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THE

UPPER CANADA JOURNAL

OF

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MARCH, 1852.

ORIGINAL COMMUNICATIONS.

ART. XLIX.—*Sketches of the Endemic Fever of Upper Canada, and of the effects of its climate on European constitutions.* By JOHN JARRON, Surgeon, Dunnville. Continued from "The British American Medical and Physical Journal," Vol. VII. No. 3. page 99.

IN the treatment of biliary derangements and fevers, originating from malaria, the state of the primæ viæ requires our first attention, and that remedies be used to restore their natural functions.

Emetics are now seldom used in such cases. When vomiting is present, and bilious matter brought up, the patients may occasionally be relieved by drinking freely of warm water. This will be nearly as efficacious as a dose of ipecacuan; and tartarised antimony, even in moderate doses, is not always a safe remedy in these affections. Dr. Wood almost interdicts its use as an emetic in bilious fevers, as he has often seen it give rise to serious consequences, and mentions a case of death in which a number of medical inquirers, on an inquest, were in doubt if death had been caused by this medicine, or been the result of Asiatic cholera. I at one time gave evidence in a case of the same kind, and had some difficulty to convince a jury that death, with such symptoms, was the effect of a dose, every day administered, as in that case, without medical advice. In 1843 I witnessed a good deal of the practice of one of nature's doctors, among the labourers on the Welland Canal, when suffering severely from fever. His panacea was a compound of aloes, tartar emetic, and whiskey, the effects of which

were often fatal, by producing a state of collapse, similar to that of cholera; and so susceptible were the fever patients of that season of this remedy, that I was obliged to discontinue the practice of administering it in small doses, as a diaphoretic, with calomel and opium or other purgatives. The same effects often follow its use during the sickly months, though much more in some seasons than in others.

Purgatives are always indicated, and at the commencement of every form of the disease may be used with advantage. The usual saline catharties and castor oil, though producing free discharges, yet afford little immediate relief; and the free use of any of our vegetable catharties will seldom arrest the disease in limine, or carry it off without without the use of bark or other specifics for periodical diseases. It is to mercury, particularly calomel, combined with our vegetable or saline catharties, that we are to look for the full effects of purgatives in these affections, and by which the secretions will be restored to a natural state, and the development of the periodical attacks of fever either prevented, or when they have already occurred, arrested, and health be produced.

In the various forms of biliary derangements and agues, a course of free purging, with these remedies, ought at once to be commenced, and regularly kept up at short intervals, until the secretions be restored to a natural state. When the bowels are freely acted on, the prostration of strength and tendency to irregular fever will subside, and the improvement after each successive dose will be marked. The effects of such remedies ought not to be kept up on the bowels by too frequent repetition; every dose should be sufficient to produce full purging, which should be allowed to subside, and a period of rest to intervene before it be repeated. A combination of calomel with the extract of colocynth or the purgative gum resins, in the formula of the mass of many of our official pills, is well adapted to such cases, and a dose of from four to eight grains of calomel, with six or eight of the extract of colocynth, may be repeated every second night, and followed by a dose of sulphate of magnesia or a black draught on the following mornings. In the usual state of patients, pills will be found a more convenient and more agreeable form in which to administer catharties than in that of powders; and it is also an object of consequence that the doses be repeated as seldom as possible.

In the various forms that more fully developed fevers assume, the state of the secretion will still demand our first attention, and the free use of calomel and catharties remain our most certain remedies. We will find the unnatural discharges from the bowels, the state of the tongue and skin, and the recurrence of fever so mixed up together, that it would be difficult to assign any one of them as the cause of the others, were not the facts daily seen that the action of our medicines, in carrying off these discharges, and

restoring their normal state, is immediately followed by the cleaning of the tongue, natural secretions from the mouth and skin, and the general subsidence of febrile symptoms; and that the latter stages of all fevers only occur in those cases in which we fail in restoring a healthy action in the primæ viæ, and the function of perfect digestion.

In a sketch of this kind, it would be out of place to attempt to prescribe for every symptom, so to point out the modification of doses that the changing varieties of fevers or idiosyncrasy might call for: the principles of treatment by a succession of calomel purgatives will be sufficient, which in all cases must be kept up, in some form or other, until the discharges from the bowels and bladder become perfectly natural.

I am fully aware of the objections raised to such a course of treatment, by those holding the opinions of Broussais; but a long course of practice, and minute attention to bilious fevers, as they have occurred in different parts of the world, have convinced me that his facts do not apply to them, and that any treatment founded on his reasoning will not generally be successful. Such fevers are dependent on functional derangements, and are capable of being cut short at their onset, or at any future stage of their progress; and it is only when our treatment fails to do this, that we have both the consequences of this derangement on the constitution, as well as organic changes induced by it, giving rise to the last stages of all fevers and consequent dissolution; and any charge of empiricism will be best met by a short review of the effects of calomel, and the mode of administering it in malarious fevers and bowel complaints.

[For observations on the employment of calomel in malarious fevers, the reader is referred to *B. Am. M. and P. Journal*, Vol. VII. No. 7, page 279.]

Tonics.—Bark still holds the first place amongst the anti-periodic remedies suggested for the cure of malarious fevers, and is a most important remedial agent in every form which they assume. The old writers universally direct that emetics and purgatives must precede the use of barks in ague, as, in intermittent or remittent fevers, it is only beneficial when the tongue begins to clean, and the intervals are perfect. They looked on ague as a combination of the three stages of fever, and seem to have prescribed bark for the sole purpose of putting a stop to the paroxysm, while their peculiar directions are an admission that a certain state of the primæ viæ accompanied it, and that bark was only useful when this was partially connected, or totally removed.

Since the Sulphate of Quinine has come into general use, we find this condensed form, in which the anti-periodic powers of bark is contained, used in a much freer manner than the form of the bark would admit of, even if it had been considered safe to resort

to it. It is now used in the stages of fever in which bark was thought to be inadmissable—in fact, it has become almost a new remedy to which few of the rules for the use of the old one will apply. I will not attempt to settle the point, if bark is to be considered a tonic, a febrifuge, or an anti-periodic remedy, but will endeavour to point out a few of the results of the use of Sulphate of Quinine in malarious fevers, and what I have found to be the most beneficial mode of administering it.

As a means of preventing fever, Quinine is sometimes used on the first manifestation of aguish feelings; it will then occasionally stop them, and prevent the development of a bilious attack, but in the majority of cases, when so used, it will only postpone the fever for a time. A first attack, or a recurrence of ague often comes on when the patient has been taking Quinine regularly, for the purpose of preventing it, so that this remedy alone will not prevent the paroxysms of fever. Malarious fever in every form is capable of being removed without the use of bark; indeed, when the tongue begins to clean, and the interval is perfect, the imminent danger of death is past, and a recovery nearly certain, but this will be hastened, and further exhaustion prevented by the use of remedies, among which bark is by far the most powerful.

In common aguish affections and simple remittent fevers, the old rules of not giving bark until the tongue begins to clean, the bowels become regular, and the passages natural, and the interval perfect, will apply fully to Quinine. If given before this state is perfect its effects are not to be depended on; it may render the paroxysms somewhat irregular, but will seldom hasten the subsidence of the disease.

It has long struck me that the remedial effect of Quinine in fever is by its mixing with, and altering the character of the secretions in the stomach and upper part of the bowels; this is first observed in the subsidence of the aguish taste in the mouth, and it must soon be followed by a change in the character of the blood, as the medicine seldom acts with power or regularity when the function of digestion is materially altered, and is entirely inert when this is suspended in a bad case of fever.

To stop a paroxysm of fever, the Quinine must always be given four, or six hours before its expected succession; it may be given in a maximum dose, at any period of the interval, as such a practice is perfectly safe and much more convenient than to give repeated smaller ones. I am in the habit of giving it immediately on the subsidence of a paroxysm, in order to prevent its next accession, irrespective of the length of the interval, as the effects of the remedy will not be lessened thereby. From five to ten grains may be given for this purpose, the larger dose will seldom fail to stop the paroxysms unless in cases where the digestive function is still in such a state as to render the effects of it in any quantity very uncertain. A similar dose may be administered at a

period corresponding to the commencement of the next interval, after that, two or three grains daily for a few days, to assist digestion and bring about a healthy state of the secretions. The use of cathartics must not be discontinued, though the doses will not require to be so frequently repeated; in fact, I every year use quinine less and less, after it has once suspended the paroxysms; and treat the period of convalescence as well as the usual biliary derangements almost entirely by a properly regulated course of purgatives; but in the state of convalescence from fever, the bitters and tonics are much more useful than in the other, and ought not to be entirely dispensed with.

In the treatment of congestive and pernicious fevers, I have tried large and frequently repeated doses of quinine, in the manner recommended by some modern writers in the fevers of the Southern States, but in my hands the practice has not been attended with such success as to warrant me to join them in support of it. I have not given it to the full extent practised by them, drachm doses frequently repeated, but have seen enough to convince me that in certain states of the primæ viæ the effect of this medicine is not to be depended on, and that we have others of much more certainty, activity and power. In such fevers quinine is an invaluable remedy, but the active and dangerous stages of the disease must be combated by venesection, calomel and opium, and purgatives; when the tongue begins to clean, the state of the secretions to improve, and the fever or depression to give way, quinine may then be used freely, and with the greatest advantage.

I have never seen serious effects from the too early or free use of quinine in fevers, but I have often experienced, and seen others suffer more from a paroxysm of congestive fever, broken and rendered irregular by quinine, than had been done during previous ones, when that remedy had not been given, and am certain that a recovery was not hastened by giving it a few days before it ought to have been resorted to.

We have no other tonic or anti-periodic remedy at all to be compared with quinine in the treatment of these fevers. Iron is often exceedingly useful, and may be efficaciously given, combined with quinine as a tonic; I generally use the sulphate, but have lately tried the persesquinitrate, as prepared by Dr. Kerr, of Hamilton. This is a convenient preparation for common use, but has no specific virtue in the cure of ague, or the complaints connected therewith.

Infusion of gentian and the mineral acids are deserving of trial in protracted cases of biliary derangement and recurring agues, in the decoction of cinchona, or good bark in substance, mixed with wine, may also be used instead of quinine, and will often form an advantageous change of the prescriptions.

I have no experience of the effects of arsenic in these diseases.

ART. L.—*New Method of treating fractures of the thigh and leg.* By CHARLES ROLLS, M. D., Wardsville, C.W.

I AM aware that, in recommending a new plan of treatment, in a case of surgery, on which there has been already so much dispute, and on which the medical profession, even at the present time, is much divided, I am entering on difficult ground, and one in which I shall propably encounter much opposition. But as I write in the hope of advancing surgical knowledge, and of suggesting an improved system of treatment in one of the most tedious and often troublesome cases which surgeons have to deal with, I trust that my remarks will be received in the same spirit with which they are penned; and, if opposed, such opposition will be in that fair tone of criticism to which I shall be at all times ready to reply.

In fractures of the thigh, and frequently in fractures of the leg, I have in numerous instances been surprised and distressed to see how often the patients, even although under the best treatment which the country affords, leave their beds, on which they have been lying for weeks, to be deformed for the remainder of their life. I allude not to my own practice, nor to the patients of any practitioner in particular; but I doubt not every member of the profession will bear me out in the assertion, that cases of deformity are much more frequent than they could wish, and that after paying every attention in their power to their patients, they are often sadly disappointed by finding the limb, at the expiration of the time usually allowed for such fractures to unite, deformed, and their own reputation, perhaps, seriously injured. The question then arises, is this deformity to be attributed to the fault of the practitioner, or is it the fault of the system or practice pursued? This question I will first discuss.

Every surgeon, of course, knows, that there have been two modes, par excellence, recommended in treating fractures of the thigh: one, the bent position, as recommended by Mr. Pott, and most generally adopted by English physicians,—and following in their wake the physicians in this part of Canada; the other, the straight position, as recommended by Desault, and generally followed by the French surgeons. Of course I feel great diffidence in opposing so celebrated a surgeon as Mr. Pott, and putting in my feeble dictum against a practice which has been so generally adopted by English practitioners; but after giving much consideration to the question, and considering it in every light, and under every point of view, I must say I do not think that Mr. Pott duly considered his arguments in favour of that position before he promulgated them; nor do I think that the position itself presents sufficient advantages in the treatment to counterbalance the disadvantages which both patient and physician experience in carrying

it out. Mr. Pott's arguments run thus:—"The muscles are the moving powers which disarrange a bone, after being set or replaced in its proper position. If these muscles be relaxed, they will have less power than when in a state of tension or extension to disarrange the reset bone; the bent position is the fittest for retaining the bone in its proper place during the cure." Now, there is one great point that Mr. Pott, it appears to me, has forgotten in these arguments: and that is,—that if the bent position relaxes to a certain extent the muscles on the anterior part of the thigh, just in the same ratio does it extend or make tense the muscles on the posterior part; and therefore, supposing the power of the bulk of the anterior muscles to be equal to the power of the bulk of the posterior muscles, he will thereby lose as much as he gains. These arguments fall therefore to the ground.

Mr. Samuel Cooper, in his work on surgery, perceived the force of this objection to Mr. Pott's plan of treatment; but being either convinced in his own mind, or else prejudiced in favour of the bent position, he comes to Mr. Pott's rescue, and thus argues: Reckoning up muscle after muscle, which by this position becomes relaxed, and then muscle after muscle which by this position becomes extended or tense, he concluded by endeavouring to prove that in the most common part in which fractures of the femur occur, the amount of muscles relaxed are much more powerful than the amount of muscles made tense, and thus he justifies the position. Mr. Cooper's defence of the plan is plausible; but I am far from allowing that it is sufficiently reliable for us to found our treatment upon. I am not aware that the power of any particular muscle has yet been calculated; and I am very sure that the combined power of any number would be very difficult for the general run of surgeons to calculate, letting alone the difficulty they would experience in finding the exact spot of the fracture, and the exact number of muscular fibres inserted above and below that fracture.

There is also another point on which Mr. C. has forgotten to remark,—it is, the course of the obliquity of the fracture, if oblique. This, every one who has studied mechanism will immediately perceive, will give much greater efficacy to the action either of the anterior or posterior muscles, according as the upper part of the fracture be anterior or posterior, internal or external; and therefore those muscles should be favoured whose action would in such case have the greatest power of displacement. But how are surgeons, generally speaking, to ascertain the course of such fracture? and, if not, how can they calculate the exact relative power of the various muscles concerned? But taking it, for the sake of argument, for granted, that the bent position does relax a greater amount of muscular fibre than the straight,—the next question which arises will be, does the amount of benefit thus gained counterbalance the advantages thereby lost?—I think not.

Desault, in his objections to the bent position, enumerates the following:—"The difficulty of making the extension and counter-extension, when the limb is so placed; the necessity of their applying them to the fractured bone itself, instead of a situation remote from the fracture.—as, for example, the lower part of the leg; the impossibility of comparing with precision the broken thigh with the sound one, in order to judge of the regularity of its shape; the irksomeness of this position long continued; the inconvenient and painful pressure of a part of the trunk, on the great trochanter, of the affected side; the derangement to which the limb is exposed, when the patient has a motion; the difficulty of fixing the leg firmly enough to prevent the effect of its motion on the thigh bone; the manifest impossibility of adopting this method when both thighs are fractured; and experience, in France, having been little in favour of such posture. He adds, moreover, what is gained by the relaxation of some muscles is lost by the tension of others."

Now many of these objections are certainly very valid; but but the one on which I should lay very particular stress, and which I believe to be the cause of more deformities than the whole remainder combined, is that which related to the difficulty of correctly comparing the injured with the sound limb, and thereby forming a correct judgment (during the continuance of the surgical treatment) whether or not the limb has been placed and still continues in as correct a position as it should or could be. Take, for instance, the simplest case which can occur in fracture of the femur. Suppose there is no external damage, no unusual swelling of the part, no severe bruises,—a case, in short, of simple fracture, with a shortening of the limb, say one or two inches. The Surgeon arrives; the patient is placed on a mattrass of either hair or straw; the extension and counter-extension proceeded with, in the prescribed mode; the splints are adjusted, and every part of the operation completed as is usual when the bent posture is adopted. The limb has been measured and compared with the sound limb, as nearly as the surgeon can *guess* the corresponding spots (from which measurement has been taken) in the two parts; and all is supposed to be right. In two or three days the surgeon again calls: he finds the part of the mattrass on which the nates lie has sunk, say half an inch to an inch; some corresponding movement must have taken place in the broken limb. The surgeon again measnres the length of the limb, and discovers that the broken one does not so exactly tally with the sound one as at the time of setting it and liis last measurement. However, the difference is but trifling, and he reasons with himself,—"It would be a great pity to unloose all the dressings, and extend and reset the part; and the patient may cast reflections upon himself; and perhaps, after all, it is all right; the difference in length may be attributed to the sinking of the mattrass, and a slight change in the patient's posture,—and—and—

and——." Finally he concludes that it is better to leave things as they are, and takes his leave. On his next visit, owing to the same causes, the difference in length between the sound and injured joint has not diminished, but rather increased; but the same arguments prevail in his mind to let nature take its course. What wonder, then, if, when the patient rises from his bed, he finds one of his legs some inch or two shorter than the other, and that if he wish to keep up a gentlemanly appearance, he must henceforth wear boots or shoes with heels of different thicknesses, from one half to a couple of inches, or over.

In such a case as the above, is it the surgeon or the system which is to blame? Perhaps a little of both; but in my opinion the latter much more than the former. For even had the surgeon, at his second or third visit, taken off all dressings and reset the bone, still, pursuing the same plan (that is, the bent posture), he would be liable to the same disarranging causes, and would probably have to repeat the same process on every succeeding visit.

On account of these objections, and many others I might adduce, were I not afraid of increasing the length of this article too much for insertion in the Journal, I am opposed to the usual practice adopted among English surgeons of using the bent position in cases of fractured thigh or leg.

The question then arises, if the bent position be not the most advisable, is not the straight position, as recommended by Desault, likewise liable to many objections? I believe it is; although not to so many, by far, as the former position. Let us compare them.

The straight position is certainly the best for the purposes of making extension and counter-extension. The straight position is certainly the best for the purpose of comparison between the injured and the sound limb. The straight position is certainly the best for keeping the bed or mattrass in an even and smooth state, which is better adapted to the co-aptation of the limb and the comfort of the patient. The straight position is likewise better adapted to inform the medical attendant of the state of his patient at his periodical visit, as he may see, almost at a glance, whether or not any derangement has occurred since his former visit. On these accounts, were I constrained to choose between the two, I should prefer the the straight to the bent position, being satisfied it gives greater advantages both to surgeon and patient. But I am opposed to the practice of adopting either position (that is to say for a permanent one) during the whole period in which (in the accidents under consideration) the patient is confined to his bed; and I consider that if the position were, from time to time, changed from the straight to the bent, and from the bent to the straight, according as it might suit the feelings and wishes of the patient himself, it would be far less irksome and less painful to him, as well as conduce to his more speedy recovery. Let me explain myself more fully.

According to the usual treatment, after a fracture that is once set, the patient is expected to lie in the position in which it was set (be it either bent or straight), during the whole period of his recovery,—say seven to nine weeks. Does it not immediately strike every intelligent observer, that the weariness, the irritability, the restlessness, the utter exhaustion, and the sluggishness which consequently takes hold of the vital and reproducing powers of the system, must greatly and most materially retard the reparation of the injured limb? And is it not frequently to be ascribed to these causes alone that in many cases union never will take place? Is it not likewise perfectly apparent, that if, when the patient becomes weary and tired with one position, he be changed to another, it must greatly revive him; the pain and weariness of long confinement would be more endurable, and a more cheerful spirit and less of the repining one will present a prospect of more speedy recovery?

At this point some will, perhaps, be tempted to exclaim,—"That is all very good, we well know that a frequent change of position must be very agreeable to a patient during a long and tedious confinement; but how is this change to be effected, without incurring great risk, and, indeed, almost a certainty of derangement in the fractured part, produced by means of such change of position?"

I will now proceed to explain how; and in this explanation will be involved the new plan of treatment which it is the object of this communication to recommend to the profession for general adoption.

The apparatus necessary for the mode (which I am about to recommend) of managing either a fractured leg or thigh, consists of three ordinary splints, suited either to the leg or thigh, as the case may be; the eighteen-tailed bandage; cotton wool or tow; and a *long splint*, extending from the axilla to the sole of the foot, the construction of which is as following:—The head of the splint (if I may so call it), is like the head-part of a common crutch, only so small that the patient may lie on the bed without being inconvenienced by the under part projecting. On the inferior part is a piece of flat board, inserted on the extremity of the third or leg portion of the splint, and which fits to the sole of the foot, from the heel to the toes. Between these two extremities the splint consists of three portions: the body portion extending from the axilla to the hip-joint; the thigh portion extending from the hip-joint to the knee-joint; and the leg portion extending from the knee-joint to the sole of the foot. These three portions are connected with one another by joints in the hinge fashion, so that the thigh portion can be bent forward and upward toward the body portion; and the leg portion downward and backward toward the posterior part of the thigh portion; or, in other words, after the splint has been

fixed on the patient, on the outward part of the injured limb, the limb can be placed in the bent position usually adopted by the English surgeons, and the splint, by means of its action on the hinges, accommodates itself to the position, and supports and retains the part in such position. I would recommend practitioners to have two or three such splints, of different lengths, according to the different periods of life of his patient; for instance,—one for young children, one for more advanced, and one for grown persons: each joint of the splint made in proportion to the relative lengths which the different parts of the body to which they have to be applied bear one to another. In the middle of each part is a slide, so that each individual part can be lengthened or shortened to suit exactly the case under treatment. Immediately above the joint, at the hip, a broad leathern belt or strap is applied, long enough to buckle tightly around the pelvis; another at the knee-joint; and another at the ancle. Three small buck-skin straps are affixed to surround the thigh, and three to surround the leg.

We will now suppose the patient lying in bed and all ready (in a case of fractured femur) for setting. I first arrange the long splint, by fixing it to the sound side, and either lengthen or shorten either or each of the parts (by means of the slides) as may be required. Laying it (the splint) then aside, the extension and counter-extension of the damaged limb is made in the straight position. Three splints, well padded with cotton-wool or tow, are then adjusted, one anteriorly, one posteriorly, and one internally; and all secured with the eighteen-tailed bandage. The long splint is then applied on the external part of the broken limb, and well padded, from the axilla to the foot, in any part where it may come in contact with the flesh; the straps around the pelvis, knee, and ankle are then tightened as firmly as the patient can conveniently endure; the small straps around the fractured part, either thigh or leg, likewise tightened, and a common roller bandage applied from the ankle to the toes, so that the sole of the foot shall be firmly and securely affixed to the foot-board which I have previously described. This completes the operation.

If the surgeon be a firm believer of Mr. Pott's doctrine of the advantage of relaxing the muscles, he may, if he please, adopt it for the first three or four days or week (according to the feelings of the patient), by gently bending the knee and raising it, and supporting the portion with pillows properly placed under it; neither need he fear, in case the long splint I have described has been firmly fixed at the different joints, and the bandage from the ankle round the foot and board beneath it keep the sole firmly fixed in its position, that any derangement will occur. But I recommend that the straight position, as a general rule, be maintained, if possible, during the first week; after that, if all progress favourably till then, there is but little danger of derangement from any muscular action around the damaged parts.

I am well aware that this point, viz.—moving a fractured limb from the position in which it was set, will raise many objections among those who have always been taught that perfect rest and freedom from motion are absolutely necessary in the treatment of the fractures under consideration. I am free to grant, under the treatment usually adopted, it may be so; for what power, may I ask, have the short splints, which are in present use, to retain the parts in apposition. Certainly not enough to counteract the powerful action of the muscles, which action must have the direct tendency to drawing up, or, in other words, shorten the limb. If these short splints, therefore, only be used, perfect rest presents the best possible chance for a happy result in the case But in the treatment before us, we have two fixed points, viz.—the axilla and the upper surface of the board to which the sole of the foot is firmly and securely applied, and so long as the shoulder-joint (if I may use the expression) is preserved on an exact level with the other side, and the sole of the foot is kept in close apposition with the foot-board of the apparatus, so surely must the limb be kept of one length, let the position be bent or straight;—of course I need not add the condition, that the measurement must have been exact, and the splints arranged with nice tact and due judgment.

To recapitulate. I object to the bent position for treating these fractures under consideration, for the many and solid reasons urged by Desault against its adoption; and further, because I am strongly of opinion that the weariness, irritability, and fatigue attendant (in all persons, but more especially in those of nervous, irritable temperament) on long confinement in one position, materially retards the regenerating process of nature; further, because this position does not afford the surgeon the necessary facility for making an exact observation; and further, because I have seen so many deformities in cases treated under that plan.

I object to the straight position, as recommended by Desault, because of the weariness, etc., induced (similarly as in my objection to the bent position) by long confinement in one position; further, because although it might afford greater facility for the passage of dejections than the bent, it will not afford the same as can be adopted by the treatment I recommend; and further, because the long, straight splint, recommended by Desault, not having any fixed points of opposition, cannot keep the limb in a state of constant extension, such as I recommend, and which I am well convinced is the only sure method by which an exact union and a well-shaped limb can be, with any degree of certainty, counted on.

I recommend the new plan of treatment which, in this paper, I have endeavoured to bring before the attention of practitioners, because, 1st—It will give them the advantage of setting the fracture in a straight position (which certainly is a great advantage), at the same time they may immediately after adopt the bent one if so

inclined; at the same time, I do not *recommend* that position to be adopted before the expiration of a week, by which time, generally, the parts will have taken on a regenerating action. After this the positions might be varied to suit the feelings of the patients. 2nd—I recommend this plan, because of the great facility it will give the medical attendant to judge of the correctness in the length of the limb. Each time he visits his patient will he have an opportunity of examining and comparing the length of the damaged side with the length of the sound one; and as long as the sole of the foot is placed in correct apposition with the surface of the foot-board, and the soles of both feet exactly correspond, the patient at the same time lying as straight on the bed as possible, and the upper part of each shoulder-joint being as correctly on a line as possible, so certain may he be that the limb is in correct apposition, and the cure progressing favourably. 3rd—I recommend this plan of treatment because, as I before said, it will afford the patient, by being supported in the reclining posture, greater facility in the passage of his dejections. 4th—I recommend this plan, because of the very great relief it will afford the patient, by allowing him a frequent change of posture during a long and tedious confinement, and by this means conduce, at least in my opinion, to a more speedy recovery; and 5thly—I recommend it, because, with its other advantages, it combines that of continued extension, which Bichet so strongly recommends, and which I feel well convinced is the true secret of overcoming the resistance of opposing muscles, and of affording the best, (I could almost say) the only prospect, in oblique fractures, of an exact and correct union of the fractured part.

Art. LI.—*Cases of Angeioleucitis or Barbados Leg, with remarks on the probable Pathology of that Disease.* By James Bovell, M.D.—Concluded from No. 11, page 277.

Note.—By mistake, the words "or as it has been more correctly called Angeioleucitis," were inserted in our last, we therefore reprint the paragraph.

We do not witness the consequences of "Barbados leg," proceeding from phlebitis, nor does phlegmasia dolens, which is also observed in Barbados, entail on the sufferer the hideous and misshapen deformity of elephantiasis; and where is the proof that such changes arise from cellular inflammation. But as we learn from Best's case, and as has been witnessed in other cases, the morbid enlargement may be confined to the integuments, constituting to all appearance true hypertrophy of the skin, and it is astonishing to witness the enormous thickening with scarcely any change within the blood vessels or muscles of the leg; and if we are to credit the researches of Breschet, and the pathological dissections of M. Andral, the skin has the requisite organization, rendering it, in

common with other parts of the body, susceptible of the disease. It is to be borne in mind, that it is only in those cases where the deposit has taken place in the subcutaneous and intermuscular cellular tisue, that the diseased state of the vessel is perceived.

We shall now bring forward reports of three cases of angeioleucitis of the abdomen, in support of our opinion. A coroner's inquest was held on the body of a man who was stated to have been taken suddenly ill and died, after a few hours illness. It was however satisfactorily proved in evidence that the man was subject to glandular disease, and that he had all the unusual symptoms attendant on the acute stage of the attack during his illness. My colleague, Dr. Clarke, the usual examining surgeon, at my request, kindly permitted me to be present at the inspection of the body. The other parts of the body being examined and found healthy, the abdomen was opened. There was no appearance anteriorly of peritonitis or of inflammation: but on drawing aside the intestines, the whole of the posterior part of the abdominal cavity presented evidence of extensive disease. The cellular tissue on either side the spinal column was infiltrated with a reddish non-plastic lymph. The mesenteric glands, and the glands on the concave edge of the colon, were enlarged considerably, and on being cut open discharged a similar looking fluid to that effused in the celiular tissue. Innumerable white vessels were observed ramifying in the cellular tissue, and on the intestines themselves. The cellular membrane between the pelvic viscera was similarly infiltrated as in the abdomen, and in the left iliac region had commenced to pass into sphacelus. There was not any discoverable lesion of the thoracic duct. Dr. Clarke, on a subsequent occasion has examined a body, and he writes: "The one case was exactly similar to the other." Dr. King was called towards morning to attend a woman who was eight months advanced in pregnancy, and who had on several previous occasions had premature labour. He found the patient with symptoms of fever, and complaining of abdominal pain. Supposing her to be about, as usual, to have premature pains, although the os uteri was contracted, he ordered a dose of laudanum, directing that she should be kept quiet; and on leaving desired to be sent for, should anything further occur before his appointed hour for returning. The midwife says, that during the day her fever increased a good deal, and as labour actually came on and progressed favourably, she did not like to send for Dr. King. The woman was delivered during the night of a dead child. On the morning visit, she was found with universal coldness, and exceedingly weak pulse, which induced him to make strict inquiries as to the occurrence of hœmorrhage, but he was assured that her delivery had been safe and easy. She complained of great pain on touching the belly, much thirst, brown dry tongue, and anxious depressed expression of countenance.

Towards noon, the heat of skin became very intense, and there was nausea, followed by several "black vomits." She died during the night. Dr. King having known this patient for some time, had all along considered her to have been labouring under "glandular disease" of the abdomen, but was rendered somewhat sceptical as to the correctness of his diagnosis on the recurrence of black vomit, supposed in this part of the world to be peculiar to typhus Icterodes. The post mortem examination, which was interesting to us, disclosed the true nature of the case. On opening the abdomen, which was tympanitic and much distended with gas, the anterior wall and peritoneum exhibited no traces of disease; the intestines were fully distended with air. On drawing them aside, the whole of the posterior of the abdominal cavity presented marks of extensive inflammation. The cellular membrane along the vertebral column surrounding the aorta, was infiltrated with a reddish gelatinous fluid, very much the colour of water in which beef had been washed. The cellular membrane, between the pelvic viscera, was similarly infiltrated, and in the right ischium, opposite the obturator foramen, had a greenish hue; the ovaries and fallopian tubes were invested with the same; the mesenteric glands were enlarged, and when cut across gave out a gluey fluid of similar colour with that effused in the cellular tisue. The uterus was vascular, and about the size of a clenched fist, and well contracted. Several large lymphatic vessels were seen ramifying beneath the peritoneal covering, of a pale straw-colour, evidently containing pus. *There was no fluid effused into the cavity of the abdomen.* On cutting open the small intestines, the mucous membrane was of a reddish colour, and easily scraped off: there were no patches of inflammation or ulceration. The stomach was very much injected; the mucous membrane, particularly at the pyloric extremity, pulpy and soft, and the cardiac end contained about two ounces of coffee-coloured fluid, exactly in appearance like "black vomit." The liver was healthy, and of good colour, and the gall-bladder contained a small quantity of yellow bile. There was not a single particle of lymph lying on the intestines, nor were there any appearances usually present in ordinary peritonitis. It is quite evident that this case was one of the ordinary glandular disease of Barbados, or as it may in strict propriety be termed angeioleucitis. In the first place the patient was well known to have been for some time an old subject of the complaint, usually however attacking the extremities, and which bore traces of former attacks. That she did not labour under yellow fever is proved, not only from the whole history of her illness, and by the light thrown on her case by the post mortem examination, but from the negative fact, that black persons rarely if ever have true typhus icterodes or yellow fever. This case therefore, more strongly than that of Dr. Rigby (which I claim as a case of angeioleucitis) proves that a very manifest patho-

logical difference exist between phlegmasia dolens, and the acute stage of Barbados leg, and this last not to be a cellular inflammation; and the natural history of the two diseases also furnishes strong evidence of their dissimilarity. The scrotum is sometimes the seat of disease, and the enormous size which it acquires has been repeatedly described and figured in the British Journals. My very excellent friend Dr. Clarke some months ago successfully removed a very large scrotum, the size of a man's head, and which was the source of great discomfort to the poor man. In this case neither of the extremities had been affected. The removal of so large a mass from the body, and the tiresome nature of the operation, under any circumstances, must be trying to the system; nevertheless it was very gratifying to find that even in so warm a climate encouragement is given, and the surgeon justified in relieving an unfortunate sufferer of a load of misery.

Art. LII.—*Case of Hepatic Abcess, ("Perforating Abcess of the Lungs," Dr. Stokes).* By A. O. Kellogg, M.D., Mariposa.

D. Rogers, æt. 48, farmer, of delicate constitution, and nervous temperament. Has been a man of great activity, labouring early and late, and exposing himself to every vicissitude of weather and temperature. Situation of his residence low, marshy, and malarious. Has been subject to attacks of ague, and various forms of bilious disease, having during the last fourteen years suffered nine attacks, some of them prolonged for months. When at all well, has continued to labour hard, upon an average seventeen hours out of the twenty-four, and to expose himself to the exciting causes of disease, without any restraint.

On the 20th October, 1851, was attacked by the old enemy, as he supposed, but observed no fever to follow the chills, which were slight. He continued to lose flesh and strength, and took to his bed about the last of the month. I saw him casually for the first time on the 22nd of November. Countenance sallow; pulse 80, regular and full. Has slight irregular chills, followed by profuse clammy perspirations; appetite poor; tongue coated, dry, fissured; urine high-coloured, bowels open, discharges dark and offensive; abdominal parieties particularly tense. On the right side the integuments appear to slide over the rectus muscle, as though it was tightly stretched beneath them. Pressure gives him some uneasiness and pain. No particular fullness over the region of the liver.

He did not, at this time, submit to any regular medical treatment, as he thought it merely an attack of the old complaint, which would wear off of itself. He continued to grow worse until Dec.

and, when I was first requested to attend him professionally. For the last twenty-four hours, has suffered the most excruciating pain in the right shoulder, extending to the side of the neck, which was greatly aggravated by a short dry cough, and by any movement of the body; chills, perspiration profuse, particularly on falling asleep; countenance expressive of suffering, dark circle surrounding the eyes; complexion sallow; bowels confined; pulse eighty, regular and full; tongue coated and fissured, but moist. Ordered

℞ Pill Hyd. ℈ij.
Pulv. opii. gr. i.
Ipecac. gr. x.
M. ft. Pill x. Cap: unus ter in die.

Pain and cough to be quieted by solution of morphia.

Dec. 5th. Pain relieved; pulse 75, full and regular; gums slighly if at all affected by the mercury; has had several dark and fœtid evacuations, which gave him relief; perspires profusely. Ordered quinine solutions, and to continue morphia as the cough and pains are relieved by it. Pills to be discontinued.

December 8th. Complains of a sharp pain in the left side, greatly aggravated by any movement of the body. Cough begins to be attended with a slight mucous expectoration, tinged with blood. Pain in the shoulder relieved, but feels it when he coughs or moves.

Dec. 11. *Respiratory murmur natural over the whole surface of the lungs.* Cough troublesome, attended with expectoration of dark pus, and particles of a substance resembling broken down hepatic tissue. Hectic fever; chills; profuse perspiration. Pain in shoulder and side relieved. Voice feeble; fainting Pulse as usual, about eighty, regular and full; tongue slightly coated, moist, fissured. Continue treatment, and to have wine and strong broths. At night, Ol. Ricini, ℥i. He remained in this state, without any particular change for better or worse, until about the first of Jan., 1852, expectorating daily more or less of the matter alluded to; during which time he took the quinine solution, with morphia to relieve the cough and pain, and procure rest; laxatives, wine, and nourishing broths.

From the first to about the middle of January, the cough and expectoration gradually subsided, appetite returned. Perspiration subsided, he rested better at night, and gained strength gradually, and began to sit up part of the time, but was not able to leave his bed entirely until February.

At this time (Feb. 16) he walks about the house, and though weak and greatly emaciated, appears free from disease, and gains flesh and strength daily.

Remarks.—During the progress of this disease, the lungs were frequently, almost daily auscultated, without detecting the slightest

departure from the natural healthy respiratory murmur in all parts. This appeared most singular and inexplicable to me, as for weeks the patient expectorated daily, and for the most part easily, more or less of this dark bloody purulent matter, and led me to make the most careful and repeated examinations, in order to discover its track through the lungs, by some of those deviations from the healthy respiratory sounds which we might naturally expect to find, but in vain. Since then, I have met with the following paragraph, in Dr. Stoke's article on Perforating Abscess of the Lungs, which seems to offer the only plausible explanation of the phenomenon I have found. "There is," says he, "a fourth class, in which, although no doubt can exist of the emptying of a hepatic abscess through the air tubes, the stethoscopic signs are unsatisfactory. I have now seen two cases, in which the trajet of the purulent matter was not marked by any auscultatory signs; can it be, that in such cases, the matter passing through the posterior mediastinum, enters the trachea at its posterior portion, and is thus evacuated without involving the lung?" (See *Diseases of the Chest*, page 338.)

ART. LIII.—*Cases of Operation for Cataract, chiefly at the Toronto General Hospital.* By W. R. BEAUMONT, F. R. C. S., Eng.—Continued from page 411.

CASE 10.—Cataract (capsulo-lenticular) of the left eye, complicated with partial adhesions of the pupillary margin of the iris to the capsule of the lens, and probably also with amaurosis. Keratonyxis. Prognosis very unfavourable.

Hugh King, æt. 26, came under my care in the Toronto Hospital, in November, 1848. I had three years before operated on his right eye, for cataract and for closed pupil (vide case 4) at which time the pupil of the left eye presented a clear bright black, but the eye was so far amaurotic that he could hardly see to find his way about. I was reluctant to operate, having a note as to the condition of the left eye three years before, but at the patient's request I did so, finding that with this eye, notwithstanding the cataract, he could clearly distinguish light from darkness. The pupil dilated slightly by belladonna, putting on the stretch some six or eight tags of uvea, which formed the adhesions between the capsule and iris. The cataract presented a bluish grey colour, mottled, being darker in some parts than in others.

I at first attempted depression by the posterior operation, but without success, the adhesions dragging the iris downwards and backwards, when I endeavoured to depress the cataract. After waiting some weeks, on January 20th 1849, I performed kerato-

nyxis, using a fine and much curved Scarpa's needle, the cutting edges rounded off, to within one-tenth of an inch of its point. With this the cornea was easily pierced, and the lens and its capsule freely divided, as well as some of the adhesions of the iris.

The cataract appeared before the operation to be lenticular alone, but on breaking some of the adhesions, and bringing more of the capsule into view, a part of the latter was seen opaque.

I passed the needle through the cornea, with its convex surface towards the iris, and when the point had reached the pupil, I rotated the needle, so as to bring its convex surface towards the cornea, and then entering the point deeply into the lens, I divided it and the capsule freely. On withdrawing the needle, I rotated it back again, so as to bring its convex surface again towards the iris. Cold-water dressing was ordered to be constantly applied over the eye.

Jan. 26 (six days after operation).—There had been no pain since the operation, or other sign of inflammation. The pupil was enlarged, and a considerable opening was seen through the middle of the cataract.

Feb. 7.—A small opacity, apparently opaque capsule, remained at the upper part of the pupil, and a like opacity at the lower, with a clear bright black between them.

March 15 (eight weeks after operation).—The opaque substance in the upper part of the pupil has entirely disappeared, and he could perceive whether one, or two, or three fingers were held before him, but he could not distinguish them as fingers. He was discharged about this time.

In this case keratonyxis (once performed) was perfectly successful in removing the cataract, and in enlarging the pupil; but the prognosis was unfavourable, and the result of little value, owing to the great impairment of the nervous apparatus of vision.

A clear bright black artificial pupil remained in the eye operated on three years before; but this operation, like the last, though successful as to its immediate objects, proved of little benefit to the patient's vision.

Case 11.—Cataract of both eyes. The left had twice been operated on, and the right once (posterior operation for depression), before the patient's coming under my care. Both eyes had suffered much from great and long-continued inflammation succeeding to these operations. In the right eye was seen a pale amber-coloured cataract, and the outer half of the pupillary margin of the iris was adherent to the capsule of the lens. There was no vision beyond barely distinguishing light from darkness.

John Bolding, æt. 72, came under my care in the Toronto Hospital, July 29th, 1849, on which day I performed Keratonyxis

on the right eye. With the needle I used in case 10, I separated the adhesions, which broke readily; and having lacerated the capsule, I divided the lens into several pieces, some of which escaped into the anterior chamber.

Aug. 18 (20 days after operation).—No acute inflammation followed the operation of July 29, but ten days or a fortnight after, a deposit like pus began to appear in the outer and lower part of the anterior chamber, which in another week was filled to nearly one-third with this deposit. The cataract by this time was partially absorbed, and I now (August 18) made a section of the lower third of the cornea, through which the deposit (semi-fluid) immediately escaped, and most of the remains of the cataract I removed with the scoop and toothed forceps. Cold-water dressing was afterwards constantly applied.

Sep. 18 (a month after operation.)—No pain, and very little inflammation followed this second operation, and at this time vision of the right eye was somewhat improved, so that he could distinguish the bars of the windows and other large objects in a good light. Vision, I believe, did not improve beyond this. The prognosis was clearly unfavourable in this case, in consequence of the inflammation which followed, and lasted so long after the previous operation.

CASE 12.—Cataract (lenticular) of both eyes. Perception of light good. Not complicated with any other apparent structural change. Extraction performed on both eyes. Prognosis favourable.

Rob. Simpson, æt. 21, was admitted into the Toronto Hopital, April 17th, 1850. Both cataracts were of a bluish white colour, and presented a regularly marked radiated appearance of the lens.

April 22.—The pupil of the left eye being moderately dilated by Belladonna, I made a section of the lower half of the cornea, dividing the capsule of the lens at the same time. The patient seized my arm at the time the knife was passing across the anterior chamber, which caused its point to wound slightly the nasal and lower side of the pupillary margin of the iris. The cataract broken up, escaped at once, with some protrusion of the iris; the latter was readily returned wholly within the cornea, by gently rubbing on the lid placed over the protruded iris.

April 28 (six days after operation).—There had been little or no pain since the operation. The cornea was quite transparent, the wound healed, and the pupil a bright black, of good size, but slightly irregular at the lower part. The sclerotic conjunctiva was but little injected. He could see large objects, but without knowing what they were, and was dazzled by a very moderate light. Cold-water dressing had been constantly applied.

May 20 (4 weeks after operation.)—He could read ordinary print by aid of a convex glass.

May 25.—I operated by extraction on the right eye, the pupil being somewhat dilated by belladonna. I again made a flap of the inferior half of the cornea. The iris contracted, and did not protrude. The lens, as soon as the incision was completed, was (by muscular pressure on the globe) forced in broken pieces through the wound, and the pupil appeared of a clear bright black. He had been living almost wholly on animal food one pound and a half of beef daily) having diabetes mellitus. I now reduced his meat to half a pound, with a quarter of a pound of rice daily.

May 30 (five days after operation). There had been no pain since the operation. The wound in the cornea was united and scarcely visible; the iris perfect, the pupil a clear bright black, and the sclerotic conjunctiva but slightly injected. Cold-water dressing had been constantly applied.

He was discharged June 24th (thirty days after the second operation) having very good vision of both eyes.

Case 13.—Cataract (lenticular) of both eyes; not complicated with any other apparent defect. Extraction performed on one eye. Prognosis favourable.

Mr. Wm. T., æt. 18, residing in Whitby, was brought to me by Dr. Gunn, of that township, on the 15th of May, 1850, on which day, with Dr. Gunn's assistance, I operated on the right eye, making a section of the upper half of the cornea, and dividing the capsule by the same incision, the pupil being dilated by belladonna. The iris was not touched, and the lens came out with the knife, lying on its flat surface. The pupil contracted, was a clear black, and there was then no prolapsus of the iris. So far, nothing could be more satisfactory. Cold-water dressing was constantly applied; and a week after the operation, I first opened the lids to examine the eye, in which there had been scarcely any pain, and the pulse had not risen above eighty, being generally but seventy. I found the cornea quite transparent except at the wound, through the middle of which was protruded a little bag of iris (size of a pin's head). The pupil in consequence was drawn upwards, and irregular, but still of moderate size. The conjunctiva was red, and the lids slightly swollen. I excised the little bag of iris, for the purpose of preventing a further protrusion being caused by pressure of the aqueous humour behind it. Sum. 6 ta q: h: Cal: gr. i: P. Dov. gr. v.

May 29 (two weeks after operation). Again a little bag of uvea protruded, which I punctured. Belladonna had been frequently applied, by which the pupil was slightly dilated. Eventually, the pupil became obliterated, the little bag of iris entirely disappeared after frequent punctures, and the momentary applications of the nitrate of silver, and all inflammation ceased,

leaving the cornea quite transparent except to a small extent at the line of incision. There was of course no vision.

Nov. 30 (six months and a half after extraction).—I operated in the following manner to form an artificial pupil, the lower fibres of the iris being much stretched by the dragging upwards of the pupil, and the cornea being of its normal transparency. With a narrow-bladed knife, I punctured the cornea on its temporal and lower side, carrying on the knife, so as to puncture also the iris near its centre, and thus to make in it a small incision. I then passed Tyrrell's blunt hook through the puncture in the cornea, and caught with it the nearest margin of the slit made in the iris, just as one would hook the temporal margin of the pupil. I then drew a portion of the iris through the opening in the cornea, so as to enlarge the aperture in the iris. The anterior chamber was so immediately filled with blood, that I was uncertain as to the size of the artificial pupil.

Dec. 3 (three days after operation). Cold-water dressing had been constantly applied, there had been little or no pain or inflammation, and most of the blood had been absorbed, a good sized pupil being visible.

Dec. 19 (nineteen days after operation.) With a convex glass he could now tell with accuracy the time by a large watch, and could make out letters of half an inch in length.

Nov. 7, 1851 (nearly a year after the operation.) I examined the eye. The artificial pupil remained of the same size, extending from the centre of the iris to the lower and temporal side of its circumference. To the naked eye, the whole of the pupil appeared of a clear black, but examined by a lens, a streak like a thin brownish veil of uvea, and a small piece of opaque capsule, were seen in the pupil. With a proper glass he could read, though not quickly, a clear good print of moderate size. For many years before the operation, he had been unable to read at all. His father told me, that his sight began to be impaired about ten years before. The patient says, that if he suddenly shuts the eye not operated on (the left) any object at which he might have been looking seems immediately to rise, and on opening again the left eye, the object seems as quickly to descend. Without a glass he can tell readily one colour from another.

Both cataracts presented a bluish white appearance, with well-marked more densely white radiating lines, very regularly arranged, and most distinct at the circumference of the lens, the lines being there broader, whilst at the centre of the cataract they were not discernible, so that the centre of the lens and the intervals between the radii were comparatively transparent. The right lens was most opaque. In this case the eye appeared as promising for extraction as could possibly be, and as there was

no protrusion of the iris at the time of the extraction, I suppose that the incision in the cornea not uniting in the middle by adhesion, allowed the protrusion of the iris to be effected by pressure of the aqueous humour behind it, which eventually caused the entire closure of the pupil, notwithstanding the most attentive endeavours to prevent it by means with which I have succeeded in many cases of prolapsus of the iris after perforation of the cornea by ulceration. This case, though unsuccessful as a case of extraction alone, may be considered as perfectly successful as an operation for artificial pupil.

To be continued.

Review.

Operation for Cataract, with a fine Needle, through the Cornea. By A. Jacob, M.D., F.R.C.S., &c. Dublin, 1850. Page 36.

The operation for cataract, so strenuously and enthusiastically advocated by Dr. Jacob in the pamphlet before us, is the operation of keratonyxis, slightly modified by the character of the instrument employed. This operation, or the circumstances from which it originated, we find first noticed by Mayerne in the year 1690; while to Bartette has been attributed the discovery, or first distinct recommendation of it; although neither he nor Gliege, in 1786, appear to appreciate the just advantages of the operation. It was reserved for Mr. Saunders, in England, to perfect the operation, which he appears to have applied especially to congenital cataract. This operation, keratonyxis, which is intended to cause the destruction of the lens and its capsule, by an operation anteriorly through the cornea, has been presented to us with two several indications: the first variety advocated by Consadi, Beer, and Saunders, was merely intended to produce an opening in the anterior portion of the capsule of the lens, so as to permit the entrance of the aqueous humour, and to produce such an injury of the lens or its formative structure as should cause its death. The second variety was recommended by Buckhorn, Langenbeck, Walther, Reisinger, and others of the German school. In this the anterior capsule is broken up, and the lens, completely cut into pieces, is brought into the anterior chamber, floating in the aqueous humour, in which it is to be dissolved and removed by the absorbents. The especial advantage claimed by Dr. Jacob is the delicacy and fineness of the instrument employed in the operation,—a fine sewing needle,—whereby a less amount of injury to the cornea is produced, and the consequent liability to inflammatory action diminished. Here we will let Dr. Jacob speak for himself. At page 11, he says, "If the surgeon determines

to adopt the operation of opening the texture of the lens through the cornea, he has next to make choice of the instrument which will accomplish this object most effectually, and with least injury to the organ. I conceive that all that is required for this purpose is a fine point; a cutting edge or knife being only required when the lens is to be cut in pieces. I also consider that the needle should be curved at the point, to enable the surgeon to open completely the texture of the lens, if it should prove soft or pliable; and it should be so constructed that the aqueous humour shall not escape. It is obvious that these objects cannot be attained by the use of the old spear-pointed couching needle, or by the smaller needles of Hay or Scarpa, unless they are very much diminished in their proportions. The flat needle of Mr. Saunders, however successfully used by him, is objectionable on account of its straight form, and the impossibility of rolling it between the fingers to produce the effect of a drill on the lens. That the modification of Scarpa's needle, recommended by Langenbeck and Guthrie, may be employed with the best effect, there can be no doubt; but I have to object to every needle fabricated by a cutler, that, however delicately the instrument may be formed, it is liable to leave a mark in the cornea, and made very small to guard against this occurrence, can seldom be obtained of the proper temper or finish: if too soft, they bend; or if too hard, break. To attain the desirable objects stated above, I determined to try a fine sewing needle, curved at the point; and after about forty operations, I do not feel in the least inclined to repent of my choice; I am, on the contrary, every day more and more satisfied that it affords peculiar and unquestionable advantages. It rarely or ever leaves even the slightest mark on the cornea. I could produce examples where it has been three times introduced, and where not the slightest speck can be detected; and I have introduced it into the very centre of the cornea without any bad consequences. When fairly introduced into the eye, it is capable of accomplishing any object to be attained by a needle. The capsule can be opened to any extent; a soft and friable lens can be actually broken up into a pulp, by pushing the curved extremity of the needle into its centre; large fragments can be taken up on the point of the needle from the anterior chamber, and forced back out of the way of the iris, or, if sufficiently soft, may be divided by pressing them against the back of the cornea with the convexity of the needle; a method which I have repeatedly adopted with advantage. When the lens has been displaced from the capsule, in consequence of the needle sticking in it in attempting to open the texture, I have, without removing the needle, placed the lens on the anterior chamber, and then extracted it; and in other cases have forced it back into the vitreous humour, out of the reach of the iris. From the fineness of its form, and the ease with which it can be turned and twisted in every direction, it enables the surgeon to

deal most effectually with an opaque capsule; he may pick it with the point from any attachment it may have formed to the iris, or if it hangs flaccid he may entangle and detach it by pulling or twisting. In certain cases the pupil I found nearly closed, and adhering to a smaller cataract of nearly cartaliguous hardness; in these I have introduced the needle, and with the point picked up the adhesions between the margin of the pupil and this hard mass, which I have placed in the anterior chamber, and removed through an opening in the cornea with a pair of forceps. It may be said that all this might be accomplished by a diminutive needle, on the plan of Scarpa's; but not, I conclude, with the same prospect of success, on account of the greater size of even the smallest of such needles."

Again, "The size of the needle is known in the shops as number *seven*, being the forty-fourth part of an inch in diameter, about one-half the size of the finest Saunders' needle that is made. The point can be turned to the requisite curve by means of a pair of cutting forceps or the ward of a small key, of course without heat, which would destroy its temper. It must not, however, be expected that all needles are so soft as to be bent thus cold; there may not be ten in one hundred of this temper, but when once turned, they retain the curve without any danger of bending or breaking, and certainly possess a degree of strength and temper never observed in needles separately forged, and finished by the cutlers. They should always be tried before use, by passing them repeatedly through thick calf-skin leather. After they have received the requisite curve, the point should be cut flat on each side on a firm hone, and carefully examined with a magnifying glass, to ascertain that it is perfect. The extent to which the point should be curved may be left to the choice of the surgeon, reminding him that the greater the curve the more effectual the needle will be when introduced, but the difficulty of introducing it through the cornea will also be greater. I therefore recommend those who use it for the first time to choose one slightly curved. After the point has been turned, the needle, held in the jaws of a pair of pliers or a vice, is to be run down into a cedar handle, without cement, leaving only *half an inch* of blade, which I have found to answer every purpose. If the handle be left long it will yield, and spring when opposed to resistance. The handle should be about the fifth of an inch in diameter, and four inches long. I use the needles made for camel's-hair pencils, and find that a metallic ferula, which increases the length, is unnecessary and objectionable. A needle thus constructed, and preserved free from rust, I have used the same one dozen times, without sharpening.

"The surgeon, provided with such a needle, places himself in the usual position with respect to the patient, availing himself of whatever assistance he may find necessary to secure the lids. He

then brings the point of the needle within a very short distance of the eye; and when the cornea is brought into an advantageous position, he suddenly strikes the needle into it, near its circumference. As I do not apprehend any opacity from the wound, I am not very particular with respect to the precise point where the needle pierces; I generally, however, enter it sufficiently near the margin to obviate defect from this cause. The point of the needle once fastened on the cornea, the surgeon has complete command of the eye; no action of the muscles can disengage it, and there is no danger of the needle slipping into the anterior chamber; an elevator or ophthal mostal is therefore altogether useless. The operator now pushes the needle through the cornea, which frequently yields like wet leather, and the eye often turns so much towards the inner canthus that the pupil is hid, and he must rely upon his knowledge of the course the needle necessarily takes, in order to conduct it to the lens. This is the principal difficulty to be surmounted. If the surgeon does not now steadily push the needle forward, whatever resistence he may feel, he will find, when the eye returns to its proper position, the point of the needle is still merely entangled in the cornea. This is also the period of danger to the iris: if the operator does not keep the flat of the needle to that membrane, with the point down and the convexity up, he will be very liable to injure it. Should it happen that the point of the needle has passed through the iris, it may be easily extracted by gently drawing back the instrument, without removing it from the eye. After the needle has been fairly entered, and that the operator sees its point at the opposite side of the pupil, he brings the cornea forward, merely by pulling it upon the needle, to which it is completely secured, in consequence of the blade being wedged into its texture. He now turns the point directly back, and gently tears open the capsule, pricking and scratching the surface of lens with a rotary or drilling motion of the instrument, not with a lever or cutting movement, which is necessary when Saunder's needle is used. If the lens be soft and friable, the fragments will fall like snow into the anterior chamber, and the surgeon may deal very freely with it, pushing the needle deep into its structure, and twirling the point round, so as to mash it into a pulp. If, however, it proves hard, and that he attempts to deal thus with it, he fixes his needle in its tough and glutinous structure, turns it out of the capsule, drags it against the iris, makes it necessary either to extract it or force it back into the viterous humour. As I have already observed, if the cataract be hard, the capsule should be opened, and the centre of the lens cautiously scratched with the point of the needle so as to expose its texture to the contact of the aqueous humour, by which it is softened and fitted for breaking up on a future occasion. In withdrawing the needle, the surgeon has to encounter the same description of difficulty which attends its

introduction; and it is tightly held by the cornea, requiring to be turned on its axis in order to extract it, as an awl is drawn from leather. It must not, however, be forgotten that this wedging of the instrument is attended with the great advantage of enabling the surgeon to operate on the most unsteady eye without an opthal mostal or elevator."

Such is the nature of the operation advocated by Dr Jacob; such also is the instrument invented by him, and his mode of using it: the full detail was necessary, to enable our readers to comprehend the several steps of the operation, and to appreciate its advantages or disadvantages; and without it we could not have done that justice to Dr. Jacob which his ingenuity and science demands. One theory is sufficiently clear, that the delicacy of the instrument employed is an advantage not to be despised, seeing that we are compelled to wound the transparent cornea; a wound which if considerable, or attended with much inflammation, not unfrequently leaves opacities of its texture, that may itself be a considerable impediment to vision.

When the operation of keratonyxis is decided upon, the means and plan detailed by Dr. Jacob is certainly most judicious, and may for the most part be followed with marked advantage. With respect, however, to the character of the operation of keratonyxis, considered with regard to its advantages in the removal of cataract, we must say, that it possesses many is sufficiently clear, but that it is applicable to every variety of that disease, as recommended by Dr. Jacob, is certainly not so evident; while in some cases there are undeniably several and serious objections to its use. To understand this, let us consider the effect of the operation on the diseased structure, when properly performed, where it is intended to wound the capsule of the lens. Open up its tissue so as to permit the aqueous humour to come in contact with the structure of the lens, to wound the lens itself, and by moving it freely within its capsule, so to destroy its formative structure, and to cause its death; and submitting it to the action of the aqueous humour *in situ*, so that it shall be gradually dissolved, and at last be taken up by the absorbents, and so removed from the eye. The power of the aqueous humour to dissolve the albuminous cell-wall, or portion of isolated capsule, is doubtless dependent upon the free soda it contains. That such a series of actions occurs as the consequence of the operation, is sufficiently plain to every individual who claims to have had any experience in the treatment of this disease. The laceration of the capsule can scarcely occur, without producing sufficient derangement of the formative action of the cellular structure of the lens, that shall cause *its death*. Such also often happens from a concussion, without any positive injury to the capsule; but when the aqueous humour having entered the capsule, the outer circle of cells forming the structure of the lens are submitted to endosmodic

action: they imbibe fluid, swell, burst, and by degrees are dissolved in the aqueous humour. In a short time, a second series are submitted to a similar influence, and experience a similar fate, until by degrees the whole lens is slowly dissolved; and having been removed, provided a sufficient amount of capsule has been detached, separated from its connections on the eye, and submitted to a similar influence, a cure is completed. The progress of the change must obviously be very slow, extending over many months; and when the capsule of the lens has not been sufficiently lacerated and detached, must require frequent repetitions of the operation.

Such, we look upon it, is the true and only warrantable nature of the operation of keratonyxis; the operation as advocated by the German school, in which the capsule of the lens is lacerated, the lens cut up into fragments and pushed into the anterior chamber, must evidently be more dangerous in its results. Submitted to precisely the same influence, the lens may doubtless be more quickly acted upon, and absorbed; but we question whether the celerity gained in its absorption is not vastly counterbalanced by the probable, nay almost certain amount of inflammation produced. Distinctly the danger to the eye is in no precise ratio with the irritation which the iris experiences by the pressure of the foreign body—the dead comminuted portions of the lens.

In the hands of so skilful and experienced an oculist as Dr. Jacob, the operation of Keratonyxis would doubtless prove eminently successful, but in less practised hands, or when the operation has been injudiciously employed, from the nature of the cataract, many very grave and serious results will often occur. The cornea having been punctured, spasmodic action may so operate, especially was the needle not properly tempered, as to cause its fracture on the cornea. Again, the iris may be wounded, even lacerated, and internal hœmorrhage obscure the future steps of the operation; so also the needle may be pushed too deeply into the lens, sticking in its structure, may upon being withdrawn bring with it the lens, so as to dislocate it from its capsule, and render it absolutely necessary to extract it through the cornea. Sometimes also the operation is followed by excessive vomiting, doubtless dependent upon a shock of the nervous system, all which may cause more or less inflammatory action, which is liable to produce changes in the structure of the eye, deranging or destroying vision.

The variety of cataract to which the operation of keratonyxis appears to be most applicable, is the soft lenticular variety. Here the operation, if carefully and adroitly performed, after a certain time, accomplishes a cure, with comparative ease, and almost without pain or danger; indeed, it is the privilege of art, in this case, to follow in the footsteps of nature, as exemplified in certain

varieties of congenital cataract. In capsulo-lenticular cataract it may be used occasionally with considerable advantage; but in the tough capsular cataract, or in the hard lenticular variety, it is most markedly inapplicable. In the first from the impossibility of cutting up the tough membrane through the cornea, so as completely to isolate it from its connexions in the eye, whereby it may be dissolved and removed. In the second variety, the hard amber-coloured lenticular cataract, from its dense and firm structure, presenting a so much greater impediment to its solution and absorption, by far greater risk that dislocation of the lens may occur from its capsule, during the operation, rendering extraction from the anterior chamber imperatively necessary, or obliging us to depress the hard and insoluble body into the vitreous humour, an alternative both difficult and dangerous.

The true position of the operation of keratonyxis with regard to the cure for cataract may, we think, be summed up in the following manner:—

1stly—That, when properly performed, it is comparatively free from danger to the eye.

2ndly—That it is easy of application, and may be most readily (of all the operations for cataract) undertaken by an inexperienced person.

3rdly—That all the different steps of the operation are submitted to ocular demonstration, and (when the pupil is diluted with belladonna) are clearly visible to the eye, so that we can scarcely fail to produce the effect we desire.

4thly—But that it is the most tedious in its cure, often wearying the patience of those submitted to its operation, producing dissatisfaction, and want of confidence in its results.

Simple, and comparatively free from danger, as the operation of keratonyxis is proved to be in the experienced hands of Dr. Jacob, he has, however, not failed strenuously to advocate a strict attention to a preparatory course, prior to commencing the operation; convinced of the accuracy of his most judicious advice to all who contemplate to operate for cataract, we cannot do better than to commend his remarks to their especial attention.

We can here add but little to these directions, save that it is always advantageous to study the constitutional peculiarities of the patient; and if we find a scrofulous, rheumatic, gouty, or venereal diathesis to prevail, to use the means most likely to relieve his peculiar condition, before commencing the operation.

We have thus fully considered the pamphlet submitted to our consideration, and feel we can strenuously recommend it to the consideration of our professional brethren: convinced it is well deserving a careful study, and will embolden many a sur-

geon to take a step in the operative cure of cataract, which has long been looked upon as almost forbidden ground, and thus unwisely, and certainly unnecessarily, yielded up to the itinerant quack.

TORONTO, MARCH 15, 1852.

VOLUME I.

Our present number terminates the first yearly volume of the Upper Canada Journal of Medicine; so far the experiment of publication has been successful. On commencing our editorial labours, we were influenced by the firm conviction, that the day had arrived when an effort should be made to give to the profession of Upper Canada an opportunity of identifying itself in the history of the country, by the possession of a recognized organ, through the medium of whose pages its members might mutually interchange their opinions and views, on the many points of scientific discovery and enquiry daily brought under discussion at home and abroad; as well as record the results of their own observation and practical experience. To those who have sustained the correctness of this judgment, by contributing original papers, reviews, and selections of interest from other periodicals, we tender our warmest thanks, and beg to assure them that a continuance of their support in this respect will always be a matter of desire with us, and that no efforts on our part shall be wanting to produce their contributions with care and accuracy. To those who have hesitated, from whatever cause, to avail themselves of the opportunity of advancing their professional reputation, and extending the field of Pathological knowledge, we would most earnestly appeal to overcome their scruples, by following the example so encouragingly and creditably established in our pages during the past year. It is a mistaken opinion that the *materiel* for medical literature does not exist in a colony so young as this. The phases under which disease appears among us are various and interesting, and from climatic influence and a combination of external circumstances, the very novelty of which constitutes their importance, as peculiar modifying agents, render the statistics of practice in America of great value to the practitioner and philosopher of other countries. The best evidence of the soundness of this view, is the interest with which the records of medical experience in the United States is regarded by the British Medical Press. It cannot have escaped the attention of the general reader, that many illustrations of disease, and reports of individual cases, appear in the periodicals of Great

Britain, extracted from the publications of our neighbours. Now, without the vanity which would prompt us to place the profession in Canada, on an equal footing with the several illustrious individuals who adorn the science of medicine in the Union, we boldly, and we believe justly, assert that as a body, they possess as much intelligence, education and industry as any equal number of practitioners in other countries. And they enjoy some advantages. "Few," in comparison, "and far between," their very sparseness induces a self-reliance, and a necessary universality of occupation, which brings them individually in contact with a more extensive range of practice, than is the case in larger and more closely-associated communities, where the principle of the subdivision of labour is more completely carried out. We hope that we shall be justified in expressing this opinion, by witnessing, month after month, communications from every quarter on every subject.

Our acknowledgments are also due to the proprietors and editors of those publications who have hitherto exchanged with us, and we solicit a further extension of this valuable privilege.

Of our future, we now desire to say something. The price at which this journal is issued, especially with its present circulation, scarcely justifies its enlargement to any very great extent; but by reducing the size of our type, and using a separate cover, we shall be enabled to give a considerable increase of matter, in the same number of sheets. It is also our intention to alter the present arrangement of the Journal. Thus, we shall page all the communications and other original matter distinctively from the selections, so that they may be bound in a separate volume. We shall give each month a general *resumé* of intelligence culled from the most recent sources of information; which, without detracting from the number or value of the selections of extended articles of peculiar interest, will serve to bring more immediately under view the passing events in every department of professional study and the collateral sciences. Our additionnl exchanges, and other facilities, will enable us to make these summaries very complete, and, we trust, acceptable. It is also our present intention to devote a certain space to the republication, in a serial form, of some of the admirable publications which appear from time to time, and which may not be within the immediate reach of all our readers. By these means we hope to extend the utility and value of our Journal.

To meet the additional cost which these changes will necessarily entail, we rely upon an enlarged circulation and prompt payments.

THE BRITISH AMERICAN MEDICAL AND PHYSICAL JOURNAL.

We have received, and it was with pain that we read, Dr. Hall's circular announcing the discontinuance of his Journal. Our sympathy is indeed keenly aroused by the disclosure which he makes; but we sincerely hope that his appeal to the justice of those who have benefitted by his labours, will be met by such a prompt and satisfactory reply, as will relieve him from the heavy pecuniary responsibility under which he is placed on account of his enterprise.

No one can fail to admire the energy and hopeful courage which he has displayed, in continuing the publication for so long a period in the face of such difficulties; and a knowledge of the circumstances now revealed, must satisfy every one of the disinterested zeal evinced by him for the welfare and character of the profession, in carrying on so immunerative and hazardous an undertaking. We hope to see him yet again in the field of literary labour, of which he verily has been in Canada a faithful pioneer, with renewed vigour and under better auspices.

In his editorial capacity he certainly exhibited no very favourable feeling towards us as fellow labourers in the same vineyard, and a sense of what was due to ourselves, induced us to meet some ungracious strictures contained in his last number with a spirit of severity and firmness; but all this we forget, in the present fear that we shall lose his co-operation in the higer objects of our mutual regard—the advancement of the profession, and the welfare of its members. We consider this tribute justly due to the ability and perseverance with which he has conducted the publication, and we cheerfully render it.

We would suggest that some substantial testimonial from his professional brethren throughout the province is deserved by him, and would be equally creditable to them, and we shall be ready to lend our aid in accomplishing such an object.

Since writing the above, we have received the first number of the "*Canada Medical Journal*," edited by Drs. McDonnel and David. Under such able management it must surely succeed. We shall be happy to exchange. We are glad to find our contemporaries confirming our judgment and taste, by adopting the same "physique."

ACKNOWLEDGMENTS.

The Publisher begs to acknowledge the receipt of Subscriptions to the *U. C. Journal* from the following gentlemen :—

Dr. Hodder, Toronto; Dr. Bell, Ayr; Dr. Richardson, Galt; Dr. Bull, Lloydtown; Dr. Daniel, Fergus; Dr. Adams, Albion; Dr. Pass, Barrie; Dr. Warbeck, Bolton; Dr. Rolls, Thorold; Dr. Wood, Kingston; Dr. G. W. Campbell, Montreal; Dr. Robertson, Chatham; Dr. Church, Merrickville, vol. 2; Dr. Corry, Stamford; Dr. Wood, Richmond; Mr. James J. Ball, Thorold; Dr. Rolls, Wardsville.

Correspondence.

To the Editor of the U. C. Medical and Physical Journal.

Sir,—Though most unwilling to notice in any way, Dr. Wanless's *very gentlemanly* communication, published in the January number of your Journal, in reply to an article written by "Scrutator," still, in justice to myself, I am compelled to do so.

I may here mention that I am not the writer of the paragraph signed "Scrutator," though I fully concur in all the statements it contained.

From Dr. Wanless's communication it would appear that he alone was the medical attendant of the deceased McKay, with the exception that Dr. Barry dressed the wound,—that he (Dr. Wanless) visited the deceased several times through the night, and that "*he never heard of my being in attendance on the dying man*"—and he further states, "that he consulted Dr. McKenzie, in presence of Malcolm Cameron, Esq., M.P.P., about the case." I am entirely at a loss to discover what light Dr. McKenzie or any other Doctor could throw on a somewhat obscure surgical injury, which he had never seen or examined, even though assisted by the Parliamentary acumen of Malcolm Cameron, Esq., M.P.P.

My connexion with the foregoing case, was simply as follows:—I was returning from visiting a patient in the country, when a messenger stopped me in the street, to say that I was requested to visit McKay, who was stabbed in the abdomen. I immediately drove to his residence, where I found Dr. Barry dressing the wound, at which I assisted. Dr. Barry had just finished sewing up the wound on my arrival. Mr. McKay then earnestly and repeatedly requested me to continue to attend him, which I did, having visited him three times between that period, which was late in the evening, and his death, which occurred next morning. At one of my visits I met Dr. Barry, by appointment, at none of them did I see or meet Dr. Wanless, though I was informed he had called in my absence, and used the Catheter, a rather unusual proceeding with two medical men in attendance; of this I took no notice, as I had previously determined not to meet Dr. Wanless, professionally, for the following reason:—On the formation of the Middlesex Medico-Chirurgical Society of this town, it was resolved unanimously, that no medical practitioner who sold or dispensed patent or quack medicines could be admitted as a member of the Society. This law excluded Dr. Wanless, and I was informed that he attributed the introduction of it to me, and that it was framed expressly for his exclusion. This, I consider it due to myself to deny, most emphatically, though of course I fully concur in the propriety of such a law, as no Medical Society could exist if it permitted its members to sell or dispense quack medicines, which every educated medical man must know is nothing but a gross imposition on the purses as well as the health of the public. This, I presume, is Dr. Wanless's great *causa belli* against me, and probably a very sufficient reason for "his never having heard of my being in attendance on the dying man."

I am Sir, your obedient servant,

Henry Going, L.R.C.S.I.

London, March 8th, 1852.

MONTHLY METEOROLOGICAL REGISTER, at H. M. Magnetical Observatory, Toronto, C. W.—February, 1853.

Latitude, 43 deg. 39.4 min. N. Longitude, 79 deg. 21.5 min. W. Elevation above Lake Ontario, 108 feet.

Mgt.	Day	Barom. at tem. of 32 deg. 6, A.M.	2, P.M.	10, P.M.	MEAN.	Temperature of the air. 6, A.M.	2, P.M.	10 P.M.	MEAN.	Tension of Vapour. 6, A.M.	2, P.M	10, P.M	MEAN.	Humidity of Air. 6 AM	2PM.	10	Mn	Wind. 6, A.M.	2, P.M.	10, P.M.	Rain, inches	Sn inch	Weather.
d	1	.....	.....	.....	....	....	....	....	....	.....	.....	.....	.....	...	...	...	...	N b E	NW	NW	.....	....	Generally overcast; mild.
c	2	29.827	29.797	29.738	29.793	19.2	28.6	24.2	24.27	0.160	0.147	0.117	0.117	9	91	88	88	NW	WNW	WSW	.....	....	Clear; faint aurora at 5 a.m.
b	3	691	611	478	578	26.0	32.4	29 0	29.57	143	161	157	149	100	88	85	91	WSW	SW bW	SW bW	inapp.	....	Slight rain at 6 a.m.; overcast.
b	4	210	21	353	278	31 0	41.2	37.5	37.30	175	233	205	193	94	91	92	87	SW	W b S	"	.....	....	Mild and fine, thawing rapidly.
b	5	407	407	493	446	33.4	40.2	27 6	32.98	157	199	129	162	82	81	85	85	W	WSW	Calm	.....	....	Very fine day.
c	6	424	147	152	247	21.0	35.2	37.8	31.73	112	167	188	162	96	83	83	89	Calm	ENE	WSW	.....	....	Dense fog a m. Sleet from 4p.m.
c	7	379	631	848	616	31.7	31.6	21.8	29.17	156	092	093	114	78	84	72	70	W b N	W b N	NW bW	inapp	....	Dense clouds passing. High wind
c	8	904	809	.....	.....	14.0	31.6	.....	.....	083	156	.....	.....	94	88	...	...	WNW	SW	SW bW	.....	....	Unclouded; very fine.
a	9	568	424	557	524	27.0	38.5	33.6	33.32	133	178	151	152	90	77	77	79	SW	"	SW	.....	....	Light clouds generally dispersed.
a	10	378	412	130	351	32.2	37.6	37.3	34 77	175	192	218	180	94	86	99	89	"	S bW	ENE	0.550	....	Overcast. Raining from 5 p.m.
a	11	28.77	28.936	067	940	39.0	37.3	27.7	34.07	237	147	124	165	100	67	81	82	NE b E	SW	SW b S	.....	0.2	Rain ceased 6-50a.m.; dull.
a	12	29.151	29.151	678	447	19.2	21.6	19.0	19.67	101	078	085	090	94	65	86	82	S b E	SE b S	SW	.....	0 4	Light clouds and haze, dull.
a	13	612	562	645	634	17.9	21.4	17.7	18.58	090	109	093	096	88	92	92	91	SW	NE	NW b N	.....	1.0	Faint auroral light at midnight.
a-f	14	882	885	832	866	6.2	16.8	21.0	14.98	055	069	094	071	87	71	81	77	NW bW	WSW	SW	.....	0.2	Day clear; Night overcast.
f	15	588	220	.....	.....	23.8	33.4	.....	.....	119	169	.....	.....	92	90	...	...	SW	S	WSW	.....	0.5	Overcast all day. Aur. at 11 p.m.
c	16	331	291	371	339	16.2	20.1	17.8	17.28	073	070	069	067	76	63	67	67	NW b N	Wb N	WNW	.....	....	Imperfect halo round sun at4p.m.
f	17	419	419	570	492	3.6	18 8	13.9	11.70	034	099	078	069	71	94	89	85	W b N	SW b S	W b N	.....	0.3	Overcast; snowing most of day.
f	18	731	984	30 101	961	5.6	5.6	—1.4	2.73	044	044	043	040	73	73	96	75	"	NW	WNW	.....	....	Clear; faint aur. at 10p.m. to m't.
f	19	30.152	30.192	259	30.215	—3.4	16.2	6.8	6.38	027	057	050	045	61	59	89	69	Calm	SW	NW	.....	....	Brilliant aur. 6-36p.m. to6am.26th
d	20	311	3	159	284	—1.2	29 0	11.2	10.10	029	074	070	061	90	66	91	77	"	Calm	Calm	.....	....	Clear; Faint aur. from 10 p m.
c	21	29 969	29.772	29.538	29.736	16 8	28.0	31.5	25.65	079	127	161	123	81	82	95	88	"	E b N	ENE	0.050	....	Overcast; drizzling rain 10 p.m.
b-c	22	369	156	.....	.....	30.2	31.9	.....	.....	163	190	.....	.....	97	95	...	...	"	SW b S	SW b S	.....	...	Snowing a.m. Dull and mild.
c	23	217	086	910	096	28.2	34.8	31.2	31.33	137	171	132	152	88	87	75	87	"	S	SW	.....	0.1	Overcast; aur.light from10-15.
a	27	28.991	28.771	28.669	28.804	31.4	33.5	35.8	33.93	166	185	203	185	95	97	96	93	"	E	Calm	.....	1.2	Mild; barom. at8p.m.28.693.
a-c	28	865	29.080	29.452	29.140	36.1	29.4	19.8	27.88	183	134	100	137	86	81	91	86	SW	SW bW	WSW	0.050	....	Clouds; high wind all day.
b	26	29 701	783	810	772	15.8	23.4	14 1	17 58	088	100	067	084	93	77	76	82	W	SW b S	WNW	.....	....	Overcast a.m.; keen and fine p.m.
e	27	925	898	794	864	11.9	21.1	21.4	19.13	075	095	106	094	94	82	90	86	NW	E b N	N b E	.....	0.1	Densely overcast; snowing10p.m.
c	28	463	28.951	169	166	31.1	32.4	19.8	27.53	169	179	103	148	98	98	93	95	ENE	NE b E	W b S	.....	8 0	Snow from 7a.m.to 4 p.m.
d	29	538	29.819	.....	.....	5 5	11.0	.....	.....	057	067	.....	.....	92	88	...	...	SW	SW b S	Calm	.....	1.6	Fine; slight snow from 8-15 p.m.
Mn.		29 525	29 501	29.537	29.5249	20.87	27.74	23.42	23.82	0.114	0.129	0.118	0.119	86	79	86	83	5 01 m.	8.12 m.	6.48m.	0.65	13 0	

Highest Barometer.....30.371, at 4 p.m. on 22th } Monthly range:
Lowest Barometer.....28.669, at 10p.m.on 24th } 1.702 inch.

Highest obser. temperature 41.2, at 2 p.m. on 4th } Monthly range:
Lowest " " —6 2, at a m. on 19th } 47.4

Mean highest observed temp. 29.19 } Mean daily range:
Mean minimum Ther. 15.98 } 13.20.

Greatest daily range, 27.2, from 4 p.m. of 22th to 6 a.m. of 25th.

Warmest day, 4th. Mean temperature, 37.30 } Difference,
Coldest day, 18th. Mean temperature, 2.73 } 34.57.

Remark.—The observations on Sundays are not included in the

Sum of the Atmospheric Current, in miles, resolved into the four Cardinal directions:

North.	West.	South.	East.
1046.37	2734.38	1622.49	491.86

Mean velocity of the wind—6.42 miles per hour.

Max. velocity—28.6 miles, from 2 to 3 p.m on 7th.

Most windy day—25th: mean velocity—15.76m.per hr.

Least windy day—20th: mean velocity—0.26 ditto.

Most windy hour—3 p.m.: mean veloc.—8.36 ditto.

Least windy hour—8 a.m.: do. —4.83 ditto.

Mean diurnal variation—3.53 miles.

Year	Temperature. Mean.	Max.	Min.	Range	Rain. Days.	Inches	Snow. Days	Inches
1840	28.30	59.3	—10.5	60 8	8	1,475	6	
1841	23.20	44 1	—1.3	45.4	1	inapp.	9	} No record
1842	27.90	50.2	2.9	47.3	8	3.625	9	
1843	15.92	38 5	—9.4	47.9	1	0.475	21	14 4
1844	27.72	47.9	0.6	47.3	4	0.430	7	10.0
1845	26 45	49 1	—4.2	53.3	5	imper.	9	19.0
1846	20.80	41.9	—16.7	58.6	0	0.000	13	46.1
1847	22.48	41.1	—0.2	42.0	2	0.550	13	27.3
1848	26.28	46 6	0.0	46.6	4	0.775	8	10.8
1849	19.99	40.6	—9.8	50.4	2	0.240	13	19.2
1850	26.58	49.6	1.2	48.4	7	1.235	9	23.1
1851	28.42	50.2	1.2	49.0	7	2.600	4	2.4

METEOROLOGICAL REGISTER.

The column headed "Magnet"—now first added to the register, is an attempt to distinguish the character of each day, as regards the frequency or extent of the fluctuations of the magnetic declination, indicated by the self-registering instruments at Toronto. It is therefore a step towards the enquiry, still to be entered into, whether those fluctuations can be connected with any of the other phenomena, with which meteorology is conversant. The classification is to some extent arbitrary, and may require future modification, but has been found tolerably definite as far as applied. It is as follows:—

(*a*) A marked absence of disturbance.

(*b*) Unimportant movements—not to be called disturbance.

(*c*) Marked disturbance, whether shown by frequency or amount of deviation from the normal curve, but of no great importance.

(*d*) A greater degree of disturbance, but not of long continuance.

(*e*) Considerable disturbance, lasting more or less the whole day.

(*f*) A magnetical disturbance of the first class.

The day is reckoned from noon to noon. If two letters are used, the one placed first applies to the earlier, the other to the latter part of the trace. Although the declination only is particularly referred to, it rarely happens that the same terms are not applicable to the changes of all the elements.

J. H. L.

Toronto, March 10, 1852.

ERRATA IN THE JANUARY METEOROLOGICAL REGISTER.

Temperature	on the 15th at 10 p.m. for	5.8	read —5.8
"	on the 20th at 6 a.m. for	6.4	read —6.4
"	on the 22nd at 6 a.m. for	0.2	read —0.2
Minimum Temperature	for.....	10.6	read —10.6

SELECTED MATTER.

MEDICINE.

ON EXPECTORATION AS A MEANS OF DIAGNOSIS IN DISEASES OF THE CHEST.

By Dr. Theophilus Thompson, F.R.S., &c.

[It is now known that the old supposition, that the presence of pus in the expectoration indicates the existence of phthisis, is totally incorrect, as it may be present in bronchitis and yet absent in consumption. But we must be mindful of the danger of falling into the opposite error, and discarding a symptom which may be of great value to us.]

There are certain general rules worthy of regard in connexion with this subject. Thus, if a person with some severe chest complaint coughs frequently, and expectorates only frothy, salivary-looking fluid, you suspect pleurisy. If another patient expectorates a glairy fluid, resembling white of egg, you suspect bronchitis; if the expectoration have a rusty tinge and resemble gum-water coloured with blood, you are not likely to err in recording pneumonia; if you are told of a sudden expectoration of a gush of pus in considerable quantity, especially if it be fœtid, you would expect to find that matter accumulated in the cavity of the pleura had found its way into the bronchial tubes.

We have said that purulent expectoration may occur both in bronchitis and in phthisis. When, however, long-continued purulent expectoration is unaccompanied with any distinct rhonchus, you may be tolerably certain that the source is a vomica, and not the bronchial tubes. Let us consider to what extent we may derive aid in our diagnosis of the existence and stage of phthisis, from examination of the sputa. We must not expect too much from this, or indeed from any other single symptom. Phthisis may proceed to an advanced period unaccompanied with expectoration, or the expectoration may be for a time suspended, especially under the successful employment of medical treatment.

In this patient, for example, S. A. M., whom you formerly examined, you have unquestionable proof of vomica in the cracked-metal sound, which you readily detect by making smart percussion in the second left intercostal space, but there is scarcely any cough, and that cough is dry. Still there are certain common circumstances regarding phthisical sputa, which may be briefly detailed. A member of a consumptive family feels a little out of health and has a dry morning cough; after a time the cough is attended with slight expectoration, at first salivary, after a short period becoming viscous, but transparent and homogeneous, subsequently dotted, and then streaked with blood, the striæ becoming by degrees more abundant. After a longer or shorter time, whitish opaque spots appear, the size of a pin's head, rounded or flattened, giving a pearly aspect to the expectoration. Those multiply and enlarge, and ultimately form masses of an opaque white or dark grey colour, varying in size from that of a lentil to a two-franc piece, irregularly rounded and chequered at the side, sometimes streaked with blood and floating in a viscous transparent fluid. At a

more advanced period of the disease, the expectoration is purulent, spreads out into a porraceous mass, and shortly before death is often surrounded by a pinkish halo.

The changes thus described do not necessarily occur in so uniform a manner; but the most characteristic appearances of different stages of the disease may probably be best illustrated under four divisions—namely, first, the salivary or frothy; secondly, the mucous; thirdly, the flocculent; fourthly, the purulent or porraceous. The first is what you would expect from irritation, the result either of pulmonary congestion, or of slight tubercular deposit; the second would indicate a more confirmed affection of the bronchial tubes; the third is peculiarly characteristic of secretion from a vomica modified by the absorption of its thinner constituents; the fourth is indicative of phthisis far advanced, and (if unmixed with froth) usually involving both lungs. Let us see how far such a representation is in harmony with the facts at present accessible in the hospital. I show you some examples of simple frothy expectoration. The first is coughed up, in the quantity of four ounces in the twenty-four hours, by the patient I now introduce. W. G., aged forty-two, a post-boy, admitted into the hospital, November 18, 1850, says, he has been for eight years subject to asthmatical cough; fourteen months since observed some streaks of blood in his expectoration, and during the last fourteen months has been losing flesh; pulse, 84; respirations, 28 a minute; height, five feet two inches and a half: vital capacity 140. These circumstances are sufficient to make you suspect the nature of the disease; at the same time the local signs are so slight—being almost confined to the existence of a little dulness on percussion at the apex of the right lung, and rather strongly pronounced breathing under the left clavicle—that we may reasonably come to the conclusion, in harmony with the appearance of the expectoration, that the disease is in the first stage, and not at present considerable. The second variety of expectoration is mucous, viscid, transparent. Two very good examples are before you. This patient. W. D., expectorates half an ounce daily of this kind of fluid; he is a gardener, has no hereditary liability to phthisis, and attributes his complaint to bad diet. He began to cough last August, and at that time expectorated about half a pint of salivary, frothy fluid in twenty-four hours. This patient's pulse is 78; height, five feet four inches; vital capacity, 155. The upper part of the left chest expands less than the right during inspiration, and is rather dull on percussion. The expiratory murmur is prolonged, being equal to the inspiratory at the apex of each lung. There has never been hæmoptysis. The disease is evidently rather more advanced than in the patient previously introduced to you, but as yet there is no softening of tubercle, and the expectoration depends on bronchial irritation. W. D.'s expectoration contains a little blackish matter, resembling what is often supposed to owe its origin to carbonaceous matter abounding in the London atmosphere; but the colour fades on the addition of nitric acid. It cannot therefore be carbon; it is rather the black matter of pigment cells, known to be formed under slight, not under severe, forms of bronchial inflammation. On applying a little heat, and examining this expectoration with the microscope, crystals, apparently of triple phosphate, may be seen. By the politeness of Dr. Garrod, I am able to show you another microscopical preparation of triple phosphate expectorated. It is from a patient in whom a a strong impression had been entertained of the existence of phthisis. Dr. Garrod, however, ventured to pronounce the affection of bronchial. The progress of the case has established the correctness of his diagnosis, and serves to confirm

an opinion I am inclined to entertain, that the proportion of salts in the expectoration appears to be in an *inverse ratio to the degree of inflammation present.* Such an opinion is at least in harmony with the interesting observations recorded by Mr. Brett in the 'Transactions of the British Association for the Advancement of Science' in 1837. As an approximation to the proportion of saline matter in the solids expectorated, we may mention from twenty to thirty per cent. in catarrh, from fifteen to twenty in the more opaque mucus of chronic bronchitis, and rather less than ten in the puriform expectoration of advanced phthisis.

Dr. Babington found that the addition of common salt after a time converted pus into a viscid mass like mucus. Dr. Golding Bird perfected the analogy by adding soda to pus, and then transmitting through it a current of carbonic acid. (Guy's Hospital Reports, No. 6.) Chemically speaking, then, the watery, frothy-looking secretion of our first division is chiefly serum; the second, or mucous, is albumen mixed with saline material; the fourth, or purulent, the blood-globules *devoid of their colouring-matter*, combined with coagulable albumen; and the third, or flocculent, has the mixed character, varying according as the principal proportion of material is supplied by the vomica, or by the bronchial tube.

It is the third variety of expectoration, however, to which I am specially anxious to direct your attention, *because with scarcely any qualification you may* regard it as pathognomonic of phthisis. When spat into water you observe it assuming the form of globular masses, like little balls of wool or cotton. Some of these masses have subsided, some are suspended at different depths, others float on the surface, sustained by bubbles of air, entangled in the surrounding mucus. Similar expectoration spat upon the plate has taken the form called by the French nummular, being in flattened, rounded, separate masses, and assuming a shape not unlike pieces of money.

Some of the patients from whom these specimens were obtained are before you. Examine J. E——; you hear in the right subclavicular region two or three distinct clicks accompanying inspiration and expiration. This is humid crepitation, and so good an example of the clicking variety as to give appropriateness to the term of "clicking rhonchus," suggested, I think, by my colleague, Dr. Cotton, as applicable to this conclusive sign of softened tubercle.

E. P—— has distinct indications of vomica, and the cavernous gurgling attending her cough, heard under the left clavicle, accords with the information supplied by the ragged flocculent masses floating in her expectoration.

We have now shown you progressive changes for the worse: let me indicate the reverse alternations characteristic of amelioration.

When the process of contraction is going on in a vomica, a diminished quantity of expectoration is a common and a favourable symptom.

C. V——, a month since, expectorated four ounces daily—now the expectoration has ceased. This result may partly be attributed to improvement of health under the use of appropriate regimen and the administration of cod-liver oil, but has probably been promoted by the inhalation of turpentine.

Profuse expectoration into a phthisical cavity is probably a cause as well as an indication of deteriorated blood, and measures which are consistent with a judicious regard to the accompanying conditions, may be advantageously employed in order to lessen its quantity. When the bronchial tubes contribute much to the supply, the skin being moist and the appetite defective, naphtha may sometimes be useful, but generally speaking, tannic acid will probably be found a more appropriate medicine.—*Lancet, August* 2, 1851.

OBSERVATIONS ON THE SOUNDS OF THE HEART.

By Richard Brown, Esq., M.R.C.S., L.A.C., &c., Cobham.

Few subjects, perhaps, have claimed more attention from physiologists than the one upon which I am about to offer some remarks, and I may add, none in which a greater discrepancy of opinion has been manifested.

Harvey and Haller describe the contraction of the auricles as preceding those of the ventricles. Laennec conceived that the contraction of the auricles followed those of the ventricles. Turner, Corrigan, Williams, Hope, and Bouillaud have shown the inaccuracy of Laennec's opinion. Dr. Williams investigated this subject, and his inferences were confirmed by the Committee of the British Association—namely, that the contraction of the ventricles followed immediately that of the auricles.

The first sound of the heart was ascribed by Mr. Carlisle to the rush of blood into the great arteries; by Mons. Rouanet and others to the closing of the auriculo-ventricular valves; by Dr. Hope to the collision of the particles of fluid in the ventricles; and by Dr. Williams to the muscular contraction of the heart itself.

The second sound was ascribed by Dr. Hope to the impulse of the blood from the auricles filling the ventricles; by Messrs. Carlisle, Carswell, Rouanet, Bouillaud, and others, to the suction of the ventricles, causing the elevation of the sigmoid valves, and to the re-action of the arterial columns of blood against these valves.

The experiments performed by Dr. Williams, assisted by Dr. Hope and others, in order to determine these points, proved that the first sound is produced by the muscular contraction of the ventricles, and that the second sound is caused by the reaction of the arterial columns of blood, tightening the semilunar valves at the diastole of the ventricles.

The first motion of the heart following the interval of repose is the systole of the auricle, which I consider accompanies the diastole of the ventricle; and the systole of the ventricle immediately follows its diastole, commences suddenly, and considerably diminishes the volume of the organ.

On applying the ear or a stethoscope over the præcordial region, two sounds are heard following each other; the first is dull and prolonged, whilst the second is shorter and sharper. The first sound is produced during the diastole, and the second during the systole of the ventricles; and in support of this theory I will briefly state the circumstances under which the opinion was formed.

Some few weeks since, attending a patient labouring under increased action of the heart, and whilst conducting an examination, I could distinctly appreciate the inward current of blood from the auricle to the ventricle, producing the first sound by suddenly distending this latter cavity. The apex of the heart striking against the walls of the chest in the neighbourhood of the fifth and sixth ribs, communicated to the ear at this moment a shock (the heart's impulse.) Immediately followed the second sound, produced by the onward current of blood through the aortic opening, propelled by the contraction of the ventricles, I observed, moreover, that the first sound did not exceed the space in which the impulse was felt, but that the second sound was audible in nearly the whole extent of the chest, which would tend to strengthen the theory I have advanced, inasmuch as the sound produced by the diastole of the ventricle would be circumscribed, whereas that produced by the systole would be diffused.

Whilst my attention was directed to this subject, a case came under my notice in which a *bruit de râpe* was distinctly heard in the second sound of the heart, and over a considerable portion of the chest,

I diagnosed ossification of the aortic semilunar valves and arch of the aorta, believing that during the production of the second sound (systole) the current of blood was passing in this direction. The patient died shortly afterwards, and a post-mortem examination of the body disclosed the correctness of my opinion.

ON A PECULIAR APPEARANCE OBSERVED IN THE GUMS OF CONSUMPTIVE PATIENTS.

By Dr. Theophilus Thompson, F.R.S. Physician to the Hospital for Consumption and Diseases of the Chest.

[Dr. Thompson was encouraged to examine the state of the gums in a poisoned or morbid condition of the blood, from the value of their indicating the presence of lead in the system, by the blue line upon their edge.]

He presents the result of his observations in reference to this inquiry in cases of consumption, and avows his conviction of the frequent existence in phthisical subjects of a mark at the reflected edge of the gums, deeper in colour than the adjoining surface; in some patients a mere streak on a raised border, in others, a margin more than a line in breadth, of a vermillion tint, inclining to lake; the mark being most distinct around the lower incisors, but usually observable in both jaws, and often around the molar, but modified in its situation by the form of the mouth. The author has examined some hundred cases in the course of the investigation, and gives the analysis of 102, of whom he has full records. In forty of forty-eight women the gingival margin is present; and in fifty-four phthisical men, although in a few the line is so faint as to be open to question, there is only one in whom it can be considered decidedly absent. He has reasons for suspecting that the same condition of the system which produces this state of the gums tends also to produce clubbing of the fingers; but he considers that the change in the extremity of the fingers rarely occurs till some time after the streak is manifest in the gums. Of seventy-six patients, forty-five were found to have clubbed fingers; of these forty-five only one had gums free from the characteristic margin; yet twenty of the seventy-six had marginated gums, but no expansion of the extremities of the fingers. The author discusses the effect of various modifying influences, such as hereditary tendency, catamenial disturbances, and habits as respects cleanliness, but cannot connect the presence of the symptoms in question with any of these circumstances; but he is of opinion that causes which irritate the mucous membrane tend to accelerate and increase the manifestation of the margin. He suggests this as an explanation of the more frequent absence of the line in women than in men, and dwells on its practical importance, as indicating, in such cases, the use of refrigerants as preliminary to the introduction of tonic remedies. The author canvasses the question whether a similar line exists in any other disease; he allows that Mr. Fredericq may be correct in the opinion that certain changes in the gums occur towards the close of the various chronic diseases, but he has never yet observed the peculiar margin described in this communication, without detecting other indications of consumption, although frequently, only incipient. As respects prognosis in phthisis, he proposes the general rule, that cases in which the streak is observed early, or is broad or deep-coloured, tend to proceed more rapidly than those in which it is absent or slight; whilst freedom from the streak, even in the third stage, affords encouragement in treatment. In reference to diagnosis, the author believes,—1st, That the absence of the streak

in men affected with inconclusive symptoms of phthisis, may incline us to a favourable interpretation of any such suspicious indications; but that in women rather less weight is to be attributed to this negative sign. 2nd. That the presence of the sign in women is almost conclusive evidence of the presence of the tubercular element in the blood. The paper concludes with the remark, that the symptom therein described is one of many proofs that consumption is *not* exclusively a local disease, but rather a constitutional condition, requiring for its elucidation and treatment far more than an acquaintance, however exact, with the phenomena of auscultation.—*Lancet, July* 12, 1851.

MIDWIFERY.

ON A CASE OF ELYCTROCELE IMPEDING DELIVERY.

By Robert Newman, Esq., M. R. C. S., Cheltenham.

I am induced to send this case to you on account of its being very rare, and at the same time believing it would perplex most men if met with for the *first time* in the last stage of labour.

About eight years ago I attended Mrs. D——, then aged thirty-one, in labour with her fourth child. On my arrival, the pains were very urgent, and upon examination I found what I at first took to be the membranes protruded and about to break; for in volume, in feel, in tenseness, the tumour exactly resembled it. Fortunately I hesitated before proceeding to rupture, and, after careful examination, discovered a large vaginal hernia.

The *practical* bearing of this record is, in my humble opinion, interesting, just as far as the *diagnosis* may be allowed to be difficult.

I have attended this patient in parturition three times since this dilemma, and on each occasion have had to contend with some difficulty in the management. The last occasion occurred on the 11th inst., at six A.M., when I found unusual difficulty in keeping back the hernia during the expulsive action of the uterus.

My own impression is, that the attenuated intestine (distended to the uttermost with flatus, &c.) would have given way if it had got wedged in the hollow of the sacrum during the descent of the head of the child; therefore, my utmost endeavour was directed to the prevention of such an untoward event by keeping up constant pressure on the sac, not daring to desist one moment. Happily the head came down upon the perinæum in about an hour, and the labour terminated favourably.

THERAPEUTICS.

ON THE ENDOSMOTIC ACTION OF MEDICINES.

After some remarks on the construction of the apparatus—the properties of different membranes to be examined—the well-known deductions of Poiseuille, in his Memoir in the "Comptes Rendus" of the French Academy of Sciences for 1844—the author proceeded to mention his own observations. The endosmometer of Dutrochet consisted of a glass tube, with a somewhat bell-shaped movable expansion called the reservoir, having a deep contraction round the middle for securing the membrane. The form of reservoir preferred by Dr. Cogswell was that of a bell-jar with a projecting rim round the larger orifice, the end of the tube and the inside of the reservoir being ground to fit one another.

The reservoir had a capacity of eighteen drachms, and an internal diameter at the larger orifice of an eighth of an inch. The calibre of the tube was the fourteenth of an inch. To support the reservoir the tube was passed through a hole in a leaden plate, which rested on the edge of the outer vessel. This was a glass cylinder, of such dimensions that, on receiving the reservoir, a quantity of fluid, equal to the contents of the latter, would rise to the neck, leaving sufficient below the membrane. On consideration, the author had been led to adopt, for closing the reservoir, the cæcum of the sheep, as sold in a prepared state by the French, finding, in comparison with other membranes, that it produced the most marked results. The experiments of Poiseuille were then examined in the order observed in his Memoir:—

Action of Purgatives.—Seidlitz water contained in the reservoir, being opposed to serum, ascended in the tube. Albumen was found in the reservoir, and sulphate of magnesia in the serum. Now, Seidlitz water causes an unusual quantity of albumen to appear in the alvine discharges, and of sulphate of magnesia in the urine. Hence the inference is, that this class of purgatives possesses the property of determining a flow of serum towards the bowels. The author remarked, that it might reasonably be questioned whether serum was a fair representative of the living fluid in the bloodvessels, or its accumulation in the bowels the only physiological effect of the saline purgatives.

Tolerance of Medicines.—The author remarked, that endosmose was found by Poiseuille, to stop at periods varying for different fluids. The outer fluid being then examined, presents a striated appearance from the incomplete diffusion of the foreign matter introduced into it. After shaking it, there is a renewed ascent of the column; and the same thing happens repeatedly. Poiseuille employed a solution of phosphate of soda and serum. The author repeated the experiment with a solution of the salt, of density 1060, and obtained similar alterations, except as regards the elevation following the second employment of the serum. He left it to be judged, whether the facts as stated would bear out the inference, that the tolerance of medicines arises simply from the circumstance, that "the membranes of the intestinal canal, after being long in contact with the same substance, become impregnated with it, and prevent it from entering so freely into the circulation."

Influence of Opium.—Opium and its salts check diarrhœa, and obviate the purgative tendency of other medicine. A solution of one part of nitre to eight of water was opposed by Poiseuille to serum, and produced an elevation in the tube for three quarters of an hour. While the endosmose was proceeding vigorously, the solution was withdrawn, and replaced by a similar one, containing muriate of morphia. After this, the ascent continued, but with less intensity; it proceeded for an hour, ceased an hour, and then the column began to descend. Hence, it is said, the presence of the morphia diminished the endosmose, then put a stop to it, and ended by producing exosmose, such being precisely its effect in promoting extirpation of the bowels. The author, however, believed that if the experiment had been continued without the morphia, the result would have been nearly the same, as he had found that nitric by itself has but a feeble form of endosmose. To ascertain further whether opium exerts a peculiar influence on membranes unfavourable to endosmose, he had repeatedly opposed an aqueous solution to water, and from it produces much greater effect than some of the inorganic salts. The serum of the sheep enclosed in a reservoir, and opposed to distilled water, containing a grain to the ounce of muriate of morphia, produced a vigorous endosmose for above twenty-four hours. Added to syrup in the same

proportion, its effect was not appreciated. He was thence led to believe there was not sufficient ground for characterizing morphia as a substance the presence of which puts a stop to endosmose, and renders the membrane impermeable to either fluid.

Influence of Tobacco.—The decoction of tobacco is stated by M. Poiseuille, to penetrate the membrane, and render it unfit for endosmose. A decoction of four parts of tobacco-leaves to forty of distilled water was opposed to serum.—There was a descent of the column in the tube. However, the density of the fluids was not stated. The author having made a similar decoction, found that, after boiling above an hour, the density did not exceed 1023, when it was not likely to produce endosmose, with serum having a density of probably not less than 1026. But a decoction of this strength, being opposed to distilled water, produced an elevation lasting for several hours; and further a decoction of density 1052 opposed to serum of density 1031, produced a well-marked elevation of the column, which was found not to have stopped in twenty-one hours. The author proceeded to state, that having observed a great variety in the endosmose afforded by different solutions of the same density, he tried the following experiment:—Four endosmometers, closed with the prepared cæcum, were filled respectively with solutions of sugar, sulphate of magnesia, common salt, and nitrate of potash, and placed in distilled water; in half an hour the first fluid ascended 1·9 inch, the second 1 inch, the third 2 inches, and the fourth 1·8 of an inch; other membranes afforded corresponding though less marked results. Thus the common salt was the most energetic at first, and the nitre the least so. But again, the syrup and sulphate of magnesia continued to ascend for several hours, while the common salt stopped in four hours and the nitre in less than two. Syrup, though it has a remarkable power of endosmose, is not a purgative, which Poiseuille accounts for by its being decomposed by the gastric juice. The author then extended the examination to classes of substances. The results obtained were arranged in a tabular form, and laid before the Society. It was remarkable that the sulphates from which experience has selected the most generally useful purgatives had invariably a strong and continued action, while the class to which nitre belonged was comparatively feeble. Chlorate of potash and the iodide and bromide of potassium were among the substances which had the lowest place in the table. Gum and liquorice showed a moderate degree of energy, but it continued uninterruptedly for weeks. The author, after entering into some further details said he mentioned these as coincidences which might prove useful aids to investigation, but without any view to the formative construction of a theory. From what proceeded, he was led to the following conclusions:—

1. That the division of substances into those which are favourable to endosmose, and those which on the one hand retard and annihilate it, by their influence on the membrane, and on the other render the membrane permeable or reduce it to the condition of a filter, requires confirmation.

2. That the power of endosmose of different solutions is not regulated entirely by their density, as already observed by Dutrochet.

3. That the purgative salts generally have an energetic form of endosmose, and that this is exerted with more steadiness and uniformity by those which medical experience has selected as the most useful in ordinary circumstances.

4. That some of the other substances have marked peculiarities with regard to endosmose, which will probably assist towards explaining the mode of action on the system.

ON NARCOTISM BY THE INHALATION OF VAPOURS.

By John Snow, M.D.

Dr. Snow states that chloroform may, when due care is used, be safely employed under all circumstances in which surgical operations require to be performed. He considers that chronic disease of vital organs ought not to deprive patients of the benefits of anæsthesia when they have to undergo a painful operation of any kind, as he is of opinion that when carefully induced, it causes much less disturbance in the system than severe pain, and is in fact a means of preventing, in a great measure, the shock of the operation. We must remark, however, that we entirely dissent from this view of the subject. He states that he has many times exhibited chloroform to patients having disease of the heart, as well as to phthisical subjects and to persons who had previously had apoplexy, and there were no ill effects in any of these cases. He has also given chloroform at all ages, from three weeks to extreme old age, and states that this agent acts in a very pleasant manner on children. He gives a number of particulars respecting the administration of chloroform in the different kinds of operations. He recommends the patient to be in the horizontal posture whenever the nature of the operation permits of it, and advises that the chloroform should not be inhaled till some time after the last meal, and that the patient should not take any food or drink for an hour after the operation, in order to avoid the inconvenience of vomiting, which is otherwise apt to occur. Dr. Snow always employs an inhaler in exhibiting the chloroform, and argues that it is particularly required with this powerful agent, in order to insure the vapour being largely diluted with air, and thus to prevent its effects being produced with such rapidity as to incur the risk of accident.—The fatal cases of inhalation of this agent are quoted, and it is shown that death always occurred in the most sudden manner, and that in nearly all the cases the chloroform was exhibited on a handkerchief.

In the physiological part of his inquiry, the author details experiments on animals with a number of volatile substances, and arrives at the conclusion, that their narcotic strength is in the inverse ratio of their solubility in the blood. The substances to which this rule applies all contain carbon, and the rule does not apply to agents, such as hydrocyanic acid, which contain nitrogen as a radical element. Other experiments were performed by the author, on himself, which show that chloroform and ether are exhaled again unaltered in the expired air, after being inhaled, and that it is on this account their influence so quickly subsides. By a number of experiments on animals, as well as on himself, he also shows that the quantity of carbonic acid gas excreted by the lungs is considerably diminished under the influence of the above agents, which, when long continued, have also the power of reducing the temperature of the body. As the result of his experiments, Dr. Snow arrives at the conclusion that anæsthetic agents, and probaby all other narcotics, produce their effects by virtue of a power they possess, when absorbed into the blood, of limiting those combinations between the oxygen of the arterial blood and the tissues of the body, on which the animal functions depend. He considers that this view is confirmed by the circumstance that the narcotic vapours in question have the property of limiting and arresting various forms of oxidation out of the living body, such as that of putrefaction, that of ordinary combustion, and the slow oxidation of phosphorus. The author concludes by suggesting a somewhat new hypothesis of chemical affinity, to account for the action of these substances in interfering with oxidation, both in the living body and elsewhere, but our space does not allow us to enter upon this part of the subject.