the result of this publication, the lover of medical science must award its able authors a high meed of praise.

The Diagnosis of Surgical Cancer. (The Liston Prize Essay for 1854.) By J. Z. LAURENCE. London: Churchill. 1855. 8vo, pp. 77.

As a general rule, prize essays should not be published. They are usually written, as it were, to order; they must necessarily fall in with the 'peculiar views—it may be the prejudices—of the adjudicators; the writers are, for the most part, very young men, who have neither extensive experience, nor practice in composition. Hence, if not deficient in material, they are confused in their arrangement, crude in their theories, and not unfrequently illogical in their conclusions. We must not be understood as condemning the practice of writing prize essays: it is a good practice, and one which conduces to the improvement of the writers, by extending their information on a given subject. Other advantages it has, no doubt, but they are all rather on the side of the writers than directly on that of the public.

The above essay strongly confirms us in this opinion. The author, with becoming modesty, calls it a crude production, and gives us to understand that the profession is indebted to Messrs. Quain's and Erichsen's advice for its publication. Surely these surgeons would have shown a truer kindness to Mr. Laurence if they had kept it back to be revised, and perhaps rewritten, at some future day. We have no wish to say anything to discourage our present author, or other young men, from a laudable pursuit of science; and in any remarks we feel compelled to make, we are actuated rather by a desire to aid and guide their efforts in a right direction.

The essay is entitled " The Diagnosis of Surgical Cancer." The title is not an index to its contents. Except some vague and scattered remarks, chiefly drawn from Velpeau's work on Diseases of the Breast, there is nothing on the subject of cancer in any of the organs. The first chapter of the essay treats of the pathology and symptomatology of cancer; the second, of its anatomy.

The first chapter commences with the following " definition," which we must confess we do not understand:—" Under the term ' malignant,' as applied to morbid growths, is to be understood a growth which is obviously but the local manifes-

tation of a diathesis, the tendency of which is to destroy life, either in virtue of its own local effects, or of that diathesis, or of both conjoined." This mysterious diathesis destroys life in virtue of itself, or of its own local effects, or of both! Surely this is only mystification, not definition. It is another melancholy result of the obstinate use of terms which do not suit the present state of science. These words, malignant and benign, are not definite; they do not give any idea of structure, and ought to be banished from the nomenclature used in the classification of tumours. The structure of morbid growths gives the only accurate and positive basis for their arrangement: many *benign* tumours are malignant in their course, and many malignant tumours never kill. Until terms strictly scientific are used, it will be vain to expect that accord between clinical and microscopic observers by which, alone, their labours will be made mutually available. Mr. Laurence, by grouping cancerous and cancroid growths together, under the head of malignant, renders his meaning obscure in more places than one: so vague, in fact, are his opinions, or rather his mode of giving expression to them, that, after an attentive perusal of his little book from beginning to end, we cannot make out whether he considers epithelial tumours to be cancers or not.

When considering the anatomy of cancer, he gives a description of the cancer-cell, without measurements, without any guides by which it may be known from epithelial or other cells, and without any reference to the action of chemical reagents upon it. He speaks of its fatty degeneration in a manner that leads us to suppose him ignorant of the difference between a cell in this condition and a granular exudation corpuscle. He notices, in addition to the cancer-cell, only the fibro-plastic cell and the myeloid corpuscle; and he winds up with the following proposition:—

"That there do exist cell-forms which it is difficult or impossible to refer either to the cancerous or fibro-plastic type exclusively; and, as a corollary, that the existence of such forms brings us to the conclusion that the two forms of cell cannot but be regarded as the extreme links of a chain of forms connected by intermediate stages."

Now, without stopping to show that the corollary does not follow from the proposition in logical sequence, it will be enough to say, that the fibro-plastic cell is not, in the opinion of microscopists, the typical cell of any kind of tumour. Various forms of cell, widely different, were at first classed under the head of fibro-plastic; such as the cells of recurrent fibroid

tumours, and others, in which no ingenuity could find a resemblance to cancer-cells. More careful observation has, however, long shown that the fibro-plastic cell, such as Mr. Laurence describes, is evidence of nothing but growth and organizing power in a tumour; the fact of its being found in plastic exudations, where no abnormal or heteromorphous growth can be suspected, is sufficient proof of this; so that we may dismiss this high-sounding conclusion which possesses as little meaning as the opening definition. It is advanced as a convenient theory by which to explain all anomalies; but how it would do so, even if proved, does not appear.

We conclude this notice of Mr. Laurence's essay by quoting from it two passages, in which we cordially concur:—

"Accurate conclusions can only be arrived at by investigating *all* the circumstances of the individual case. . . . . I cannot help remarking, that notwithstanding the immense mass of microscopic observations of morbid products that we possess, their value is in a great degree depreciated by the indifferent acquaintance observers often display of the intimate structure of the natural tissues in which the growth has occurred."

The Pathology of the Bronchio-Pulmonary Mucous Membrane. By C. BLACK, M. D. Edinburgh: Sutherland and Knox. 1855. 8vo, Part II., pp. 102–155.

IN a former Number of our Journal we noticed, at considerable length, the very excellent and valuable additions which Dr. Black, by his microscopic researches, had afforded to our knowledge of thoracic disease. We are now again favoured with a continuation of his useful labours; and are glad to perceive that the same tone of thoughtful inquiry, which rendered his previous communication of much practical as well as theoretical value, is maintained throughout the pages of the present publication. The treatise before us purports to discuss the non-inflammatory diseases of the bronchio-pulmonary membrane, more particularly that one known as tubercular deposit in this structure; the origin and subsequent course of which Dr. Black considers to comprise three pathological conditions, which are recognised as follows:—

1. The stage of local predisposition.
2. The stage of deposition.
3. The stage of germination.

Dr. Black is of opinion that the evidences of the predisposition to tuberculous deposit in the bronchio-pulmonary mem-

brane rest in a deviation from the healthy standard of blood which the vessels of that structure contain, which, to the unaided sight, renders the membrane apparently more pulpy and of a deeper coloration than natural, while the microscope shows an increase in the diameter of the blood vessels, owing to the overplus of blood with which they are surcharged.

He suggests that the frequent invasion of the upper lobes of the lungs by tuberculosis is more probably due to their deficient mobility, as compared with that of the middle and lower lobes, during the respiratory movements, than to any elective affinity they may possess for the localization of tubercle. Dr. Black proceeds to point out the means by which the genesis of the vesicular murmur is accomplished, and states his opinion, that the apparently greater distance of the vesicular sound of the lung predisposed to tuberculosis is not owing to a diminution in the conducting power of the lung, but to the reduction, during each respiratory movement, in the quantity of inspired air, and to the partial want of that active resistance which is manifested by the fibrous tissue of the pulmonary cells at the very extreme of inspiration, when the genesis of the vesicular murmur is at its climax.

The author, in his observations respecting Professor Bennett's views of dyspepsia as a cause of phthisis, states, that "in all but exclusively referring tuberculosis to the derangement of the digestive functions, Dr. Bennett is more or less opposed to the experience of many observers, who have not unfrequently witnessed the deposition of pulmonary tubercle without its having been preceded by any dyspeptic symptom whatever." This opinion we strongly urged when, in our critical analysis of the Edinburgh Professor's book on this subject, we differed with him in many important practical considerations.

The section of Dr. Black's paper devoted to the investigation of the stage of deposition, manifests much patient and diligent study. The observations offered cannot fail to prove useful as a collateral aid in diagnosis. We confess, however, that when we come to form our differential diagnosis by the recognition of corpuscles varying in size from $\frac{1}{2400}$th to $\frac{1}{2100}$th of an inch in diameter, we are almost disposed to regard the microscope as a kind of *ignus fatuus*, which lures men from the fair fields of practical science to the slippery quagmires of speculative theory. This tendency, though occasionally visible through Dr. Black's paper,—as when he again leads us to seek for isolated exudation cells from $\frac{1}{7000}$th to $\frac{1}{2500}$th of an inch in diameter,—is not sufficient to warp his excellent judgment

in a fair estimate of the appearances he sets forth with such extreme minuteness, since we thus read:—

"An examination of the sputum, from time to time, can better determine the real progress of the disease than the most delicate auscultatory examination. When, however, the two modes of examination are combined,—*which ought always to be the case*,—the diagnosis is rendered certain; whilst the prognosis, which is the legitimate deduction of knowledge obtained by such a combination, is far more likely to be realized than that which is based on auscultation or microscopic examination alone."

We have italicized a sentence in the above, as expressing our opinion on this matter. Writing in such a spirit, we need scarcely say, lends a very great practical value to the appearances set forth by Dr. Black as a further means to the recognition of the character and progress of pulmonary disease. This true estimate of microscopic appearances is by the author expressed as follows:—

"The comparison, therefore, plainly shows that there is *no diagnostic cell* of tubercle. It were, consequently, a misnomer to designate any cell by the epithet 'tubercle-corpuscle.' When, however, an exudation consists essentially of irregularly-shaped cells, mingled with numerous molecules and granules, we may safely pronounce it to be of deficient vitality; but collateral circumstances must assist in determining the question of its tuberculous or non-tuberculous origin. It may or may not be tuberculous in it nature; the *microscope alone* cannot determine the question; a full investigation of the case in all its bearings is absolutely necessary for a correct interpretation of the physical appearances of the exudation."

We have, in our review of Bennett on Tuberculosis, expressed our sentiments fully on this point. We are happy again to find that our opinions are so fully borne out by the close observation and greater experience in investigations of this nature which Dr. Black's paper bespeaks him to possess.

Dr. Black, in his observations on the nature and special pathology of pulmonary tubercle, amongst many valuable remarks affords a complete refutation of Professor Bennett's views on the subject. We find our previous opinions even more forcibly echoed. Thus, Dr. Bennett, when speaking of the existence of an excess of acidity in the alimentary canal as a predisposing cause of phthisis, by rendering the albuminous constituents of the food easily soluble, is regarded by Dr. Black as advancing theories which are untenable. Dr. Black writes:—

"But even granting the invariable existence of the acidity of the alimentary canal, what proof does Dr. Bennett advance that the acid

in question dissolves albumen? None; nor can he bring any such proof to the point at issue. He does not state what acid produces the alleged excess of acidity of the alimentary canal; but it is presumed, from the nature of things, that the acetic acid is the one intended. Acetic acid, however, does not dissolve albumen, but, on the contrary, coagulates it,—a fact announced by me in the first part of this work, but preceded, as I have since ascertained, by a similar statement from Lieberkuhn and Parkes. The objection which is thus offered to the theory of Dr. Bennett, and which is manifestly fatal to such a theory, is consequently supported by the authorities just named."

Professor Bennett's views respecting the formation of "tubercle-corpuscles" as being due to a deficiency "in the necessary proportion of fatty matter" in the exudation, in consequence of which "elementary molecules are not formed so as to constitute nuclei capable of further development into cells, therefore remain abortive, and constitute tubercle-corpuscles," are by Dr. Black objected to on the ground that no proof is advanced to show that there is a relative deficiency of fat as compared with the albuminous portion of a tuberculous exudation; while the analyses of Dr. Glover demonstrate that in tuberculosis the fats of the blood are not deficient, and that "tubercle itself often contains a considerable quantity of fat." Having adduced several convincing arguments in support of his views, Dr. Black concludes:—

"Hence Dr. Glover's argument against the theory, that 'tubercle-corpuscles' result from a 'deficiency in the necessary proportion of fatty matter in the exudation,' remains in full force, and Dr. Bennett's theory must necessarily be considered, as at present, unsubstantiated by fact."

Dr. Black recognises three stages to which the indications for treatment in tuberculosis have reference:—1. That of local predisposition; 2. That of deposition; 3. That of germination of the tubercle. In reference to these we may observe that the practical suggestions which Dr. Black offers, and the rational treatment he proposes, argue a thorough acquaintance with the truths of practical medicine, which leads us, without hesitation, to recommend this continuation of his valuable essay to the very favourable consideration of the profession.

In the first of these stages, or that of local predisposition, in which the bloodvessels are more or less engorged with blood, we read that the object of the physician should be "to restore the natural diameter of the affected capillaries, and thus to prevent exudation."

The obscurity of this stage of the disease rests in the fact

that the physician is seldom sufficiently early in attendance for its recognition. When recognised, the activity of the treatment must be commensurate with the extent of the local predisposition, and the suddenness and urgency of the symptoms, general bleeding being seldom, if ever, required, but local bleeding proving in many instances extremely beneficial. The importance of this method of treatment is well illustrated by Dr. Stokes, in his work on "Diseases of the Chest." We quote from the author as follows:—

"After the application of leeches, extensive counter-irritation of the chest should be practised, with the view of determining from the engorged lungs to the surface of the body. A quick effect must be produced; therefore, dry cupping, mustard poultices, liquor ammoniæ, or hot turpentine, may be first applied; after which blisters, followed by the croton-oil liniment, or tartar-emetic ointment, will be used with advantage. A brisk purgative, exhibited contemporaneously with the adoption of the above remedies, will, in many such instances, be necessary; and in all cases the action of the skin should be promoted by very small doses ($\frac{1}{16}$th of a grain) of tartar emetic, and by warm clothing. Perfect quiet of the voice, and a moderate temperature (60° Fahr.) will also contribute to the end desired."

The foregoing directions, in their application to particular cases, are worthy of consideration. Where a known predisposition exists, all bronchitic attacks are of immense importance. It becomes a trial of skill on the part of the physician to produce a divergence from the lungs of the constitutional irritation, while, at the same time, every effort is made to remove the condition producing it. Those who have had experience in the treatment of phthisical patients—and we may ask what physician is there who has not had such?—must know the painful anxiety attendant on the irritative cough, which, coming deep from the chest, proclaims the lurking foe. It is a happy fact that we have so thrown aside routinism in the treatment of this affection, that great principles now guide us in the application of remedies, and, above all, that such dogmatism as those advocating special organic changes would advance gives way before the practical observation of the effects of treatment. We discussed this matter in a previous review on works specially treating of this disease.

"In the second stage of the disease, namely, that of deposition, the indications are:—

"1. To prevent further deposit.

"2. To promote the absorption of that which has already taken place.

"3. To treat special symptoms."

To fulfil the first of these indications, Dr. Black advises the employment of extensive counter-irritation of the chest; in acute pulmonary tuberculosis, by a succession of blisters; in the chronic, by the tartar-emetic ointment or croton oil liniment. The employment of tartar-emetic ointment freely applied to the chest is especially advocated in those cases which are of an intermediate character between acute and chronic. The pustules which result being a long time in healing seem, in his opinion (from which, however, we altogether dissent), to exert a powerful influence in preventing further exudation into the tissue of the lung.

For the treatment of the stage of deposition, the administration of cod-liver oil is particularly advocated as combining in its special efforts both the action of a food and of a medicine. The fact is impressed that, though the most valuable of any of our single remedies, *it is not admissible in every case of phthisis.* In the chronic form of phthisis, in which there is considerable emaciation of the body, unattended with a hot and dry skin, red tongue, and thirst, there is no remedy of equal value; whilst in cases in which considerable sympathetic fever exists, there are few, if any, remedies whose exhibition hurries on the disease more rapidly. "The golden rule for its exhibition involves the following conditions:—*Emaciation, little or no thirst, cool skin, and no disposition to sympathetic fever.*" That is to say, in those conditions of the system which permit its assimilation. Dr. Black remarks:—

"It may be given at first in doses of one or two teaspoonfuls twice a day; and as the stomach becomes more accustomed to it, the quantity may be increased to one, two, or even three tablespoonfuls, repeated three times a day. Beyond this last-mentioned quantity it is scarcely ever necessary to go. It is best tolerated *immediately* after a *meal*, with which it mingles in the stomach, and is, in consequence, gradually submitted to the action of that organ."

We afford this quotation, not for its novelty, for we know our readers were well informed on such a point, but that they may be the more fully impressed with the great medical truth that the same remedy, according to the circumstances of its administration, may, in the treatment of the same disease be equally an instrument of much good, or of great evil.

In the stage of germination, the indications of treatment are: 1. To prevent the formation of caverns. 2. To heal pulmonary excavations where they already exist. 3. To treat special symptoms.

Notes on some of the Developmental and Functional Relations of certain portions of the Cranium. Selected by FREDERICK WILLIAM PAVEY, M. D., London, from the Lectures delivered at "Guy's Hospital" by JOHN HILTON, F. R. S. London: Churchill. 1855. 8vo, pp. 93. With Illustrations.

IT is with feelings of great satisfaction that we undertake the task of reviewing Mr. Hilton's lectures; and we cannot refrain from extending our approbation to the editor for the perspicuity which guided the selection of those particular subjects, that, from their nature, permitted the teacher, presuming on the part of his auditory a certain acquaintance with elementary anatomy, to indulge in observations of a reflective tendency, to the exclusion of more rudimentary instruction;—a course which lecturers, under ordinary circumstances, must of necessity avoid, in consequence of the mixed nature of their class as to information, lest their doctrine might be unintelligible to one-half at least of an auditory whom they are bound to instruct according to their individual and not collective capacities. And herein lie the difficulties necessarily attached to the office of a lecturer, which constrain him, for obvious reasons, and guided by the best intentions, to maintain his observations only on the level of the junior students; for, should he forget the characters special to his auditory, a serious diminution of attention rapidly reminds him of the lapse, and warns him to avoid the dangerous experiment of seeking to sustain a standard of equality that, according to the existing organization of our medical schools, can never be attained. The fault, if it may be called so, does not depend on the teacher, but is unavoidably associated with a system, the imperfections of which must be manifest, even to those who have neither the *interest* nor *leisure* to analyze a subject fraught with the most cogent interests of our profession, involving the training of those on whom the onus of sustaining and extending the dominion of our science must devolve at no very distant period. But if these patent imperfections are admitted to exist in connexion with teaching, it would seem an unaccountable anomaly that colleges and public bodies, assuming and exercising a presidency over our institutions, should not seek to apply a remedy calculated to insure as close an approximation to perfection as possible. It is sufficient to remark, that the constitution of the executive of such controlling powers renders their attempts, although actuated by the best motives, perfectly inoperative to achieve those requisite alterations in educational policy implied by the term "approximative perfection." We wish not to be misunderstood, or rendered, through

our preceding observations, liable to the accusation that we declaim against a theoretical imperfection, which practically involves neither injury to the student, nor disadvantage to the lecturer: and this, too, as members of a school which stands paramount and almost unequalled for the signal benefits which it has conferred on the practical department of our art. In order to remove this misconception, we need only remark, that clinical and demonstrative teaching, as pursued in this, and we have no reason to doubt in other countries, not only meets with our unqualified approbation, but seems the type of that perfection which we desire; and we recognise in the late Professor Graves one of the greatest benefactors to our science, for having carried to full maturity the system of practical instruction at present pursued in this city, which has conferred on our school a universal reputation. Still, our firm belief remains unaltered, that lectures delivered in the theatres of our schools ought rather to be reflective commentaries, than partake only of the character of rudimentary instruction. The first constitutes the unwritten history of disease, and those collateral sciences involved by its knowledge, requiring for its mature and perfect elimination the highest exercise of intellect. The second implies but the existence of the single faculty, "memory," which, while it fails to elevate the mind of the teacher, degrades him to the level of an articulating class-book.

To no one branch of teaching may these observations be applied with more justice than to anatomical lectures. Our dissecting-rooms are absolutely incapable of further improvement as regards demonstrations of the human body, or the science of anatomical facts. But in our theatres, where a sessional course only occupies about one hundred lectures, that a large portion of it should be sacrificed to elementary instruction in osteology, myology, &c., whilst so much which practically lies beyond the reach of the student really claims the attention and labours of an accomplished teacher, seems to us an anomaly in the policy of education which the courage of some one teacher, straying from the beaten track, impressed by the feet of his remote ancestry, is destined to remove at, we trust, no very distant period. The subject of the course ought only to form the text on which the lecturer should expatiate, and whilst recognising the utility of a class-book, his observations and instructions should commence where it terminates; and instead of following its course, he ought always to essay an elevation of thought and ideas beyond the written testimony of authors, and seek at least to be suggestive where he cannot accomplish originality.

The small work before us fulfils the latter observation, showing how susceptible a subject may be of interest when treated as a reflective study, avoiding those unnecessary descriptive details which are painfully reiterated in ordinary lectures. In fact, a full course, carried out after such a model, would, we conceive, satisfy the most fastidious disposition. But the very title of the work, "Selections from the Lectures," warns us that we must not judge too leniently of the mass from the examination of a fragment, and leads us to assume that our preceding strictures will not fall without effect even on a lecturer so distinguished as Mr. Hilton has proved himself to be in the field of Anatomy and Physiology.

The work treats of many subjects connected with the contour and arrangement of the salient features of the human cranium, or the mutual associations subsisting between anatomical conformation and pre-ordained functions. Alluding to the difficulty of stating, with exactitude and precision, the number of osseous pieces constituting the skull and face, arising from the transitional fusion continually accruing in the progress towards maturity, he bases on these views an examination of the "Crano-facial bone" in its entirety, preferring an uninterrupted description of the mass to the more complex, but certainly not more useful, demonstration of those isolated pieces entering into its composition; still, he does not fail to recognise the beauty and harmony of design evidenced by the crowding together of separate and numerous ossific centres as radii of development, for this important element of the system;—these, existing in their greatest number during the nascent condition of the brain, corresponding exactly with its period of most rapid growth, and again disappearing by consolidation as the organ approaches its maturity, the law, of necessity, becoming altered with circumstances, and the demand for security answered by the fusion of the isolated centres into a single case.

"That the true object of the great number of isolated portions or centres of bone observed in the fœtal skull, is to produce a rapid extension of the cranial capacity contemporaneously with the growth of the brain at this period, is fully confirmed by the appearances presented by the cranium in cases of hydrocephalus. In these unfortunate subjects there is a demand for a greatly abnormal and comparatively rapid expansion of the cranial cavity, which, in a considerable measure, is effected by the large development of numerous islets or insulated masses of bone, known as ossa Wormiana. Each of these, growing from its own centre, produces such a rapid extension of surface that, until consolidation takes place, the cranium is adapted to the rapidly increasing bulk of its contents."

Fully appreciating the foregoing remark, in relation to a morbid condition inducing local effects, as serving to illustrate a physiological postulate, we have been accustomed to advance in the same direction, but yet maintaining a similarity of object. Scrofulous children, even independent of visceral accumulation, are slow to close the sutures and fontanelles, not through any local fault, but rather in consequence of a low nutritive tendency; representing a condition to which the term "physical immaturity" may with propriety be applied. The terms of childhood, boyhood, adolescence, and manhood, are protracted far beyond their usual periods, and the functions and sentiments usually associated with the latter remain latent, often for years, beyond the usual time of their accession under more favourable circumstances. The mental faculties, though acute, are never powerful; fixity of ideas and resulting purpose are long protracted in their manifestation, circumstances which we doubt not are attributable to the participation of the brain in the general state of physical immaturity; and the patency of the sutures coincides with the design to permit of the gradual, but extremely slow, development of an organ on which depends wholly man's position and ascendancy.

The author details most elaborately the anatomy and varieties of the frontal sinuses, treating fully of their development and formation in relation to the neighbouring bones of the skull and face. He says,

"On examining different specimens of adult crania, the extreme diversity or irregularity observed with regard to these sinuses constitutes an exceedingly curious and striking object of consideration. Sometimes they are altogether absent; occasionally there is but one solitary cell; oftentimes there is a single small cell on each side; whilst at other times they form fair-sized cavities: in some instances symmetrically disposed on two sides of the median line, but more often exceedingly irregular both in outline and dimensions. They are sometimes so largely developed as to extend upwards for nearly the whole distance of the forehead, and likewise backwards, for an inch, or even more, along the horizontal plates constituting the arches of the orbits."

Again, on the mode of their production, the author offers this explanation, based upon anatomical reasoning:—

"As I have already stated, they do not appear until after a much later period of life than is generally allowed. Before the commencement of their development, the two plates or tables of bone, which constitute the inner and outer surfaces of the cranial case, are placed in close apposition to each other; but the outer

plate being now pushed forwards—in a manner I shall directly point out—by the central lamella of the ethmoid, under the influence of the development of the sphenoid, and the inner plate retaining its original position in relation with the crista galli and crebriform plate of the ethmoid, the intermediate structure or diploë is extended into cells or cavities, varying in size according to the extent to which this process has advanced. I must needs, for further explanation, anticipate a little of what I shall hereafter have to say concerning the development of the sphenoid. The final completion of this bone does not take place until after the completion or development of the remainder of the cranial bones; and wedged in, therefore, as it is into the immediate centre of the cranial base, its progressive growth or expansion produces vast and important changes in most of the surrounding parts. The body or centre of the bone is, in early life, solid, and comparatively small in size, but it afterwards becomes hollowed out into cells, which, like the frontal sinuses, form accessory cavities to the organ of smell. With this development of the sphenoidal cells, the body of the sphenoid is proportionately increased in dimensions; and the rostrum—a process of bone projecting from its inferior surface—is also proportionately advanced. Now, this rostrum fitting firmly into the vomer, necessarily ploughs onwards this bone, which, advancing in a direction downwards and forwards, likewise carries before it the horizontal or palate plates of the superior maxillary bones, to which its inferior edge is articulated, and thus materially increases the vertical extent of the nasal cavities. In the meanwhile, also, the vomer, in its progression, pushes forwards the central lamella of the ethmoid, which, in its turn, advances the nasal bones, and likewise the anterior table of the frontal to which they are connected, so as in this way to lead to the formation of the frontal sinuses at one and the same time, and by precisely the same primary cause, by which the nose is rendered more prominent, the nasal cavities more capacious, and the whole more efficient as an olfactory organ."

There is scarcely any one portion of the skull more subject to variability of dimensions than the body of the sphenoid, which accounts fully for the absence of the frontal sinuses in some cases, as well as the small perpendicular extent of the nasal fossæ. But cases do occur where this bone presents its natural and even augmented volume, associated with a short superior maxillary, and excessively small frontal sinuses. Such an example lies at present before us. It is a specimen of a true Celtic cranium, with a shallow sinciput, wide malars, and remarkably short naso-frontal pillars to the superior maxillary, with only a slight appearance of the frontal sinuses. Still, notwithstanding this configuration, the antero-posterior extent of the sella turcica is beyond its usual diameter, which at first appeared almost inexplicable, but on further examination we

found the foramen magnum of the occipital bone thrown so far back as almost to occupy the position normal to the quadrumana; a circumstance which leads us to entertain the opinion that the body of the sphenoid may grow backwards instead of forwards, thus influencing the occipital rather than the nasal fossæ; in fact, the growth of the anterior wall of the body of the sphenoid only can influence the ethmoid and maxillaries; and that this wall frequently remains persistently applied to the posterior, causing an absence of the sphenoidal sinuses, is abundantly manifest from the indiscriminate examination of various skulls.

But still, there is another question involved by the author's admission of the absence or variations of the frontal sinuses, which he has not attempted to answer. Why are these sinuses absent, even in cases where an external elevation would lead us to infer their full and perfect integrity? The following seems to afford an explanation of the circumstance:—The nasal process of the frontal bone, in the great majority of specimens which we have examined, is formed only of the external table; but we have seen, incidentally, a specimen in which it consisted, evidently, of the prolonged spine of the internal as well as the external plate of bone, rendering the equal advance of both contingent on the increase of the sphenoidal body, and preventing the development of the cells arising from the separation of the tables.

The author, estimating the olfactive sense as one of the instinctive faculties, subordinate to animal desire and gratification, conceives the nasal organ, in savage races, to attain its acme of development; and adduces, as proofs of the supposition, that in the African the frontal sinuses "are enormously developed." We are not disposed to generalize exactly to this extent, as we believe the perfection and intensity of appreciation of odorous particles depend more on the peculiar temperament than on absolute extent of the cavity; and this we state, fully conversant with the light which comparative anatomy throws on the subject, apparently supporting the author's views and opinions, at least in the carnivora, in whom the great width of the nose is proverbial, depending on the size of the naso-frontal pillar of the superior maxillary bone. But these seem rather to stand in relation to the enormous laniares which are imbedded in them, than to assist in any material degree the nasal organ.

It is a fact well known to anatomists, that in the flat bones of the cranium there exist numerous foramina, differing in size, but still perfectly distinct: one set are so minute that a

proper idea of their number can only be attained by examining a growing parietal with a glass of an inch focus; the whole surface will seem a mass of apertures, each having a well-marked margin. The second form are quite visible to the naked eye; such are the parietal, mastoid, nasal, &c.; all these principally, but not wholly, transmit veins which slowly become obliterated as ossification is completed. These have not escaped Mr. Hilton's observation; as safety-valves to the venous circulation within the cranium, and their prevalence in childhood, he correctly attributes, first, to the more active circulation requisite during the growth of the brain; and, secondly, as a security against that congestion which would likely, under other circumstances, ensue during prolonged fits of crying or passionate expirations, so frequent before the instinctive impulses are controlled by reason and reflection.

Entering still more into detail on this subject, he remarks:—

"There is a tendency, which is not only prevalent amongst students, but even amongst others, to ascribe to the internal jugular veins a more important part than they really perform, or to attribute to them a greater share in the return of the venous blood from the brain than they really take, and to regard in a less important way than they really deserve those accessory streams which escape in various points through the osseous walls of the skull. Not only do these accessory streams convey from the brain a considerable portion of its venous blood under the normal, but also under the abnormal conditions of life; for when there exists a temporary venous obstruction in the lungs or heart, they constitute the chief and almost the only means of escape of venous blood from within the cranial cavity. If, for example, from a voluntary effort, or from some other cause, the process of respiration be for a short time arrested, we know, as a matter of observation, that the eyes start, and the face becomes exceedingly red and turgid. The temporary cessation of the respiratory action having produced a stagnation of blood in the capillaries of the lungs, the right auricle and the whole venous circulation obstructed,—the first effects of this obstruction in the lungs and at the right side of the heart being thrown on the larger vessels, in most immediate relation with the right auricle, the circulation in the jugulars becomes early impeded, and the cerebral organ is, for a time, relieved of its venous blood, almost entirely through the medium of those smaller veins (amongst which the ophthalmic hold an especially conspicuous position), escaping through various parts of the cranial parietes to the exterior of the head. These veins being placed at a distance from, and, therefore, in much less direct communication with the heart than the jugulars, are less influenced by a temporary engorgement of the right auricle; and admitting as they do, from the distensible nature of their thin coats, and from the laxity of the surrounding tissues in which they ramify, of con-

siderable dilatation, they are capable, for a limited period, of responding to the increased function thrown upon them, and of giving exit to the blood from the interior of the cranium,—a circumstance that accounts for the well known appearances observed under such conditions."

Moreover, in addition to the foregoing compensating arrangement, the author further insists on the alternating states of the vascular system and the sub-arachnoid fluid, adducing the following experiments as proofs of the position which he assumes; and this amounts to the following statement, that during vascular engorgement of the brain a portion of the sub-arachnoid fluid escapes from the cranial cavity into the spinal canal, and on the subsidence of the repletion it returns again to its original site.

"In the first experiment I opened the abdomen of a subject on the post-mortem table, and, clearing aside the viscera, removed the bodies of a couple of the lumbar vertebræ, so as to expose the dura mater containing cerebro-spinal fluid. I then forced blood into the interior of the head, by making pressure below upwards along the course of the internal jugular veins; and as I did this the dura mater in the lumbar region was seen to rise from the afflux of cerebro-spinal fluid into the spinal canal. In the other experiment I removed the whole of the viscera from the chest and abdomen of the same subject, without disturbing the head. The blood in the divided branches of the azygos, lumbar, and intercostal veins, formed, as it were, cup-shaped depressions; but immediately that I applied pressure with the fingers upon the dura mater exposed in the lumbar region, the blood rose, and, finally, flowed out of the above-mentioned venous branches; just in proportion, in fact, as pressure was made on the dura mater, so was blood forced out from the azygos, lumbar, and intercostal veins."

These experiments seem to be conclusive, and by their results are calculated to settle "a vexed question," on which physiologists have expended arguments rather than direct observation. What practical utility will yet arise from Mr. Hilton's facts we cannot at present predicate; but it is only just to adopt the inference that, in proportion as they become known and acknowledged, so will they become capable of utilization in connexion with pathology and therapeutics.

It is an anatomical fact that, with the exception of the undulations of the orbital plates of the os frontis, the elevations of the vault of the cranium, together with the intervening depressions, do not correspond in figure or outline with the convolutions and anfractuosities of the brain, the greatest difference being observable in the middle and posterior divisions of the

base, these ridges or elevations seeming to pursue rather a systematic course and direction, at least in some portions of the internal aspect of the skull. The author has observed, that these ridges in the anterior part of the skull pursue a converging course towards the alæ minores of the sphenoid, and thus are conducted to the anterior clinoid processes; whilst similar ribs, in the middle and posterior portions, run towards the petrous portions of the temporal bones. Assuming these to be the thickest portions of the cranium, which they are undoubtedly, they necessarily become the conductors of those vibrations resulting from the concussions to which the head is so liable, even under the most favourable circumstances, determining them on the anterior clinoid process, where, in consequence of these points being at a distance from the brain, and bathed in fluid, they are broken and dispersed with impunity to the soft and yielding cerebral structure, or transmitted to the petrous portions of the temporal bones; they are broken up or diminished in intensity by the membranous tissue uniting these bones with the body of the sphenoid. The observance of the law of necessity is beautifully exemplified in this respect, for if we examine the vitreous table of the fœtal, or, indeed, of the infantile skull, the surface is represented as perfectly smooth, and of equal thickness at all points; all necessity for special vibration conductors is absent, as the cranium then consists of many isolated portions united by membranous material, each individual bone becoming the excentric source of those vibrations communicated to any part of its surface, and being thus determined towards its edge, are broken up by the connecting membranes.

The author combats the doctrines of phrenology at some length, adducing many anatomical objections to prove the fallacies on which it is based. This is so fairly accomplished, and with so little evidence of any desire to obtain a triumph over the believers in the existence of this misnamed science, that the most enthusiastic cranioscopist, though he may dissent from Mr. Hilton's views, cannot, with the most remote claim to propriety, accuse him of prejudice in judgment or assumption in argument. We may state those objections briefly:—First, there exists an admitted and demonstrable discordance between the cerebral surface and the cranial parietes. Secondly, the whole base of the brain is excluded from the inquiry, although its structure is similar to the summit. Thirdly, allowing the gray matter to be the seat of intellect, no cognizance is taken of those masses which lie within the substance of the organ. Fourthly, it is impossible to estimate, by any external measurement, the actual size or weight of the cerebellum. And fifthly,

the posterior part of the hemispheres is assumed to be the seat of the animal propensities; whilst their progressive development in the animal series most undoubtedly associates them with the highest order of intelligence and mental perfection.

Concussions communicated to the condyles of the occipital bone are conducted outwards by the jugular ridge to the petrous portions of the temporal bones, and thus produce the injury known to surgeons as fracture of the base of the skull. In connexion with this subject Mr. Hilton performed a simple experiment to determine the result of an injury applied to the condyles:—

"Having fixed an ordinary skull on a firm support, with its vertex downwards and its base upwards, I placed a strong piece or bar of wood across the occipital condyles, and then, by means of a hammer, applied a stout blow as evenly as possible over its centre. The result of this, as I expected, was fracture through the petrous portion of the temporal, the line of fracture intersecting the *membrana tympani*. By the side of this experiment let us now place and take into consideration an example of an ordinary accident of the description I have referred to. Suppose, as often happens, that a bricklayer's labourer, falling from a scaffolding on the top of his head, sustains a fracture of the cranial base that intersects the petrous portion of the temporal bones, and lacerates the *membrana tympani* —what here takes place is this: on falling on the top of the head the body comes with considerable force or violence against the occipital condyle, and the vibrations thus generated—just as in the experiment where the blow was artificially applied—being conducted by the dense ridge of bone to the jugular processes, are thence communicated to the petrous bone at the point where it is joined or united to the occipital. It is from this point of union between the jugular process of the occipital and the petrous portion of the temporal that the fracture starts; and pursuing the direction in which the vibrations are travelling, it usually intersects and ruptures the membrana tympani; a circumstance which accounts for the escape of blood and cerebro-spinal fluid that so often takes place from the external ear in accidents of this nature."

We believe that attention was first drawn to the issue of a serous fluid from the meatus auditorius externus in fractures involving the base of the skull by the late distinguished surgeon to Steevens' Hospital, Abraham Colles, who described it as the rising up of a limpid serum in the meatus, which did not flow over, but returned rapidly, on being removed by a sponge, to its former condition (we quote from memory). Since his description many new facts have been added in the form of suppositions as to the source of this fluid; but not a single attempt has been made to impair or invalidate the diagnostic

value attached to its presence by the late Professor, whose observations, founded upon close clinical application and judicious reasoning, stand beyond the reach of criticism, constituting, in fact, the landmarks of sound surgery. However, there are some points in association with this pathological sign more than interesting to the physiological investigator, on which we may reflect with advantage. First, does it always occur in this particular form of fracture? and secondly, may it be present even independent of that lesion? In relation to the first subject of inquiry, we may state that we have seen many fractures of the cranial base exhibiting the greatest variety as to their trajet. They may occur through the petrous portions of both temporals, in the immediate site of the tympanum, a position naturally weak, and possessing little power of resistance. Again, associated with the former, a transverse fracture of the basilar process of the occipital may and often does occur, or the fracture of the petrous portions may take place much nearer to their apices, the transverse uniting fracture passing through the sella turcica; and lastly, a vertical fissure may extend from the latter down to the foramen magnum. From these remarks it will be obvious that unless the fracture traverses the tympanum, producing a communication between the external surface and the subarachnoid space, the peculiar phenomenon referrible to the ear must be absent of necessity; and other signs, deduced from an examination of the nose and pharynx, must now be relied on by the surgeon. This form of accident is conceived to be invariably fatal; nevertheless, we have seen a case where the cranium was subjected to severe pressure, presenting, with the symptoms of ordinary coma, a continued welling of this limpid serum from the ear; and under the influence of judicious treatment the patient perfectly recovered, and exhibited no ulterior signs that could lead to the inference of the previous occurrence of an injury involving such grave consequences as fracture of the base.

As to the source of this fluid, the author has so well and ably contrived a demonstrative experiment to prove its peculiar origin that we cannot withstand the temptation to transcribe it in his own words:—

"Some years ago a boy, who had sustained a severe injury of the head, was admitted into one of the wards of Guy's Hospital. He presented the ordinary symptoms of fractured base; and a small quantity of a thin, clear fluid was observed oozing out of one ear. It occurred to me that if this really consisted of cerebro-spinal fluid, it ought to escape in much larger quantity on artificially inducing venous congestion of the cerebral circulation; I, therefore, pressed

upon the jugulars, and with the other hand forcibly closed the patient's mouth and nose, so as to suspend the respiratory process for a short time, until, in fact, his face became red and turgid from venous congestion. As I had anticipated, in a very few moments the fluid began to flow much more rapidly from the external ear, so much so indeed that I was quickly enabled in this way to collect even half an ounce of it."

Mr. Hilton now selects the sphenoid bone as the foundation on which the integrity and expansion of the future cranium depend, as it is with its development become associated those changes in the anatomical elements which distinguish the infantile from the adult skull. The slightest and most casual reflection on the articulation and position of the body of the sphenoid will immediately display the important part it plays in connexion with expansion of the base, placed in mid-space between the occipital behind, temporals posteriorly and laterally, and the ethmoid and frontal in front, whilst below and before lie the facial bones, it represents a wedge, whose movement must, of necessity, be propagated to all these parts, augmenting and expanding not only the cranial fossæ, but also lengthening the face, and, contingent on this increase, altering those fossæ contained in this region. Thus the ethmoid and frontal are forced in a forward direction; the petrous portions of the temporals, backwards and outwards; and the superior maxillaries, with the vomer downwards and forwards: so that the nose, orbits, and autrum, are solely dependent on this cause for their augmentation of capacity.

We have much to regret that we are unable to notice further in detail the many valuable opinions of the author. To the reflective lecturer they contain much which is suggestive, if not absolutely new; and the student will obtain more profit by their perusal than the laboured study of a systematic class-book can possibly afford. For ourselves, we look forward with the greatest pleasure to a renewal of our association in some future publication with an author from the examination of whose writings we have obtained both pleasure and instruction.

Eutherapeia; or, an Examination of the Principles of Medical Science, with Researches in the Nervous System. By Robert Garner, Surgeon to the North Staffordshire Infirmary, &c. London: Churchill. 1855. 8vo, pp. 282.

In this work Mr. Garner has embodied a vast mass of facts in a small compass. He has reviewed not only the history, but

has given an epitome of the present state of anatomy, physiology, pathology, the materia medica, and the practice of medicine. The result of his labours is to impress the mind of the reader with a high conception (inadequate as it must ever be), of that prodigious mass of previously acquired knowledge, upon which the present edifice of medical science may be said to rest.

It is, however, to be observed, that while he has epitomized with great ability his copious store of materials under each of the above heads, still, he has incurred the risk of not fully satisfying any class of his readers. He has gone too deeply to be well understood by the non-medical reader, and he has sacrificed too much to him, by withholding from his pages those details and references to original experiments, which are necessary to satisfy the requirements of the professional reader. Thus, while the one will be likely to find it dry and uninteresting, the other, although acknowledging the merit of the learned author, will yet complain that he has not been sufficiently furnished with extracts from the original authorities. We present the following as a specimen of his manner of treating the subjects which pass in review before him:—

"The blood may be termed an organized fluid, or *chair coulant*, as our neighbours have called it, containing all the elements of muscle and brain, fibrine, fat, phosphorus, &c. Its specific gravity is commonly about 1055, and its fibrine is almost at the point of coagulation, being only kept fluid by remaining in the vessels. It also contains a vast number of flattened globules floating in the serum, which appear to be as much organizations as the cells of the areolar tissue, and, like them, have commonly central nucleoles. On these corpuscles or discs the colour of the fluid depends. The coagulation of the blood, when drawn from the body, appears to be an act rather of a vital than of a chemical nature; and one proof of this would appear to be the vital operation of those causes which most influence it; chemical agents have less effect upon it than might be expected. When placed under the air-pump receiver, the coagulation and separation into clot and serum is somewhat retarded, but not prevented, carbonic acid is given off, and the colour is unaltered. Chloroform and hydrocyanic acid hasten the coagulation of venous blood, but prevent its separation, and appear neither to disorganize its globules, nor to change its colour. It is blackened, and remains fluid when potass or sulphuric acid is added; in the former case the globules are disorganized. With nitre the colour is brightened, the serum separates, but there is no solid clot, and the globules appear shrunk. Common salt, also, brightens it, and prevents coagulation. The separation of blood into the liquid serum, and a clot consisting of the fibrine and colouring matter, or globules (and modern chemistry draws a distinction between the two last), is a further process of coagulation. Iron is undoubtedly an essential ingredient in the

blood, but it is now denied that its colour depends upon that metal, as it has been separated without loss of colour; yet the chemists show that iron, as it is found in the blood, is peculiarly adapted to receive and part with oxygen, and the colour is evidently much influenced by that addition and subtraction. Sulphuretted hydrogen destroys this power in iron, and has an equally violent effect on blood, showing also that the oxygenation of the iron, and the bright coloration of the blood, are contemporaneous. The blood is alkaline in its nature, and owes this property, according to Liebig, principally to phosphates, and not to carbonates, which, however, exist there: these phosphates, from their affinity for carbonic acid, render the fluid well adapted to carry the latter from the different parts of the system to the lungs. Among other reasons for the alkalinity of the blood, the preservation of it in a fluid state is an important one."

"The carbonates of the blood may be formed from lactates, acetates, and tartrates, taken in with the food; they are considered to exist as carbonates, and not as bicarbonates, notwithstanding the presence of carbonic acid in the venous blood; they combine with superfluous acids, and pass by the kidneys as sulphates and phosphates; besides preserving the fluidity of the blood, they render its iron soluble, and also the tissues of the body more oxidizable. Though phosphates are present in the ash of the blood, it has been doubted by Rose whether they are not formed during incineration. The carbonates thus perform the office of carbon carriers above alluded to, which Rose, however, doubts in the herbivora. Phosphate of soda is the one of the serum, phosphate of potash that of muscle and of the blood clot; according to Liebig, the former only possesses the power in question, and it must be readily formed by double decomposition from the chloride of sodium in the serum, and the phosphate of potass in the clot or muscle."

"Many of the changes in the blood from disease will be alluded to hereafter. In scurvy the globules appear to be sometimes, but not always, affected as to form: but M. Becquerel and Mr. Busk deny that there is a deficiency of fibrine. In the land scurvy, now so prevalent, the blood when drawn appears thin, but when the clot is separated, it has appeared to constitute two-thirds of the bulk, and is tolerably firm, with sometimes a little buff; it is bright externally, but dark within. The incinerated ash procured from the serum gives much more saline matter than is, according to Lehman, yielded by healthy serum, consisting principally of chloride of sodium, with no carbonates. The clot is soluble in a solution of potass, not so in one of nitric acid."

He is inspired with a just indignation against the homœopaths and hydropaths, who at the present time represent the succession of various novelties which have sprung up like *fungi* on the heaps of excrementitious matter cast out from the interior of the temple of medical science, and with good reason has he closed his work with strictures on these opinions. We say, with

good reason, for a perusal of a few pages of the book is quite sufficient to prove that medicine is not, as some would endeavour to persuade the public, a system founded on authority, and supported by a confederacy of blind imitators. On the contrary, it is perpetually undergoing alterations and improvements. Medical books, which were considered standard twenty years ago, are now of little more value than so much waste paper. Those names which are still and ever must be held in the highest reverence, may remain permanently chronicled in the history of medicine, but the opinions belonging to most of them have been so shaken by fresh accumulations of experience, and so modified by observers coming on in succession, that few can be distinctly traced to their original authors. Our godlike art, deriving its origin from distinct sources in Chaldea, Egypt, and Greece, and receiving fresh accessions from all the quarters of the globe, claims both the veneration due to remote antiquity, and also has to boast of the charms of a perpetually renewing youth. No dogma is now held which has not stood the test of experience; no authority is able to shield an opinion from the perpetual stream of increasing research and improvement, which, clearing away the rubbish, purifies and manifests the truth. Thus, while medicine has been transmitted from one generation to another, the precious ore has been rendered still more splendid and valuable, while the dross has been constantly undergoing a process of comminution and decay.

True it is, the divine command has forbad man's efforts to be successful, so far as to enable him ever to arrive at the knowledge of the tree of life, but still the art of medicine has, under the divine sanction and the divine blessing, been not only an assuager of pain, and undeniably an averter of many otherwise fatal diseases, but it has also taught innumerable improvements in the economy of society, and it has been proved that, in proportion as its influence has extended, the duration of human life has been prolonged, even in some cases (as ascertained by statistical tables), to double its previous amount.

And who are they who now assail medicine, if not by open attack, which would afford an immediate opportunity of exposing their ignorance and presumption, yet by setting up an unintelligible something in opposition to it? They are lovers of the paradoxical, often the *odd fish* who float on the surface of society, and are borne along by the prevailing currents (*περιφερόμενοι παντὶ ἀνέμῳ της διδασκαλίας*); but the best and most sincere of them are those who are carried away by that leading propensity in the human mind to believe in the existence of occult qualities, that same propensity which, in former

times, introduced magic, and the doctrine of signatures, and innumerable other errors into medicine, but which she has been able to get rid of by virtue of her inherent strength and vitality. With regard to the comparatively small number of those who, within the pale of the profession, have avowedly become homœopaths, we charitably wish to draw the veil. There are some men who never had the sense of smelling, and, perhaps, the minds of some have been so constituted as to believe that two and two make five and not four. We prefer any solution rather than that which would suppose them to act under the influence of corrupt motives, and which would view them as having abandoned their convictions and denied their art, with all its weight of evidence, for the sake of a little temporary gain, and thus *propter vitam, vivendi perdere causam.* But let us hear Mr. Garner on homœopathy:—

"We do not think it contrary to nature to seek to cure disease by an open combat with it, by what Hanneman terms antagonistic measures. We apply cold to the hot head or skin in a phrensy or fever; a warm bath when the perspiration has been suppressed; we bleed in plethora or inflammation, and thus destroy the pabulum of disease; or in hemorrhage to take off, by mechanical means, the *vis a tergo;* we give an alkali by a chemical law, to neutralize the acid which may be proved to be present; purgatives in constipations; astringents in hemorrhage or diarrhœa; kousso in tape-worm,—all wrong, according to Hanneman.

"In fact, we adhere to no dogma: our remedies may be vital, chemical, or mechanical; specific, derivative, or counter-irritant; diverse enough, at any rate, to prove that we are less systematists than the homœopaths themselves; a point on which they attack us."

"According to Hanneman, all medicines must be directed solely to the symptoms, and must be of such a nature as to produce the same symptom in a healthy person. Hence we see why they find it necessary to confine themselves to the external or ultimate symptoms, for what drug will produce a hydrothorax or internal schirrus, or hydrocephalus? But without these morbid states or changes, their natural associations, functional symptoms, must be vague: a vomiting, for instance, even conjoined with headach, dyspepsia, and fever, may depend upon mischief either in the head, stomach, liver, or kidneys. And what is more, we affirm that there are no medicines known which, on the healthy individual, will be homœopathic, that is, produce the same, or similar disease. What medicine will produce a hooping-cough, or small-pox, or scrofula? Mercury, lead, arsenic, opium, quinine, strychnine, emetics, purgatives, or diuretics, though they produce effects violent enough, do not produce the exact symptoms of any disease. Were they ever supposed to do so before this new system existed?" &c.

"In one respect, only, does there appear any truth in the doc-

trine: if a medicine shows the power of acting on some particular tissue or organ, as iodine and mercury on the glands, opium on the nerves, or ipecacuanha on the stomach; such medicines will affect those parts when diseased; this peculiarity of the medicines having been always understood."

"To ascertain the 'pure' effect of doses, or what he calls their pathogenic power, Hanneman experimented on himself and certain young men: the results, besides being indelicate, are, in our opinion, curious enough to rank amongst the strangest of the German vagaries. Arnica caused 355 symptoms; amongst others, vertigo, disturbance of mind, heat in the head and pain, heat of face, contorted pupils, vomiting, tormina, convulsions, eruptions, fissures of lips, diarrhœa, dysury, &c., and cough. What disease is this? Belladonna presented 685 symptoms; mercury nearly 1000[a]; 720 symptoms have been produced by the millionth of a grain of animal charcoal; 190 by the same dose of vegetable ditto.

"This system of minute doses, to which allusion is here made, must have been intended by the high priest of homœopathy as the touchstone of his disciples' credulity. It is curious to see how the man who has ventured to disregard the labours and opinions of ages, should maintain his own infallibility in such a peremptory manner. He tells those whom he calls 'mongrels' of his school, that 'it will continue to hold good as a homœopathic-therapeutic maxim, not to be refuted by any experience in the world, that the best dose of the properly selected medicine is always the very smallest one of the high dynamizations.'"

Did he adopt this infinitesmal system out of regard for his race? or did he see in it a safe refuge for the consequences of his theory? For we may, with safety, dare the homœopaths to administer their medicines in ordinary doses; they dare not give a full dose of opium in coma, of brandy in phrenitis, of salts in dysentery, or emetic tartar in cholera.

"Hanneman chooses his medicines from their effects on healthy individuals; we, from their action on the disease which we attempt to cure. Is our plan the most senseless? Is it sure that the actions on medicines on the healthy body will continue the same when it is disturbed by a fever or inflammation? and, if changed, they are no longer homœopathic. We have seen strychnine fairly tried for thirty days on a patient, who somewhat presented the symptoms which the medicine causes, without the least effect; and M. Andral tried the effect of quinine on himself, without its producing the symptoms of intermittent fever; and the power of homœopathy on 130 or 140 hospital patients, in the presence of the homœopaths

[a] Amongst others, itching of the internal angle of the left eye, itching in a wart on the finger, repugnance for butter, obstruction of the left nostril for an hour, speedy loss of appetite by eating.

themselves, without any good result. We have tried some of his medicines in full doses—hyoscyamus and belladonna, for instance—on the healthy individual; the symptoms have been such as are commonly described, vertigo and sleep—the effects of opium—with some dryness of the mouth; but not, as the homœopaths would have them, resembling those of hydrophobia."

"We might follow Hanneman through his list of mineral remedies, his statements being still more absurd. In no case does he give an epitome or statement of the principal symptoms produced by them on a healthy or sick person. One or two, only, of the many symptoms are brought forward, and those, probably, dependent upon idiosyncrasy; and from such circumstances the virtues of the medicines are accounted for. A copper coin, once swallowed accidentally, produced an epilepsy (very probably), and hence it (salts of copper, we suppose) cures chorea. Lead produces colic and constipation, and therefore these diseases may be cured by pills of metallic lead."

"But though ordinary medical philosophers may not speculate on the fundamental nature of disease, Hanneman may do so; and his vaunted theory of chronic disease is the splendid result. All chronic maladies, he says, arise from the uncured rankling in the system of these miasms, the syphilitic, sycosis, or the condylomatous and psora, or the itch disease! Perhaps we might not be disposed to dispute the first being a fertile cause of disease; the second, it must be admitted, constitutes a remarkable discovery, the sycosis or chin welk, probably from the irritation of the razor principally; and condylomata or warts, from local irritation, having never been considered of so poisonous a nature. But, in Hanneman's words: 'Incalculably greater and more important is the chronic miasm of itch, the only real fundamental cause and producer of all the other numerous, I may say innumerable, forms of disease.' He mentions nervous debility, hysteria, hypochondriasis, mania, melancholia, also epilepsy, caries, cancer, gout, jaundice, dropsy, asthma, deafness, catarrh, amaurosis, calculus, paralysis, and a host of others which we cannot enumerate. Is it possible that a medical man could bring his mind to believe all this? Certainly psora is an 'extremely ancient infecting agent;' or, as Trinculo says, 'a very ancient' and not of the newest disorder. Is this to continue the great, the sole discovery, for which we are indebted to the homœopathists?"

"If we add, in few words, that it is, perhaps, not certain that nitric acid will produce or cure salivation and ulceration of the mouth; still less so that potass will cause or cure tetanus; arsenic, cancer; or tin, phthisis; and that it is not proven that a bath of 100 degrees is good in the hot stage of the fever, or hot fomentations in cephalitis,—we have given an answer, we believe, to all the cases brought forward in the 'Organon' as proofs of the doctrine."

"And now for Hanneman's pharmacy. Two drops of the fresh vegetable juice (of a medicinal herb), mingled with equal parts of alcohol, are diluted with ninety-eight drops of alcohol, and potentized

by means of two succussions, whereby the first development of power is formed, and this process is repeated through twenty-nine more phials, each of which is filled three-quarters full with ninety-nine drops of alcohol, and each succeeding phial is to be provided with one drop from the preceding one, and is, in its turn, twice shaken; at last the thirtieth development of power (potentized decillionth dilution[a]) is obtained, which is the one most generally used. Powders are to be potentized by trituration, for three hours, up to the millionfold pulverulent attenuation; and of this one grain is to be dissolved, and brought to the thirtieth development of power, by means of twenty-seven attenuating phials, in the same manner as the vegetable juices."

"The above succussions and triturations form an important part of Hanneman's pharmacy. Arguing against certain disciples who carried their physic in their pocket, and thereby dangerously potentized their drugs, he observes:—'I dissolved a grain of soda in an ounce of water, mixed with alcohol, in a phial which was thereby filled two-thirds full, and shook this solution continually for half an hour; and this was a dynamization and energy equal to the thirtieth development of power'"[b].

We believe that if Hanneman had been a native of England, and had, after arriving at years of discretion, published or spoken the nonsense we have now quoted, he would have been sent to an asylum. But he was a German, and his brethren are often glad to lay aside their meerschaum pipes to listen to anything new. In Paris, where he spent the latter years of his life, an absurdity so great that no one had ever thought of it before was a treat of the first order; and its being contradicted by all the previous experience of mankind made it peculiarly attractive to those who, to use the simile of Dr. Johnson, had grown tired of milking the cow, and now went out to milk the bull. In the meantime, the neat appearance of the globules, so methodically disposed in the *dear little* glass tubes, and the precise directions of the formularies, rendering medicine plain to the meanest capacity, contrasted with the horror inspired by the bulky and nauseous compounds whereby alone the great body of English practitioners can obtain remuneration for their services: all these things combined in gaining an entrance for it amongst many circles of the upper classes in this country. It is, therefore, with pleasure that we have extracted the foregoing passages from Mr. Garner's book, because many

[a] A decillion is the number 1 with sixty ciphers.

[b] As if Hanneman had not already gone far enough, in the latter part of his life he discarded the swallowing of his globules altogether. The patients were to take one or two sniffs or smells, with one or both nostrils, at a globule of sugar moistened with the potentized solution, or at one or two dissolved in half an ounce of liquid.

practitioners in the country being liable to cross-examinations, if not direct persecutions, from homœopathists, may wish to know some of the details respecting it, without having to throw away their money in buying any of the books devoted to the propagation of such miserable foolery.

These, then, are specimens of Mr. Garner's work. It is not only full of matter, but on most of the many subjects it embraces there is suggested to the mind of the attentive reader an under current of thought, imparting an additional value to the text. The plates of the comparative anatomy of the nerves are distinct and instructive; and the classical vignettes prefixed to each chapter are illustrative of the profound and scholar-like spirit in which the whole work has been conceived and executed.

The Brain in relation to the Mind. By JOSEPH SWAN. London: Longmans. 1855. 8vo, pp. 113.

THE name of Dr. Swan is already so well and favourably known to the profession, through his several invaluable contributions to their knowledge of the nervous system, that the appearance of a new work from his pen at once leads to the anticipation of further additions to the information we possess on so important a branch of anatomical science. Taking, however, a step in advance, Dr. Swan in the present volume essays a much more difficult and far abstruser study than that involving merely organic relations—the ultimate ramifications of nervous fibrilli, or the juxtaposition of neurine particles,—for the elucidation of such phenomena as are possibly explicable by the laws of mechanical communication. "The brain in relation to the mind" comes now under his scrutiny. Had Dr. Swan sought from the whole range of his vast physiological experience some subject which more than any other was involved in profound difficulties, he could not have selected other than that he has chosen. We have read his work with close atttention, and have risen from its perusal more than ever impressed with the profound mystery of the connexion its pages were intended to demonstrate. We do not by this assertion for one moment wish to detract from the great merit of the author's present volume, or by one iota to lessen that praise which so much painstaking thought is entitled to; but the truth is, on one side we have an indefinite, unknown, variable element; on the other, a positive, and, to but a certain extent, a known instrument, whose *modus operandi* we seek to determine from an analysis of effects

which we, at best, can but presume to indicate the mutual reaction. In the first chapter of Dr. Swan's work we read as follows:—

"There are precise modes in which the brain favours the action of the mind. In thinking, there is a moderate activity of the cerebral structure, but a subdued or quiet condition of the external organs of sense and motion, that the entire energies may be concentrated on the subject under consideration. This exclusive state is changed if mechanical powers are used at the same time, such as writing or speaking; there is then a somewhat divided attention, or a modified activity of each process. The most gentle use of the will changes the quiet state of the mind, and imparts activity for enabling it to complete the act of thinking. The more energetic exercise of the will, in the production of powerful muscular motions, leaves very little liberty to the intellectual faculties. The processes of thinking and remembering are as much acts of the will as those which produce the motions of the muscles."

We read further:—

"There is a great variety of ways of storing the mind with knowledge: some of them depend on the mode of education, and some on the great natural powers of the brain and mind. Some persons, by their power of thinking and memory, can prepare and fix in the brain larger deposits of information, and bring them forth with order and precision by writing or speaking; others are obliged to write them quickly, as they would not be retained for being sufficiently matured and combined, but must be written, and afterwards arranged and connected. There is a peculiarity of expression in some, arising from the quality of the intellect, or brain, or external senses, or from education or locality."

Who can determine "the most gentle use of the will," or yet measure its more energetic exercises? Whence proceeds the difference in the quality of the intellect, or brain, or external senses? Education acts on them; they modify education. In what does their relation rest? We confess at once, we know not.

The second and third chapters of Dr. Swan's work are devoted to the investigation of "letters and words;" "speech, writing, and calculations, as expressions of the mind." We quote the author's words in reference to these relations:—

"Everything to be admitted by the senses must have some form when it is presented to them, otherwise it would convey only a general perception, however subtle or exalted its power. The spiritual mind would have been useless in the body, unless it had been capable of being approached by, or of approaching, the various parts through proper modes of communication. The mind can therefore

only instruct, or be instructed, through the brain, which is to be in its immediate presence; or through the nerves, which are to lead to or from it; or through the organs qualified for preparing material things for its reception and notice, or for carrying on its commands. It is in this manner, only, that the intellect can be formed and made capable of controlling the muscles and limbs."

Alluding to the form of the handwriting as indicative of the character of the mind, Dr. Swan writes:—

"It—the hand-writing—has been frequently looked upon as denoting the character of the mind: it may be so in some degree, but not by any means so frequently as to lead to any correct judgment. It is the completion of mental operations by one means, and the fibres of the brain which are concerned in the mental acts are continued into those fibres which lead to the head for its accomplishment; it is, therefore, one of the assistants of the mind, but is related to it more by the import of the words it delineates, than by the form of the letters."

As the gullibility of the public at present yields a large income to "Professors" who furnish both the simple-minded and curious with written characters derived from their penmanship, we have given Dr. Swan's opinion of the credit which such productions deserve.

In the fifth chapter, or that which treats of the different conditions of the brain for co-operating with the mind, we read:—

"The power of making acquirements varies very much in different persons; a circumstance ascribed to the larger or smaller proportions of particular parts of the brain. When the brain is very contracted, such a reason may be valid, but it is oftener to be attributed to a defect in education. A large brain is generally considered to be favourable to the extension of the intellectual faculties, but a small brain has also been found capable of promoting high attainments. The difference may depend on the quantity of the fibres; but the small brain, without any difference of composition, may, through assiduous study, have been sufficient for allowing a great extent of knowledge, and as much as is usually reached by a larger brain, which is seldom exercised to its utmost limits."

Every step which we take in the demonstrative application of our anatomical and physiological knowledge, for the explanation of mental processes, is thus circumscribed by an invisible barrier, at which we must pause and reflect. We come to possible or probable causes; we twist, contort, and apply them, and are met with some new difficulty at each turn, and finally rest satisfied with the conviction that our useful experience must result from observation rather than be guided by

theory; which conclusion satisfies our requirements for the practical purposes of life.

We might enlarge our quotations from Dr. Swan's excellent work, which affords much room for reflection, and indicates, on the part of its author, careful thought. Each one of the thirteen chapters which it contains might form the ground of a lengthened essay. We shall, however, rest satisfied with heartily recommending it as setting forth much valuable knowledge of nervous relations, even though it has failed to convince us of the simplicity or uniformity of those operations which the author's profound knowledge of the cerebral structures and nervous instruments have led him to therein promulgate.

The Quarterly Journal of Public Health and Record of Medicine; including the Transactions of the Epidemiological Society of London. Edited by Dr. B. W. Richardson. London: Highley. No. I. March, 1855.

In this utilitarian age, when public health and public wealth are justly regarded as synonymous terms; when human ingenuity is strained to the uttermost for the maintenance of individual prosperity and national greatness; and yet when, in spite of such a spirit being aroused, so many proofs of the sad and lamentable consequences resulting from ignorance, incapacity, or negligence, exist:—a new periodical is offered to the public, in which the ability and experience of those most competent to direct, and equally anxious to instruct, may be rendered available to the general community, and to the medical profession in particular, in whose hands more especially so much of what is essential, not only for individual safety, but, as recent circumstances have too sadly demonstrated, for national honour, rests. We welcome with acclamation the "Quarterly Journal of Public Health." It has sprung from the necessity of the times. At no period of the world's history was it more essential that those in high places, and those around us, should be assured of the great truth, that "unity is strength,"—that, unless the several elements constituting power be preserved in their fullest integrity, when the hour of trial comes, disappointment, disgrace, and death, must be the result.

It is a fact that cannot be too strongly impressed on the minds of all, that hygienic measures have a direct as well as remote influence on each. The thunder of cannon, the ring of the rifle, the glitter of flashing steel, deal death and destruction

around. Men, eager for the subjugation of their fellows, rush in mortal fray together; thousands strew the battle plain, where victory and valour, when the fight is done, sit weeping for all who have parted their lives nobly and well. Public monuments attest the fall, and national tears water the tomb, of those who sleep a soldier's sleep, and find a hero's grave. There is, however, in the hour of triumph, a spy which steals amongst the ranks to open a way for the secret foe; an enemy which seizes the strong man in his day of might, and withers the laurel round the victor's brow: DISEASE, with silent, stealthy step, cometh on the wings of the wind; now walking on the earth, and again flying through the air, its power is felt, not seen. The stalwart form bends weak and low; the brilliant eye wanes faint and dim; the noble heart in anguish throbs, as feeble notes falling from the parched tongue murmur through the thinning ranks, "Here is an enemy greater than the sword." To arouse public attention to this dread fact, to instruct, assist, advise, is the object of the present publication. We have heard too much of "sad occurrences," "unforeseen circumstances," "lamentable visitations," on the part of those who "make their fortunes, and then rail at fate." We bow, in all submission, to the inscrutable hand of an overruling Providence; but we contend that, because events are so permitted, man must not be excused for neglecting those several remedies which the same power, inflicting such tribulation, places at his disposal for their limitation and relief.

We need only refer to the Transactions of the London Board of Health, and the Dublin Sanitary Association, for ample proof of what mighty results may be accomplished by bringing science and energy to bear on sanitary reform. In our own city, more especially, we had a merciful exemplification of the benefit to be derived from the anxious scrutiny and removal of causes known to operate favourably for the propagation and extension of epidemical disease. Providence blessed the means employed, and we were spared a renewal of previous miseries. With facts of this nature open to all, why is it that efforts directed to such an end should ever be relaxed? Simply, because it seems to be an idiosyncrasy of the public constitution that when danger is past, when the alarm is gone by, when safety is apparent around, that their efforts cease to be exercised, their attention becomes withdrawn, their trust in the future unlimited, and their rule of faith reduced to that much misapplied motto: "Sufficient unto the day is the evil thereof." With the object of preventing a recurrence of and removing the condition induced by this state of the public mind, "The Journal of Public Health" has

been originated. Is it, or is it not, a valuable record? Will it, or will it not, be a matter of national importance that it be maintained; that those who have special opportunities of forwarding its views, contributing to its pages, and extending its use, may find in the general recognition of their labours fresh motives for exertion? The answer to this question rests with the several corporate bodies, sanitary associations, and philanthropic societies throughout this and the sister country; with those, in fact, on whom devolves the responsibility of guarding and guiding the public safety!

We have, in a recent Number of our Journal, noticed an able and valuable communication, having reference to the sewage of cities, from the pen of Dr. Charles Moore, who brought to bear on this question a large practical experience and close observation of disease, acquired both abroad and at home. We have also, throughout our pages, and when opportunity prominently offered, impressed the necessity of cultivating this important subject, and willingly lent ourselves to the record of those measures which might be advisable for such an end; more than this the character of our Journal would scarcely permit. We trust, however, that now we shall find our readers, from the pages of our contemporary, fully supplied with information on those points which, though less available for the treatment of individual cases of disease, are not of less importance in their application to the question of human suffering in the aggregate.

The Journal before us numbers among its contributors men of known scientific character and great practical knowledge. The original communications in this, the first Number, are remarkable for their earnestness in the cause of sanitary reform; they include articles on the "Sanitary and Social Condition of the English Poor," "Short Notes on some of the Details of Sanitary Police," "Hygienic Rules for the Preservation of Health in Western Africa, and other Tropical Climates," and "The Scientific Investigation of Sanitary Questions." The specialty of their object is steadfastly maintained, and the several questions they discuss ably and pointedly argued.

The review department shows evidence of a candid and encouraging spirit, that wishes to foster, not crush; to reform, rather than rebuke. While such continues to be its character, from our pages it shall not fail to receive the warmest support.

A separate section is devoted to the consideration of the progress of epidemics. The necessity for some careful record and investigation of those mysterious visitations has already, in

former pages of this Journal, been fully dwelt on; much time, anxiety, and labour, having been expended in furnishing the Irish profession with the details of the epidemics which, in the year 1848 and 1849, proved so fatal in this country, and was also generally experienced throughout Europe.

In the section devoted to local reports of epidemic and endemic diseases much important and valuable information is afforded, and statistical tables set forward of the nature, termination, and locality of several diseases. The section of sanitary and social science is equally worthy our commendation. In matters of this nature we are proud to say the Irish medical school has already made worthy progress. We have but to refer to that part, No. 3, of the Irish Census for the year 1851, where under the "Report on the Status of Disease," an amount of statistical medical knowledge is offered of which, without fear of contradiction, we affirm no parallel exists. From such great, comprehensive, and truthful tables, general rules can be alone adduced, whose special application is thenceforth a question for those acquainted with the particular circumstances of any given locality. The pages of this "Journal of Public Health" will, we trust, become the means of communication for similar formulæ from different districts, so that from their general analysis even more extended views may be acquired. In asserting for our city the first step in this direction, we but claim to be considered as pioneers in a great important public movement, which may afford materials for thinking, and rules for action, to those placed in authority over us, and we do so, confident that they will receive that care which the greatness of the interests involved demand.

A Practical Treatise on Foreign Bodies in the Air-Passages, with Illustrations. By S. D. Gross, M. D., Professor of Surgery in the University of Louisville. Philadelphia: Blanchard and Lea. 8vo, pp. 468.

Apart from a little gasconade, which we believe to be indigenous to the Transatlantic soil, Dr. Gross has written a very useful book, and supplied a desideratum long required. The volume before us contains an accurate record of no less than two hundred cases of foreign bodies in the air-passages, and fifty of these are here published for the first time; the entire collected, arranged, analyzed, and tabulated, with great pains, and undoubtedly much labour in collection, scattered as they are through a vast mass of periodical literature. The author

has, notwithstanding, accomplished his task most creditably, and produced a highly valuable book of reference on a most important subject in the practice of medicine.

The work commences with a catalogue of substances which have been found in the air-passages—a most curious and diversified list, divided into three classes, as they are derived from the vegetable, the animal, and the mineral kingdom. The following constitute a few from each division:—

1. From the Vegetable Kingdom. Beans of almost every description; the seeds and stones of fruit; acorns, pills, pieces of bread, of carrots, of cabbages, of ginger, of mushrooms, of walnut-shells, of potatoes, of nutmegs, of sealing-wax; linen; ears of grass, rye, and barley; gum-elastic pipe stems; the wooden stopper of an inkstand, the berry of the bladder-senna, charcoal, fiddle-peg, threads, locks of tow, leaves, &c.

2. From the Animal Kingdom. Bits of hard-boiled egg, beef, veal, cartilage, tendon and bone, clots of blood, flies, millipeds, leeches, worms, fish, lobster-claws, mussel-shell, quills, button foils, worsted yarn, locks of wool, cloth, and teeth—natural and artificial, human and animal.

3. From the Mineral Kingdom. Buttons, button-moulds, pins, needles, shot, bullets, marbles, different kinds of coin, pebbles, slate, jewels, glass, delft, carpet-tacks, brass nails, horseshoe nails, glass beads, pipe stems, dress hooks, ring of a watch-chain, silver tube, screw nails, and porcelain teeth. This is a motley collection, no doubt, but it serves to prove what has been long since remarked and explained by the late Dr. Houston, of this city, that bodies the most unlikely from their size and shape to pass through the rima glottidis have, nevertheless, found admission into the air-tubes; while there, it appears they undergo little change, if we except those substances which are capable of imbibing moisture. This fact is strongly attested by the very remarkable case recorded by Dr. Hughes among the original communications in our present Number, where a fish-bone, although remaining in the bronchial tube or lungs for fifteen weeks, had undergone not the least alteration in character or structure; and Dr. Gross commenting on a case under the care of Mr. J. G. Forbes, in which an operation was decided against on the ground, among others, that if the offending substance was a piece of gristle it might be softened and coughed up, says, *more Americano*, "we might as well wait for the softening and disintegration of the rock of Gibraltar by the waters of the Atlantic and Mediterranean, as for the softening of a persimmon stone and a piece of gristle by the heat and moisture of the air-passages."

The situation of foreign bodies in the air-tubes will greatly depend on their size, shape, and weight. In order to determine as far as possible their relative frequency in different portions of the air-passages, Dr. Gross analyzed the cases reported in this work, and found that the number of cases of death, without operation and without expulsion of the foreign body, was 21. In these the substance was situated in 11 in the right bronchus; in 4 in the larynx; in 3 in the trachea; in 1 partly in the trachea and larynx; in 1 in the lung; and in 1 in the right thoracic cavity. *In not a single instance did it occupy the left bronchial tube.* In 34 cases subjected to operation or general treatment, the extraneous substance was situated twice positively and eleven times probably in the right bronchial tube; four times certainly and four times probably in the left bronchial tube; seven times in the trachea, and fourteen times in the larynx. In two of the above cases a careful examination of the chest during life rendered it evident that the foreign substance, although found in the left bronchial tube after death, occupied the right bronchial tube during the greater portion of the time which intervened between the occurrence of the accident and that event.

This tendency of foreign bodies to pass to the right side is most striking, and, as originally remarked by Dr. Stokes[a], and again referred to by Dr. Hughes, principally if not altogether occasioned by a peculiar anatomical arrangement of the mucous membrane at the bifurcation. Just at the junction of the two bronchial tubes the lining membrane forms a septum, spur, or ridge, which is situated, not exactly in the median plane, but evidently to the left of it. Hence, a body of any considerable bulk, after it passes the larynx, will be very likely, by striking this septum, to be pushed over to the right side, and its entrance into the corresponding tube is still further favoured by its greater diameter.

In the next section the author cites some cases to show that foreign bodies may enter the air-passages by other avenues than the glottis. The first is one by La Martiniére, in which a boy, aged ten years, was amusing himself by cracking a whip which had a pin tied to the extremity of the lash; the pin, fifteen lines in length, entered the neck just below the cricoid cartilage, traversed the trachea from right to left, and even pierced its posterior wall; as also another, which occurred to a patient who applied at the Middlesex Hospital, complaining that soon after his dinner he felt something in his throat. He was examined, but

[a] On Diseases of the Chest, vol. i. p. 271.

nothing was detected. A tube was passed into the stomach, and a quantity of mutton broth, which he had for dinner, was brought up; five days after, he died, and on dissection, a portion of the vertebra of a sheep was found to have made its way, by ulceration, from the pharynx to the lower part of the trachea.

The immediate effect of the introduction of a foreign body into the larynx or trachea, is suffocation, if the substance be of sufficient size to completely obstruct the passages of air; but fatal effects are occasionally produced by the impaction of foreign bodies in the pharynx and œsophagus. Two circumstances may induce these effects: mechanical occlusion, and spasm of the glottis. The celebrated case of Habicot is cited in illustration.

A lad, aged 14, swallowed nine pistoles wrapped up in a piece of cloth, in order to hide them from thieves. The packet being too large to pass the œsophagus, lodged in the narrow part of the pharynx, where, by its pressure on the windpipe, it produced the most intense distress, attended with a sense of suffocation, and a livid and swollen state of the face and neck. Bronchotomy was performed with great relief; but the coins had to be pushed into the stomach, from whence they descended into the bowels, and were discharged at different times from the anus.

The third chapter treats of the *pathological* effects of foreign bodies. The most common, as might be expected, is inflammation of the mucous membrane, either partial or diffused, producing an effusion of coagulable lymph, or softening of its texture, and even ulceration, usually of small extent, and limited to the parts in contact with the foreign substance. The lungs also are liable to become inflamed, and abscesses to form where a foreign body is long retained in the bronchial tubes; and this continued retention induces the deposition of tubercular matter. Œdema of the larynx, pulmonary emphysema, enlargement of the bronchial lymphatic glands, and pleuritis, are also observed after the accident; and it is curious that those pathological changes may all occur where the obstruction takes place, not in the bronchial tubes or the lungs, but in the larynx or upper portion of the trachea. The heart and pericardium, and also the liver, have been implicated.

These are the principal effects of the intromission of foreign bodies into the air-tubes; and we next come to a description of the symptoms they occasion, which may be divided into those occurring at the moment of introduction, and into those which arise in consequence of their sojourn there.

"In the great majority of instances, the moment a foreign body enters the air-passages the patient is seized with a feeling of annihilation; he gasps for breath; looks wildly around him; coughs violently, and almost loses his consciousness. His countenance immediately becomes livid; the eyes protrude from their sockets; the body is contorted in every possible manner, and froth and sometimes blood, issues from the mouth and nose. Sometimes he grasps his throat and utters the most distressing cries; the heart's action is greatly disturbed, and not unfrequently the individual falls down in a state of insensibility, unable to execute a single voluntary function. Sometimes a disposition to vomit, or actual vomiting occurs, immediately after the accident, especially if it take place after a heavy meal. In some instances, again, there is an involuntary discharge of fæces, and even of urine. Several instances are mentioned in which the patients threw up a considerable quantity of blood during the violent coughing, immediately consequent upon the accident.

"The duration of the paroxysm varies from a few seconds to several minutes, or in some cases even to several hours; and the calm which ensues after the first paroxyms have passed away varies very much in its duration. Occasionally it lasts for many hours, or, perhaps, even for a whole day and night, but generally it is comparatively short, not exceeding fifteen, twenty, or thirty minutes. The paroxysm then recurs, and after having continued a few seconds, probably with great violence, the parts become again tranquil; however, to be excited again into action by the irritation of the extraneous substance."

The foregoing is a very full and graphic description of the symptoms following the entrance of a foreign body into the windpipe in a well-marked case; but they do not occur with any regularity, and in many instances their appearance is postponed for months or years, and sometimes they are not present at all. We could quote many instances in support of this fact, which we are certain must be familiar to most of our readers.

Dr. Gross next considers in detail the symptoms denoting the *secondary* affections caused by the retention of the foreign body, and he dwells particularly on the character of the cough, which is usually spasmodic; sometimes mild, at other times severe, frequently accompanied by a sense of tickling in the throat, with more or less soreness, and even pain, in the respiratory tubes, and at the top of the sternum,—in one case it resembled the click of a valve, in another the barking of a fox. Sometimes it is of a croupy character; and when this peculiarity is present, it renders the diagnosis between that disease and the existence of a foreign body very difficult.

The cough is occasionally influenced by position. A patient may be perfectly free while he is sitting up or lying down,

but when he rises or moves his body, he is seized with a paroxysm.

The state of the voice is not of very great import; in most instances it is unaffected. But cases have occurred in which, in consequence of the morbid action produced by the foreign body, it is, as it were, cracked or broken; sometimes it is reduced to a mere whisper; and rarely it is altogether extinct.

Flapping noise (*bruit de soupape?*), expectoration, discharge of blood, are enumerated as belonging to the accident, but they are in no way characteristic of it; we therefore pass them by; and when we examine the next symptom, *pain*, we find it to be exceedingly variable, and not always to follow the introduction of a foreign body into the air-passages. When it is present it varies very much in degree and character. It may be sharp and pricking, or dull, heavy, and aching; and is aggravated by coughing, or the slightest change in the situation of the foreign body. It may be limited and fixed at one spot, more especially when the foreign body is impacted or immovable; or it may pervade the trachea, larynx, bronchial tubes, and even the lungs. The pain, as a general rule, will be greater when the foreign substance is large and rough than when it is smooth and small; and instead of pain, we have sometimes soreness occurring at various points of the respiratory apparatus.

The phenomena of respiration are exceedingly interesting. When a foreign body lies in the bronchial tube, of such a size as almost completely to fill it up, the patient can freely inspire through the sound side; but he finds it almost impossible to expire. Every attempt to expel the air from the obstructed lung is attended with great suffering, and a feeling of exhaustion. If, under these circumstances, we make a physical examination of the chest, we find both sides equally clear; while there is an absence of the respiratory murmur on the affected side, and puerile respiration on the other.

This condition, of course, lasts only a short time; we soon have engorgement of the pulmonary tissue, followed by inflammation and its signs.

The position which a patient with a foreign body in the air-tubes assumes is very peculiar. As a general rule, he finds it most comfortable to maintain the erect or semi-erect posture. As soon as he attempts to lie down he is seized with an increase in the embarrassment of breathing, with a disposition to cough, and a feeling of suffocation. During sleep he is, consequently, obliged to be propped up in bed, and not unfrequently he is compelled to take what sleep he may be able to obtain in a

chair; sometimes he rests best on his back, and sometimes again upon one side.

Emphysema, a symptom first noticed by Louis, is a very rare occurrence, and the general health is variously affected; sometimes slightly, sometimes severely, and sometimes again not at all.

In the chapter on *diagnosis* the author laments the uncertainty appertaining to this subject. He urges the early and careful investigation of each case, and says:—

"The rule is to act in the most prompt and efficient manner on the well-known principle, that although the foreign body may not immediately prove fatal, yet the longer it is retained in the parts the greater will be the probability that it will ultimately destroy the patient, by keeping up an amount of irritation, the effects of which the respiratory apparatus, and the system at large, cannot permanently resist."

He continues:—

"Those accidents most frequently occur in infants and children, who can but ill express their feelings; and hence one of the first duties, on the part of the practitioner, is to inquire most carefully and circumstantially into the history of every case that is brought before him. Very frequently some time elapses before he can reach his patient, and when he does he finds him acting and feeling as if nothing had taken place. These are the very cases in which the professional attendant allows his mind to be lulled into a state of security, no less injurious to himself than destructive to his patient. It is generally different with adults, who are usually conscious of the time and manner of such accidents, and give a correct account of them."

With these general observations, and some remarks on the differential diagnosis between the intromission of a foreign body and hooping-cough, spasm of the glottis, the pressure of an aneurismal tumour, the irritation of worms in the alimentary canal, and the impaction of extraneous substances in the pharynx and œsophagus, which are obvious enough to all practical men,—Dr. Gross next discusses "the diagnosis of foreign bodies in the larynx;" and, after admitting the difficulty of determining the precise situation of a foreign body in the air-passages, he relates sixteen cases bearing on this point, and concludes, as a general rule, that whenever there is aphonia, whether partial or complete, the foreign substance is situated in the larynx, —this is, he says, certainly the case, if conjoined with this symptom there is pain, soreness, or uneasiness in the region of the larynx, along with dyspnœa, a whistling sound in respiration, absence of serious disease in the bronchial tubes and lungs,

and inability, on the part of the observer, to perceive the offending body moving up and down the trachea.

But when a foreign body descends below the larynx, it is usually arrested in one of the bronchial tubes, most frequently the right. When this is the case, the signs characteristic of its presence are, clearness on percussion and diminished respiratory murmur on the affected side. Both these signs vary in degree, and are proportionate to the amount of pulmonary obstruction; but in most instances, the respiratory murmur is only somewhat lessened in intensity because a certain quantity of air still enters the lung by the side of the foreign body. The next symptom, long since noticed by Burns, is the tendency which foreign bodies of a smooth rounded shape have to play up and down the trachea, either accompanying the respiration or in consequence of severe fits of coughing. In many cases the patient is not only conscious of this movement by the peculiar sensation which it produces, but it can be even felt and heard. Mr. Fergusson perceived the impulse which a plum-stone in the trachea gave when a patient coughed, and the existence of the substance was even more satisfactorily determined in this way than by auscultation. The *noise* produced by a foreign body, or rather by the air, as it rushes past it, is so peculiar, that it may be regarded as pathognomonic of the nature of the accident; and in illustration of this subject, Dr. Gross refers to the cases of Mr. Macnamara, recorded in the fifth volume of the Dublin Hospital Reports, in which this peculiar "ronflement" was heard on applying the stethoscope to the trachea. "The flapping noise" described by the late Mr. Bransby B. Cooper, Dr. Gross does not recollect to have noticed, nor does he think it of general or frequent occurrence, hence, he is not inclined to place any confidence in it as a diagnostic sign.

This portion of the volume concludes with a brief notice of Mr. Hawkins' case; from which, and others quoted by him, Mr. Hawkins endeavoured to prove, that when an extraneous body is lodged high in the trachea, or partly in the trachea and partly in the larynx, the nature of the affection will be evinced by the entire absence of cough, by the integrity of the voice, by the constant whistling sound in respiration; by the fixed soreness, pain, or uneasiness at the seat of the obstruction; and by the ability of the patient to laugh, speak, and eat, as if nothing happened. Dr. Gross neither contradicts nor confirms Mr. Hawkins' views, but remarks they are entitled to attentive consideration, and their value must be determined by future observation.

We have now given a full analysis of what we consider the most useful portion of Dr. Gross' work, namely, the mode of admission, the pathology, symptoms, and diagnosis, of foreign bodies in the air-passages; and, notwithstanding the great care and labour he and others have bestowed on the latter part of the subject, we must admit it is still involved in great difficulty and uncertainty. It is true, that the presence of foreign bodies, of such a size and form as to cause complete obstruction to the entrance of air into one side of the chest, is easily recognised, and also that of bodies which are capable of moving with the respiration. But there is another class of substances, whose existence and situation in the air-passages it is most difficult to determine, namely, those of slender form and pointed extremities, which create little obstruction to the respiration, and whose symptoms are easily confounded with those of simple irritation and inflammation of the mucous membrane. Nothing, in our mind, is likely to clear this obscurity save a minute inquiry into the early history of each case, with a view to its correct diagnosis and successful treatment. Signs and symptoms are variable, often transitory, and of themselves insufficient to declare the presence of foreign bodies such as we have last described. The early history, then,—and we are glad to find Dr. Gross lays considerable stress on this point,—appears to us a most important item in the case, and every endeavour should be made to obtain it. Taking it in connexion with the symptoms and physical signs, we shall (save in very rare instances) be able to arrive at a just and proper conclusion; without it, we must be likely to fall into error.

Of the remaining portion of this Treatise we do not purpose giving any minute analysis, although it contains Tables constructed with great care, and the reports of numerous cases highly interesting and instructive. We can only glance at the substance of each chapter. The first Table consists of forty-nine cases of spontaneous expulsion, followed by recovery; and of it we can only say, it is very curious, but we opine no patient nor practitioner of the present day would remain inactive and wait for this favourable result. That such an event may occur, is, however, worth knowing. Eight cases are recorded in which death followed the expulsion of the foreign body.

Chapters VII. and VIII. contain the medical treatment: consisting of:—Emetics, with a Table showing how they succeeded in three cases and failed in forty-six. In some of the latter their exhibition was not only prejudicial, but even dangerous, as the patients appeared nearly suffocated from the

foreign body being forcibly impelled against the larynx in the act of vomiting. Sternutatories,—which have been almost invariably unsuccessful. Inhalation of iodine, tried only in one case by Mr. Day, and with success. The first inhalation, which was rather strong, was continued for five minutes, and produced violent coughing and nausea. The operation was repeated during the same evening, and in the paroxysm induced by it the foreign body, the vertebra of a fish, was ejected from the windpipe, where it had lain for six years. Antiphlogistic means,—which should be employed in all cases, and inversion of the body, either with or without bronchotomy.

Chapter IX. is devoted to the surgical treatment; and on this subject Dr. Gross' opinion coincides with that of all practical surgeons of the present day:—

"The proper practice," he says, "is in all cases, without exception, to perform bronchotomy as soon as possible after the occurrence of the accident: the artificial aperture effectually prevents spasm of the muscles of the larynx, and thus enables the patient to breathe with greater freedom, at the same time that it permits the foreign body, if it do not escape at once, to play up and down the air-tubes with comparative impunity."

After considering the anatomy and physiology of the parts, and reviewing the history of bronchotomy, Dr. Gross compares the difficulty of laryngotomy with tracheotomy. He considers the former very simple and easy, the latter often very difficult, more especially in children; yet, owing to the uncertainty of the diagnosis of foreign bodies in the larynx, that portion of the tube should seldom be opened if it be possible to employ tracheotomy. He says:—

"The latter operation, although much more difficult, has the advantage in many instances of enabling the lungs to expel the offending substance, however high it may be situated, and of affording the surgeon ample opportunity of dislodging it with his mop and other instruments when it occupies the larynx."

In performing the operation of bronchotomy, Dr. Gross does not think it can be necessary to divide the thyroid cartilage in its entire length; neither does he think it advisable in any case to widen the wound in the trachea by excising a portion of its edges, so as to impart to it an elliptical form. He considers it objectional to use a canula after the operation; *and he would not omit the administration of chloroform in any case.* The difficulties of the operation of bronchotomy, the extraction of the foreign body, and the instruments used for these

purposes (of which representations are given), are very fully discussed, and will well repay an attentive perusal.

The remainder of the book, and not the least important part of it, is devoted to the Tables and narratives of the cases which had undergone the different operations, followed by the expulsion of the foreign body and the recovery or death of the patient. 13 cases of successful laryngotomy are recorded; 60 of tracheotomy, and only 8 in which this latter operation was followed by death. Laryngo-tracheotomy was performed successfully 10 times, and in 3 cases it was followed by death. Bronchotomy was repeated in 3 cases, and 3 times in one of them,—of these 3 cases 1 only was followed by recovery. This portion of Dr. Gross' volume displays most extensive research, and as a work of reference on so important a subject, we consider it essential to the practitioner. The woodcuts are excellent; the index is full; and altogether the book is well got up. We conclude by recommending it to our readers, fully persuaded that its perusal will afford them much practical information, well conveyed, evidently derived from considerable experience, and deduced from an ample collection of facts.

Food and its Adulterations: comprising the Reports of the Analytical Sanitary Commission of the Lancet, for the years 1851 *to* 1854 *inclusive, revised and extended: being Records of the Results of some Thousands of Original Microscopical and Chemical Analyses of the Solids and Fluids consumed by all Classes of the Public; and containing the Names and Addresses of the various Merchants, Manufacturers, and Tradesmen, of whom the Analyzed Articles were purchased.* By A. H. Hassall, M. D., &c., Chief Analyst of the Commission. Illustrated by 159 Engravings, showing the intimate Structure of the greater number of the Vegetable Substances employed as Articles of Food; also the majority of the Substances used for Adulteration. London: Longman, Brown, Green, and Longmans. 1855. 8vo, pp. 659.

In France any movement made for the improvement of the sanitary condition of the people, whether it be to guard against the adulteration of articles of food daily consumed, or to afford pure air and free ventilation, or to give protection against the frauds practised in the sophistication of medicines, always originates with the Government of the country. In the British islands and their dependencies, just the opposite course is followed; our legislators thinking it, we suppose, beneath their

dignity to notice or be guided by the Roman adage—*salus populi suprema lex*,—leave everything connected with the public health to private enterprise; and although after the lapse of many years, some little may be done with parliamentary sanction, it is done invariably in a niggardly and grudging spirit. Thus fraud and quackery flourish; every man is supposed to be the best judge of how to manage his own health; and no protection being afforded directly by law against the grossest adulterations of what we eat and drink, the seller is exposed to a temptation which, more than all others, encourages crime, that of escaping punishment even if perchance detected, and the buyer to the almost certain chance of obtaining unwholesome, nay, often poisonous food. These remarks apply equally to nearly every article of the Materia Medica, on the goodness of quality of which the public may be said to depend for restoration to health when in a state of illness. What is the advantage to the physician, that the many splendid text-books on Materia Medica in the English language abound in illustrations of the varied sophistications practised on drugs and medicines, with explicit and certain rules for their discovery, if the law affords him no protection in the case of his detection of those adulterations having been practised? How long will the English people permit their health as well as their patience to be abused by this carelessness for their welfare on the part of those in power? How long will the members of our Houses of Paliament suffer themselves to be set aside with the laugh or sneer of a British minister, to be told, as they were by Sir James Graham, when such matters were pressed on the Government some years since, of the soundness of the rule,—*caveat emptor*,—and that—

> "The pleasure of being cheated
> Is as great as 'tis to cheat."

We are just now on terms of the greatest amity with the French nation. It was ever the fashion to decry their military education, their attention to what we considered the lesser accessaries of warfare; yet a very short experience on the field showed us the value of this attention to such minutiæ, and we are now gladly endeavouring to adopt them: nay, a commission has even been sent to France to obtain information as to how the military medical department is there managed, and what renders it so superior to our own; why not also send a commission to inquire into the regulations of the Government of that country, which have been in active operation for many years, against the adulteration of food and medicine?

Consequent on the encouragement afforded by those in power and by the law, the French language abounds in excellent monographs on this subject, some of which we have from time to time brought under the notice of our readers[a]; while the volume whose title is prefixed is, we may say, the first attempt at a complete and scientific treatise on the adulterations of food ever published in England. Its origin is described by Dr. Hassall as follows:—

"In 1850, the author of this work first came to reside in London. Many months had not elapsed before he perceived that there was something very wrong in the state of most of the articles of consumption commonly sold, and he was particularly struck with the condition of the ground coffee as ordinarily met with. This led him to make some examinations, principally microscopical, of different samples of this article. The results of these examinations were embodied in a paper which was communicated to the Botanical Society of London. The subject attracted considerable attention, and notices of the paper read were promptly inserted in nearly all the daily and weekly newspapers, including the 'Times.' The author next turned his attention to Sugar, and prepared a paper, which he likewise intended to submit to the above-named Society; he also resolved in his own mind to follow up the subject of the Adulteration of Food, perceiving its important nature. In the meantime, after the publication of the paper on Coffee, and before the reading of that on Sugar, Mr. Wakley communicated with the author, stated his conviction that the exposure of adulteration would fail to produce any beneficial effects, unless it was accompanied by the publication of the names and addresses of all parties of whom the articles examined were purchased, and this whether they were found to be genuine or adulterated; and he asked, whether it was possible that the inquiries could be so conducted as to admit of the publication of the names and addresses of the manufacturers and tradesmen of whom the articles were procured, and whether the writer was prepared to undertake a series of investigations on the subject of adulteration. After a little consideration, the reply was in the affirmative. On this, Mr. Wakley determined, after having given due warning and notice, to publish the names and addresses of all parties which the author might furnish to him, and Mr. Wakley further devised the Title under which these Reports have from time to time appeared.

"For a period of nearly four years, the Reports in question have now been published with considerable regularity, and during that time the names and addresses of hundreds of manufacturers and tradesmen have been made known, and much good in a variety of ways has resulted. The consumer, the revenue, and the honest trader, have all been greatly benefitted."

[a] N. S. vol. x. p. 175, and vol. xiv. p. 475.

These reports, now completed for the present, furnish the volume before us, and although we think they might have been most judiciously condensed, much of the details suited for the columns of a weekly medical periodical being quite unsuited for the pages of a scientific book,—for example, the mendacious puffs of the London coffee-dealers, which are reproduced at length, and the disputes and angry correspondence into which the "Lancet" was drawn by many of them,—we gladly accept the work as a whole, and we think Dr. Hassall is deserving of much praise for the patient labour, skill, and ability he has displayed in its compilation.

It would be quite impossible to attempt even an outline of the contents of this bulky volume, much less any analysis of it; we shall rather try to indicate the description of matter to be found in its pages by the selection of a few extracts from some of the subjects noticed.

It is not uncommonly said that the best way for a purchaser to secure the goodness and purity of *any* article is to pay the highest price for it; that this rule does not apply to articles of diet is proved by the following statements regarding isinglass and cinnamon, two substances in daily use, both in diet and in medicine. We should first premise, that the particulars regarding the analyses of the several samples of the various articles examined are presented to the reader in tabular forms.

"From the above Table, it appears that out of the twenty-eight samples of isinglass submitted to examination, *ten, or more than one third*, of the samples consisted entirely of gelatine.

"That the price of the genuine isinglass varied from 8*d.* to 1*s.* 4*d.* per ounce; while that of the gelatine ranged between 10*d.* and 1*s.* 4*d.* per ounce.

"Now, as isinglass is very different from gelatine in many of its properties, and as it is undoubtedly much the superior of the two, it is evident, from these inquiries, that the public are seriously imposed upon and injured by the substitution for isinglass of such an article as *gelatine*."

Regarding cinnamon, we read,—

"1st. That of the *whole* cinnamons, *seven* were *genuine*, and that *five* consisted of nothing but *cassia*.

"2nd. That while the prices per ounce for the *whole* cassias varied between sixpence and one shilling, one being charged sixpence; three, eightpence; and one, a shilling; those for the cinnamon also varied between sixpence and one shilling; one being charged sixpence; three, eightpence; and three, one shilling.

"3rd. That out of the *nineteen* samples of *ground* cinnamon, *three* consisted entirely of *cassia*.

"4th. That *ten* of the samples, more than one-half, were *adulterated*, the articles most frequently employed being either *baked wheat-flour* or *sago-meal*, separately or in combination; but *East India arrow-root* and *potato-flour* were likewise detected, each in one instance.

"5th. That of the above adulterated samples, *three* consisted of *cassia*, adulterated; and *seven* of *cinnamon*, adulterated.

"6th. That *six* only of the *nineteen* samples were *genuine*.

"7th. That the prices given per ounce for the powdered *cassia*, substituted for cinnamon, were sixpence and eightpence; one being sixpence, and two eightpence.

"8th. That the prices paid for the genuine powdered cinnamon were sixpence, eightpence, and one shilling per ounce: two being sixpence, three eightpence, and one a shilling.

"9th. That the prices charged for the adulterated articles, whether cassia or cinnamon, were fourpence, sixpence, and eightpence per ounce, viz., one at fourpence, three at sixpence, and six at eightpence per ounce.

"It thus appears that in the prices charged for cassia and cinnamon, whether whole or in powder, and whether genuine or adulterated, no constant difference is to be observed, and consequently that the public suffer great loss by the substitution of cassia, which is so much cheaper, for cinnamon, and a still greater loss by the other sophistications. Further, it appears that, contrasting the prices of genuine whole with those of genuine ground cinnamon, for some reason unknown to us, the latter are sold at a cheaper rate than the former.

"It will be observed that the wheat-flour and sago-powder used for the adulteration of ground cinnamon are stated in the analyses to have been baked; the purpose of this is obvious,—namely, that they may assimilate in colour to either cinnamon or cassia, and thus the better escape detection."

The following, regarding that much puffed humbug, revalenta, cannot fail to interest our readers:—

"Analysis of Du Barry & Co.'s Revalenta Arabica.

"(The first sample analysed was purchased of J. Revell, 272, Oxford-street.)

"This article was found to consist of a mixture of the *Egyptian* or *Arabian lentil* and *barley-meal*.

"(The second sample was obtained from the depôt, 127, New Bond-street.)

"This sample was found to consist, like the first, of a mixture of the *red* or *Arabian lentil* and *barley-flour*, sweetened with *sugar*.

"A *third* sample consisted of the *Arabian lentil* and *barley-flour*, with the addition of *saline matter*, principally *chloride of sodium* or common salt; it also possessed a peculiar taste, as though flavoured with *celery-seed*.

"While Warton's Ervalenta is of a yellowish colour, Du Barry's Revalenta is of a pink or rosy hue; this arises from the different species of lentil employed, the German being yellow, and the Arabian lentil of a red colour.

"The taste of the first of the three samples of Du Barry's Revalenta submitted to analysis could scarcely be distinguished from that of pea-flour; that of the second sample was much more agreeable, owing to the quantity of sugar which it contained; while in the third sample the salt and peculiar flavour already referred to as resembling that of celery-seed could be distinctly recognised."

"It will be observed that under the heading 'Cruel Deception on Invalids Exposed,' Du Barry & Co. make quotations condemnatory of lentils and barley-flour, and as these enter largely into the composition of their own article, by inference this is condemned even on their own showing."

The author, after an account of the many other compounds sold under this and similar designations, goes on to say:—

"Lentils belong to the natural family of plants, *Leguminosæ*, which includes the several kinds of beans and peas; they resemble, to a very great extent, in colour, structure, taste, and properties, the common pea; so great, indeed, is the similarity in organization, that it is difficult to discriminate between them, even by the aid of the microscope.

"Lentils, peas, beans, &c., all contain a considerable amount of nitrogenized matter, in the form of *Legumine;* when taken as an article of diet, they are found by most to be somewhat difficult of digestion, to occasion distention and flatulency, and to be slightly aperient. These properties and effects are so similar in the case of each, that it is almost impossible to draw any decided line of demarcation between them.

"'Purified lentils' are prepared under a patent, by Mr. Nevill, who formerly supplied Du Barry & Co. with the article, at £10 per ton; that is, at about one penny and a fraction per pound.

"The admixture of barley and other flours with lentil powder is not to be regarded in the light of an adulteration, since the cost of barley-flour exceeds that of the lentil, being about £13 per ton.

"The object of this mixture is chiefly to diminish the strong flavour of the lentils, and which is so disagreeable to many. Messrs. Du Barry and Co. still more effectually accomplish this object, in some cases, by the addition of sugar.

"Extremes meet: lentils being somewhat cheaper than peas, are supplied to many of our workhouses, to be used in the preparation of soup, &c. Thus they are not only consumed by paupers, but by the rich, the chief difference being, that the latter frequently pay 2*s.* 9*d.* per pound for them.

"As the cost of most of the prepared lentil powders—viz., 2*s.* 9*d.* per pound—forms a very serious obstacle to their use, supposing that in any respect it is desirable that they should be more generally con-

sumed, we have framed the two following receipts, whereby a considerable saving of expense may be effected:—

"*1st Receipt.*

Red or Arabian lentil-flour, ...	2 lbs.
Barley-flour, ...	1 lb.
Salt, ...	3 oz.

Mix into a uniform powder.

"The 'directions for use' it is unnecessary to detail, as they have been already fully given in the prospectuses printed above.

"The red lentil may be obtained of almost every corn chandler, at about 4*d.* per quart; the cost of a pound of *our* Ervalenta would be about 2*d.* per pound; and it is perfectly clear, from the analyses which we have given above, that whatever may be the advantages possessed by the much-vaunted Ervalentas, Revalentas, &c., that our article must contain them all.

"*2nd Receipt.*

Pea-flour, ...	2 lbs.
Indian corn-flour, ...	1 lb.
Salt, ...	3 oz.

Mix as before.

"Being satisfied that lentils and peas do not differ in their properties to any great extent, we have devised the above receipt to meet those cases in which any difficulty may be met with in procuring the red lentil, which, however, is now very commonly kept by corn chandlers.

"Whatever may be the results of the experience of others as to the advantages derived from the use of lentil-powder, we ourselves are unable to say very much in its favour.

"We recently partook of some of Du Barry's Revalenta Arabica, and found the flatulent effects so unpleasant that we should not readily be induced to repeat the experiment.

"As treacle exerts a slightly aperient action when taken in considerable quantity, it may be used, if desired, with either of the ervalenta mixtures, the receipts for which we have given above; it has a great advantage over 'Melasse' and 'Purified Syrup' in price, costing only 4*d.* per pound.

"In the course of our observations, we have had occasion to refer frequently to Du Barry and Co. The name of the person who represents Du Barry is Christian Klug, said to be a German Jew."

In conclusion we have only to say, that Dr. Hassall's book abounds in the most useful information for all classes of the public, whether professional or not; such a work should be taken up by the country, a condensation of it reprinted for general cheap circulation, and its author placed by the Government in such an independent position as to enable him to carry out, with the sanction of Parliamentary authority, inquiries here only commenced.