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Original Communications.

A CASE OF CONSECUTIVE CHRONIC DEMENTIA, INVOLVING AN IMPORTANT MEDICO-LEGAL QUESTION.

By HENRY HOWARD, M.D., M.R.C.S.E., Visiting Physician Longue Pointe Lunatic Asylum.

(Read before the Medico-Chirurgical Society of Montreal, 19th March, 1880.)

MR. PRESIDENT AND GENTLEMEN,—Seeing how very common is that mental state known as dementia, and how that all the lunatic asylums in the world are crowded with that class of patients, dementia, of one form or another, from numerous different causes, I am afraid that you must be surprised that I did not choose a case of some other form of insanity, or in sanity in some other stage, than that of dementia.

I have chosen this case not because that it in any respect differed from a number of others in the asylum, but because this particular case happened to be the cause of a circumstance that involved a very important medico-legal question. The whole case turned upon the one single point, was it possible, under certain circumstances, that a certain crime could be committed? This was the question I was called upon to solve. The Court was two Commissioners. The accusers had two clever lawyers, and the accused, one, and I assure you that never in my life did I get such a cross-examination as I did in that case; never, in my life, did I see such a determination on the part of lawyers to bring

in the accused guilty. Surely if ever two men deserved to be well paid by their clients, these two lawyers did. Well, my testimony was that the crime could not be committed, and so the case broke down.

I will try and bring the case before you in as delicate a manner as I possibly can, so as not to shock your sensibilities; you will yourselves easily supply that which I cannot put into language. The question was, could priapism take place in a man suffering from consecutive chronic dementia, or rather a certain man whose case I will just now give you? If it could, then the crime could have been committed; if it could not, then the crime could not have been committed. At all times, and under any circumstances, the crime of which the accused was charged would be a disgusting and unnatural crime, but, under the circumstances in this case, the man that would be guilty of it, we would be bound, in very charity, to look upon as a morally insane man.

CASE.

When my attention was first called to A. B., aged about 35, he was sitting naked in his cell, crouched in the corner, in dog-like fashion, his genital organs hanging down, and resembling more a piece of dirty intestines than the genitals of a man. He was so emaciated that his bones were simply covered with skin, and his skin was broken and ulcerated in different parts, particularly over his joints. His head, face, hands and body were smeared with his own

faeces; he eat every sort of filth he could lay his hands upon, whilst he had to be forced to partake of wholesome food. His attempt at speaking was more like the gibberish of a monkey than the speech of a man; in fact, for a man of his age, he was as good a specimen of dementia as there was in the asylum. When he was washed and cleaned, and I had a chance of examining his pulse, I found it to be 120.

Such is the description of the man who was sworn to be capable of producing priapism, or that another could produce priapism in him. As well might I be told that it could be produced in the unfortunate wretch who suffered from nerve exhaustion from being tortured in the rack.

Let us consider what is chronic dementia. All writers on mental diseases classify it under the heading of mental weakness.

Dr. Crichton Brown, who has given the result of his examination of four hundred brains of persons who had died insane, twenty-five of whom were cases of chronic dementia, viz., 17 males and 8 females, gives us the following conclusions respecting brain weight. After carefully weighing all these brains, he says, "Consecutive chronic dementia, a form or forms of mental disease embracing so many of the inmates of our lunatic hospitals, whose *nervous systems* have been irreparably damaged by the acute storms of disease, or who have subsided quietly into the depths of fatuous degeneration, is represented in table 6 by a *brain weight* only a shade greater than that of organic dementia."

....."In the dementia of general paralysis the *cerebellum* does not share to anything like a full extent in the wasting by which the cerebrum, is so seriously reduced; indeed the *cerebellum* is less wasted in the dementia of general paralysis than in any of the *other chronic forms of dementias*."....."In acute mania in both sexes the *cerebellum* is of *great weight, absolutely and relatively* to the weight of the hemispheres; and indeed in almost all forms of mental exaltation and depression the weight of the organ contrasts notably with what is seen in states of mental weakness."

We see there by the pathological researches of Crichton Brown that in chronic dementia the whole nervous system is irreparably damaged; that so much does brain-wasting take place that in weight the brain was only a

shade greater than it was in organic dementia; that the *cerebellum* is *more wasted* in chronic dementia than it even is in general paralysis; that in acute mania the *cerebellum* is of great weight, contrasting notably with what is seen in states of mental weakness.

So much for the pathology of consecutive chronic dementia. Speaking of such cases Dr. Maudsley says: "There is a group of demented patients in whom the mind is almost extinguished, who have to be fed, clothed and cared for, who evince little or no sensibility; whose only utterance is a grunt, a whine, or a cry; and whose only movements are to rub their heads or hands. Of the three degrees of dementia they represent the worst, the lowest state it is possible for a human being to sink. Their existence is indeed little more than vegetative; and, if they are not carried off by pneumonia, tubercle or some other disease, as they often are, they die from effusion of the brain, or from the effects of accident, to which through their apathetic helplessness they are much exposed. Though secondary dementia may last for a long time, it is impossible that recovery should take place. The condition, habits and conduct of patients suffering from it may often be much improved by proper care and control, but their mental decay will generally go on increasing unto the end. When death takes place it is sometimes due to effusion on the brain or atrophy of it, or it is produced by accidental disease as tubercle or pneumonia.

So much for the physiology and pathology of consecutive chronic dementia.

I beg of you to bear in mind that it is the *cerebellum*, that is the part in dementia, that undergoes the greatest change, not only that, but that in chronic, after organic, dementia, it undergoes greater changes than it does in any other form of insanity.

I will now quote from "*Eulenburg*" and "*Gutman*" to show to you the connection that exists between the *cerebellum* and the organs of generation, a fact, I have no doubt, well known to the members of this Society.

They say: "Conceiving the controlling power of the *nervi exigentes* on the *blood vessels* of the *penis*, the vasomotor nerve of the intestines and probably of most of the abdominal viscera is the splanchnic, the principal vasomotor nerve in the body. Irritation and extirpation of

the different ganglia and sympathetic plexus of the abdomen have a certain but very inconstant influence on the intestinal secretions, the nature of the intestinal evacuations, and on the general nutrition."....."The centre of the vasomotor nerves of the liver, and appears to be in the brain. We ourselves frequently noticed the occurrence of hemorrhagic diarrhoea in dogs after injury of the different parts of the *cerebellum*."....."That also the vasomotor nerves of other abdominal organs and of the whole *genital* apparatus are included in the trunk of the sympathetic is undeniable from the anatomical point of view."....."As for the vessels of the *penis* we know from the researches of 'LÖVEN' that irritation of the *nervi exigentes* results in relaxation of the arteries."

I have now anatomically, and physiologically, through "Eulenburg," "Gutman" and "Löven," proved to you the union that exists between the cerebellum and the organs of generation, as I have given you physiological and pathological proof that it is the cerebellum that suffers most from dissolution in consecutive chronic dementia, and not only that it suffers most, but that it suffers very much, so that it either becomes disorganized or atrophied. I have also shown you that in this form of dementia there is exhaustion of the whole nervous system, just as great a nerve exhaustion, as we would expect to find in the unfortunate creature that was tortured upon the rack.

Possessed of the foregoing knowledge, and from my own experience, my testimony was, in the case I have stated to you, that the crime was a physical impossibility, and I now appeal to this Society to say, was I, or was I not, justified in saying it was a physical impossibility? and in forming your opinion you will remember that it is a very important medico-legal question; and remember the question is not, could there, under such circumstances, be seminal emission? for, according to the reports of jail surgeons, that frequently takes place when a man is hanged, and every physician knows that it frequently takes place in the last death agony, as does evacuation from the bowels. The question is could a man for example suffering from such a disease as I have described co-habit with his wife, if he had the desire to do so. If he could, then the crime could have been committed; if he could not, then the crime could not

have been committed. Remember I don't say that, under such circumstances there could be *desire*, for I don't believe there could, but, for the sake of argument, granting that there could, would it follow that there could be priapism; would it follow that the solitary vice of self-abuse could be accomplished. Every medical man of large experience, more particularly those connected with lunatic asylums, knows that long-continued self-abuse, by those with an insane neurosis, not only terminates in dementia but also in impotency, even much sooner than those who indulge in excessive sexual indulgence. I presume the cause is that, in the former, there is most perieprial nerve irritation. That, however, as it may be, it is another mode by which the fact is established of the union between the brain and nerve, the cerebellum and the organs of generation. In passing, sir, I might remark that the cerebellum plays a most important part, through the medium of the great sympathetic, with the whole of the abdominal viscera, a knowledge of which may assist us to explain some facts heretofore difficult to comprehend. For example, at one of our late meetings a case was read of typhoid fever where the patient died suddenly from a gush of blood from the intestines, and the post-mortem examination threw no light upon the cause of the hemorrhage. Perhaps if our worthy pathologist had in that case thought of examining the cerebellum he would there have found the explanation, for there is no reason why, if irritation of the cerebellum of the dog produces in that animal bloody flux, that, under certain circumstances, it would not do the same in a human being, and particularly so in a case of typhoid fever where the *nidus* for the typhoid germ is in the mucous membrane of the small intestines. I was so struck at the time with the case that I allude to, that I thought these few remarks in connection with the subject of my paper would be an allowable digression. I beg, however, that it may not draw the attention of the Society from the important medico-legal question I have brought before it.

The proceedings of the McGill College Medical Convocation are crowded out of this issue. They will appear in our next.

PRIMARY DOUBLE AMPUTATION OF THE THIGHS, SUCCESSFULLY AND SYNCHRONOUSLY PERFORMED FOR RAILWAY INJURIES TO THE LEGS.

By JOHN L. BRAY, M.D., Chatham, Ont.

At a time when railway accidents are of so common occurrence a record of every case would soon furnish valuable statistical material for comparison and contrast. Any appreciable record of these injuries has not fallen under my notice, if any such there be, and it is with a desire of contributing towards furthering this object that prompts me to offer the following case of primary double amputation at a time, too, when the relative merits of hospital and private practice, of primary and secondary amputations, or of antiseptic dressings, as affecting amputations and other capital operations, are under discussion. This case may prove of some interest, occurring, as it did, during the hottest days of July of the present year, treated away from the patient's home, in a house the general arrangements of which were poorly regulated, nursed by strangers, willing enough, it is true, but by no means skilled hands, and having the further disadvantage of being surrounded by a marshy locality and malarious atmosphere, while it had, on the favorable side of the question, the all-important advantage of a strong, healthy and vigorous constitution. Reacting from the shock in less than two hours sufficient it was thought to warrant the next ordeal, synchronous double amputation of the thighs, it offers, I think, a fair case for comparison.

On the 15th of July, 1878, I was summoned to Jemnetts Creek Station, in my capacity as surgeon to the G. W. Railway Company for this district, to attend N. C., a strong, healthy, well-developed French Canadian, 21 years of age, who, while attempting to get on a freight train that was passing at the rate of about 18 miles an hour, had been knocked down, and his feet and legs run over by several car wheels before the train was stopped, or assistance rendered. All other parts of his body escaped, with the exception of a slight bruise on the upper part of the left knee. He was immediately carried to a neighboring house, about 50 yards away. Taking Dr. Murphy of Chatham with me, we arrived at the place, which is about 14 miles

distant, in less than two hours from the time the accident occurred. We found our patient lying on a low bed, moaning and complaining bitterly of pain; his face was quite pale; the surface of the body cool and clammy; pulse 105, feeble but regular and of gradually increasing power after taking about 4 ounces of whiskey. There had been very little hemorrhage, and this now had entirely ceased. On examining the legs it was found that they had sustained the following injuries: All the soft parts of the left, including skin, superficial fascia, muscles, vessels and nerves, were entirely torn and dissected from the anterior circumference of the limb, extending from the middle of the foot to the knee, crushing and laying open the ankle joint, fracturing the bones of the leg after every possible fashion, splinters of bone extending up into the knee joint. The right leg was found to be less damaged than the left, the wheels passed over it just above the ankle, crumbling the bones into fragments, and mutilating the soft parts up to the knee to such an extent that any attempt, even here, at amputation by disarticulation, such as Langenbeck of Berlin is now advocating, was found to be too risky an undertaking to be justifiable; from the character of these injuries it would seem that the wheels had engaged the long bones at several points of their axes, thus causing such an extensive destruction of parts involved. One can readily imagine how this might happen if the man moved or slightly rotated his limbs after the passage over them of the first wheel.

The patient being placed under the influence of chloroform by Dr. Murphy, and Esmarch's bandage having been applied from just below the knee to the middle of the thigh, I proceeded to remove the left limb. Having decided on the circular operation, I began my incision about one inch below the knee, and dissecting up the integument and fascia a sufficient distance, divided the remaining structures down to the bone, which was now sawn through in the usual careful manner, about one inch and a half above the condyles. I now allowed Dr. Murphy to amputate the other limb which, after applying the elastic bandage as before, he did by making lateral flaps, bringing the knife out below the heads of the tibia and fibula, in order to put to the test the relative superiority of the two methods. Flaps of sufficient length having been

obtained at the expense of some damage to the knife, which had to be kept very close to the bones about the knee, the femur was divided one inch above the condyles. The patient being allowed to lapse from the influence of chloroform, and without using any water or antiseptic lotions to the flaps whatever, they were simultaneously brought together, the left entirely by interrupted silk sutures and the right mostly by silver ones, with the view of testing side by side their comparative merits. The results was as follows: The right stump with lateral flaps and silver sutures healed almost entirely by the first intention, and without the slightest swelling, inflammation or suppuration, except close to the silk and at the lower angle of the wound about an inch extent which had been purposely left open to facilitate and admit of drainage. The wire maintained its hold longer and better than the silk, and did not appear to excite any visible ulceration of the tissues, while all the silk sutures that were used (some alternately with the silver) did so. What was most remarkable in this stump (the right) was that, from the first, he could move it about in every direction, and raise it almost at right angles with his body, and without any assistance, when being dressed with adhesive plasters. So complete was reunion at the end of two weeks that most of the stitches were removed, and scarcely a drop of suppuration had taken place. Not so desirable, however, was the behavior of the left stump by the circular method: here after 24 hours we had excessive swelling and tumefaction, extending up to the groin. The slight bruise on the top of the knee, before mentioned, had to be comprised in the flap; from this we expected some trouble, nor were we disappointed: a strip about 3 inches long by one in width became gangrenous on the third day, and established a large and deep sloughing surface, which, by stimulating and antiseptic dressings and frequent poultices, favored its early separation, so that on the 9th day it was entirely removed by the scalpel, sufficient flap remaining, however, to secure their potency, which was effected by the insertion of a few silver sutures, and at the end of five weeks from the time of the accident was almost entirely healed. The only topical application applied to the stumps was a weak solution of carbolic acid and water at each dressing, after

the third day adhesive strips sufficiently tight to relieve tension from the stitches only, together with the roller bandages and pads or compresses over dependent parts of the flaps to prevent accumulation of fluid. Internally, from the first day, the treatment was sustaining, such as beef tea, milk and brandy, ale and porter. Occasionally an opiate was given at bedtime to procure sleep, and a saline purgative to open the bowels, which throughout were inclined to be costive.

The femoral artery alone of the right leg and the femoral and a muscular branch of the left were all that required ligatures. By employing the elastic bandage not a drop of blood was lost during the whole operation, a point which could not fail to have a favorable influence on the success of the case. I will here give its daily progress; July 16th (day after the operation), pulse 100, temperature 100, tongue furred; has passed urine freely, and had some disturbed sleep. July 17th, pulse small and rapid; bowels moved; opiate produced 4 hours sleep; wounds dressed; edges of flaps of right stump healthy and in perfect apposition, a quantity, of blood-colored serous fluid distending left flaps; left stump enormously swollen up to the groin. Ordered bladders of ice to the thigh and warm water dressings to end of stump, opiate to be given at night, milk punch and chicken broth to be taken at short intervals. July 18th, bruise on left flap looking gangrenous, stump still greatly swollen; were again dressed, and pad and bandage applied so as to prevent collection of fluid, also drainage tube inserted at lower angle of wound; pulse 90, becoming quieter; tongue clean; takes milk punch and beef tea every 3 hours; bowels continue costive, ordered saline purgative; right stump healing almost entirely by the first intention. July 19th sleeps better, pulse 98, temperature 101; takes nourishment freely, ordered glass of Bass ale night and morning; bruise on left flap going to slough; sits up and feeds himself; bowels moved, July 21st, pulse 85, temperature 100; swelling in left thigh continues, right looks well; continue treatment. July 23, pulse 80, temperature 99; left stump discharging pus pretty freely, swelling going down; a weak solution of carbolic acid injected into wound of stump; right stump healing rapidly, no discharge from it. July 25th, much the same, sleeps well, is cheerful and hopeful. His affianced has assured him that

she is still faithful, and he says he will get married as soon as he is able to be around. July 27th, free discharge of laudable pus from left stump; pulse 88, temperature 99, appetite good; several inches of gangrenous slough removed with knife, granulations underneath clean and florid, lint soaked in solution of carbolic acid applied in and around wound; removed several sutures from right stump, which he holds up and moves about as if all right. Complains of pain in feet and legs, and fancies they are still attached. July 29th, swelling disappearing from left thigh, wound beginning to granulate; right stump completely united; removed the rest of the sutures. July 31st, pulse 100, temperature 100; has had no sleep owing to pain in feet and legs, $\frac{1}{4}$ grain of morphia to be given, also a tonic of quinine, nux vomica and gentian. Dressed stumps; right one entirely healed, left discharging freely but granulating nicely. August 2nd, swelling all gone, sleeps well, takes plenty of nourishment; pulse 78, temperature normal. August 5th, much the same, doing well, except pain in feet; legs to be dug up and changed in box, mental impression produced thereby is said to relieve this form of neuralgia, but in this case had no effect whatever as pain continues. August 8th, still complains of severe pain and cramping of the feet, and more particularly at the ankle joints, this is only relieved by morphia; right stump entirely well, and requires no further dressings whatever; left granulating and looking well; pulse and temperature normal. August 11th, had a chill in the night followed by fever, pulse 100, temperature 102; every one in the house has ague; gave quinine in 4 grain doses every 3 hours. August 14th, pulse 68, temperature normal; fever left, after taking about 24 grains of quinine; still complains of great pain in feet, the right the worst; left stump healed all but about one inch, applying carbolized glycerine; appetite good. August 19th, the patient was removed to his mother's house to-day, sits up and can lie on either side; eats well, and would be all right were it not for those feet. August 23rd, visited patient for last time, both stumps entirely healed, and is able to go out in a buggy; has lost considerable flesh while laid up, but feels as well as ever.

NEW KYMOGRAPH.

By GEORGE WILKINS, M.D., M.R.C.S., ENG., Professor of Pathology and Lecturer in Practical Physiology University of Bishop's College.—Physician to the Montreal General Hospital.

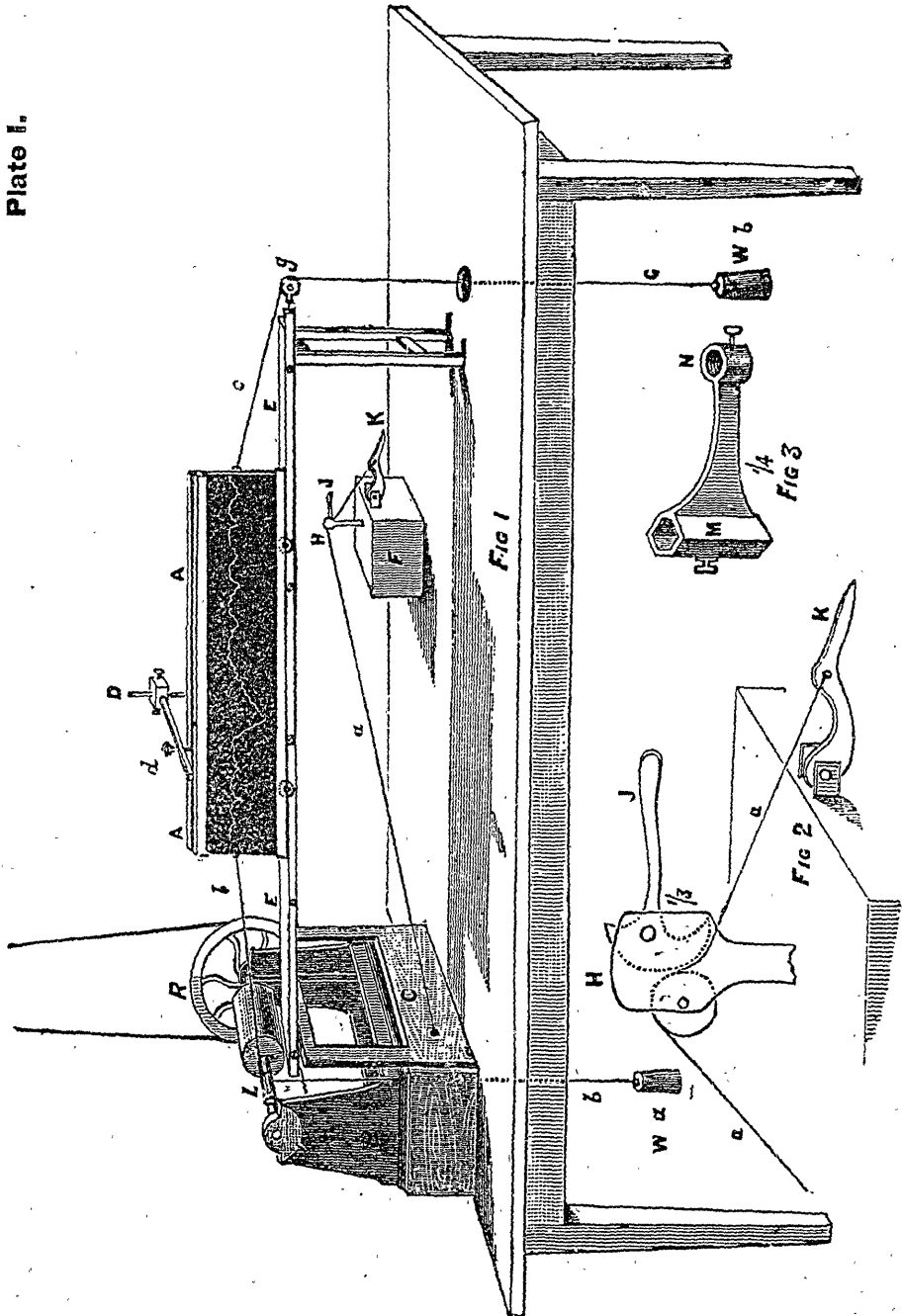
The apparatus which is illustrated in the accompanying plates is intended to facilitate the demonstration of physiological experiments to a class of students. Anyone in a room capable of containing two or three hundred persons will be able to read without difficulty the tracings of the various pens.

It differs from other kymographs in many important particulars. The surface upon which the tracings are taken is *white* glass, smoked. The motor power is a small water engine, which drives the wheel R (see Plates I. and II.) connected with the shaft of the iron stand B. This shaft carries round with it the moveable iron cylinder or drum L only when the clutch P (Plate II.) is allowed to come in contact with this cylinder. As this drum revolves it also carries with it the cord *b b*, which is wound around it once only, and has at one end the weight *W a* and at its other end the recording glass plate A A. This plate travels on the rounded edge of a rod of iron, by means of small grooved wheels, concealed in the lower border of the frame in which the plate is inserted. This rod, which is one-quarter inch in thickness, one inch in breadth, and six feet in length, is fastened by means of screws to the walnut support E E. By depressing the handle K the cord *a a* draws out the clutch P by means of the lever Z Z, (Plate II.), thus releasing the cylinder L, which is immediately brought to a stop, and with it the recording plate, although the wheel R continues to revolve. The cord *a a* is held for any length of time in this position by means of the cam H. (Figures 1 and 2, Plate I.) The slightest touch on the under surface of the handle J of this cam causes it to relax its hold on the cord, when the clutch P is again brought, by means of the spring S, (Plate II.), in contact with the cylinder L, which again revolves. The rate of speed is regulated with the greatest ease. The water engine I have in use will run from two or three revolutions to several hundred in a minute. I turn on sufficient water to get a speed of exactly sixty a minute; the movements are kept perfectly steady and regular by a heavy fly-wheel four-

teen inches in diameter. I have several different sized speed-wheels adapted to the other end of the crank, one of which is exactly three inches in circumference, i. e., a fraction

inches. Therefore, the engine making sixty revolutions in a minute, the wheel R will make exactly six revolutions in the same space of time. Three and one-third inches (the circum-

Plate I.



Wilkins' Kymograph.

less than one inch in diameter. The wheel R of the iron stand B is thirty inches in circumference, and the smallest circumference of the cylinder L (Plate II.) is three and one-third

inches. Therefore, the engine making sixty revolutions in a minute, the wheel R will make exactly six revolutions in the same space of time. Three and one-third inches (the circum-

seconds. This is the rate of speed of the slow axis of the kymograph of Burdon-Sanderson which I have in use and of others. The apparatus can be used with equal facility in experiments illustrating rapidity of nervous influence. Suppose we wish the recording surface to travel with the same rapidity as the swiftest axis of Sanderson's kymograph, that is, forty revolutions in a minute, equal to twenty inches in a second and a half. First, approximate the plate A A to the stand B, so that it will be three or four inches from the end of the iron bar along which it travels. Now place beneath the weight W a box containing a few layers of cotton wool. Have it elevated so as to permit the weight to rest on the wool. Push recording plate to its proper position for commencing tracing. Place on shaft of engine a wheel ten inches in circumference. Increase the speed to 120 revolutions per minute. Let the wheel R be one-half former size, and place cord *b* around larger circumference of iron cylinder, which is three times the size of smaller one. You have then increase of speed represented by $3\frac{1}{2} \times 2 \times 2 \times 3 =$ forty times as fast as previously; or, simpler still, let the fly-wheel, as in my engine, have three different speed grooves—one, thirty inches in circumference. Connect this with the wheel R; do not remove the cord *b* from the smaller circumference of cylinder L, but increase speed of engine to 240 per minute, that is to say, four times speed first mentioned. You then have 10×4 , equal forty times previous speed. It can be arranged a number of other ways that will readily suggest themselves to the experimenter when at work. Numbers of revolutions of wheel over 120 or so, which cannot be readily counted with watch, can be ascertained and fixed at any number with the greatest ease by use of the speed indicator, a small instrument used by machinists.

The recording surface can readily be placed in position any number of times without interfering with the motion of the wheel R, simply by depressing the handle K and thus removing the clutch from the cylinder L, and then with the hand pushing the plate back towards the pulley *g*; while doing so, slightly tilt the stand holding recording pens so that they do not write on plate.

To take tracings, the apparatus must be placed between the window and the observers,

when the tracings come out boldly through the white glass. Or, as the duties of private practice compel me to do most of my laboratory work at night time, it can be illuminated by gas, as I have it; three jets fixed on a brass tube which is connected by rubber with the gas in my laboratory, and so attached to the frame A A that it can readily be dismantled and connected with another similar recording plate.

The manometer is clamped to a T shaped brass rod, one end of which fits into the opening N of the support M (Plate I, Fig. 3), which can be clamped at any height to an ordinary retort stand. Repeated tracings can be taken by altering the height of clamp M and pushing back plate A A, tilting slightly the stand holding recording pens while doing so, as previously stated.

Other recording pens, such as electro-magnetic marking key, Marey's tambour, &c., can readily be attached to supports similar to M, having a small rod fixed permanently in N.

The cord *a a*, passing through the cam H, although here represented above the table, would be better placed out of the way running beneath the table, the lever Z being prolonged so as to project an inch or so beyond its under surface; the cord made to pass over pulley wheels through an opening in the table close to F.

As most of the more important experiments are performed while the animal is under the influence of curare, artificial respiration apparatus is necessary, and for that purpose nothing is simpler or easier than Grehan's apparatus, arranged as figured in "*Cyon's Methodik der Physiologischen Experimente und Vivisectionen*," Plate IX., Figure 1, which can be worked easily by a small water engine such as I have in use. Both water engine and respiration apparatus can be arranged in any convenient place out of the way. In my laboratory the engine is placed on a shelf over the sink, and power transmitted overhead by small shafting and belting to Grehan's apparatus, which is on an elevated shelf, air being conveyed from it by rubber tubing. Power is also transmitted over head to wheel R of kymograph.

The engine and respiration apparatus could with equal facility be arranged on a small stand beneath the operating table, or, as I had it at a recent meeting of the Medico-Chirurgical Society

inches wide; the glass itself is 36 inches in length by 8 inches in width. The front view of ends are made flush with groove holding glass. Two solid brass wheels, one inch in diameter, are placed in sockets in lower portion of frame, while upper portion has a groove $\frac{1}{2}$ inch wide and same depth, into which the small pin *d* fits. This pin keeps plate perpendicular as it moves. Ends of frames have each a small screw-eye inserted, to which the cords *b* and *c* can be readily hooked on.

B—Iron stand 8 inches high, $7\frac{1}{2}$ inches between ends; breadth of ends, 5 inches. This stand carries the shaft, $\frac{1}{2}$ inch in diameter, to which the wheel R is connected, and upon which the cylinder L is freely moveable. Fig. 1, Plate II., is a diagrammatic sectional view drawn one-third natural size.

C—Walnut stand, one side 14 inches high, to support one end of stand E E. That part upon which B rests is 7 inches high.

D—Iron rod screwed to a small iron plate in posterior edge of stand E E. At its upper end an iron block is seen, which can be clamped at any height to suit frame and length of small pin *d*. The thumb-screw to the left clamps a brass rod, through the front end of which the pin *d* passes. In the woodcut, the brass rod appears to project from the centre of the block, whereas it should be represented to one side, so as to be able to be passed completely through it. By regulating the distance of *d* from D with this rod and the use of a plumb-line, before commencing experiments, the recording plate can be readily placed exactly perpendicular. The pin *d* fits a groove in the upper border of the frame holding the plate A A, and keeps it in the same perpendicular plane as it moves.

E E—Walnut board 1 inch thick, 5 inches wide, and 6 feet long, supported to the right by two legs, the left end resting on stand C. A small iron bracket connects one of these legs with the table on which the stand rests, and keeps it perfectly steady. To the front edge of this board an iron rod, 1 inch wide, $\frac{1}{4}$ inch thick, and 6 feet long, is attached by screws. The frame A A travels on the upper edge of this rod, which projects about $\frac{1}{4}$ of an inch above the surface of the board, and is rounded to fit the wheels in the frame. To the extreme right of the rod a small brass pulley *g* is attached, over which the cord *c c* passes. The object of the

board is to prevent any "springing" movement of the iron rod.

F—A small walnut box, open only on the side, opposite the letter F, containing a square block of iron of sufficient weight to overcome the resistance of the spring S, Plate II.; the weight obviates the necessity of screwing box to table, and permits it being placed in any desired position to have suitable tension on the cord *a*.

H—Cam and pulley wheel over which the cord *a a* passes, shown one third natural size in Fig. 2, Plate I. The groove in both should be slightly roughened, so as to hold cord more securely.

In Fig. 1, Plate I., the cord *a* is shown passing directly from the cam to an opening in the stand C through which it passes; then over a pulley screwed into the near end of the stand as seen in Fig. 1, Plate II., to the lower end of the lever Z Z.

M—Plate I., Fig. 3, cast iron support for retort stand. In the opening N, a T shaped brass rod is inserted, to which mercurial manometer is clamped.

L—Plates I. and II., a cast iron cylinder, 5 inches long, $2\frac{1}{2}$ inches of which is $3\frac{1}{2}$ inches in circumference; the rest, three times this dimension. The surface facing the clutch P has a number of shallow conical depressions bored out, by means of which the small projecting pin in the clutch at once catches the cylinder, when the cord *a* is released from the cam H. When the clutch is not in contact with it, the cylinder can be made to revolve in either direction, independent of the movement of the shaft upon which it rests.

In Fig. 1, Plate I., the cylinder is not drawn in correct proportions. The sectional drawing, L, Plate II., is a true representation one-third size.

P—Plate II. Clutch. Fig. 2 shows end view of a groove which passes through its centre and fits a very small iron rod that is made fast to that portion of shaft to the right of the cylinder L. By means of this rod and groove the clutch is made to revolve with the wheel R, and at the same time permits sliding movements.

R—Wheel 30 inches in circumference. Ordinary sewing machine belting connects it with water engine, either directly or indirectly through shafting over head.

S—Plate II. Spring by means of which clutch

is brought in contact with L when cord *a* is relaxed from cam.

T—Plate II., Fig. 3. End of lever Z, adapted to circular groove on outside of clutch. Natural size.

W *a*, W *b*—Weights for the purpose of keeping steady the motion of the plate A A. W *a* also, by its weight, causes sufficient resistance and friction, with one complete turn of cord *b* around cylinder L, to exercise traction as it revolves; the moment W *a* is arrested in its descent by support of any kind no traction is exercised on A A, although L continues to revolve. To prevent any possibility of plate A A being carried beyond pin *d*, Plate I., in the onward movement of the plate, the cord *b* should be of such a length that the weight W *a* touches the floor when the pin is within an inch of the right hand extremity of plate; it will then be unnecessary to depress handle K to arrest the movement of plate, as it will stop itself the moment the weight touches the floor. In experiments where the plate A A is caused to move very rapidly, it is advisable to have the descent of the weight arrested three or four inches before it touches the floor by something placed beneath it, such as a box containing cotton wadding or sawdust, upon which the weight falls. The wadding or sawdust deadens any sound that might be produced by the rapid descent of the weight. In experiments requiring but slow movement of the recording plate, the weight descends so gently that no sound whatever is heard.

W *a* weighs 3 lbs. W *b* should be about 12 ounces heavier. The structure of the cords B and C is important in ensuring perfectly steady motion of A A. I have tried catgut and various other materials. The ordinary silk-covered flexible wire, formed of a number of strands of fine wire, such as used in connection with Faradic machines, I find much the best, and to answer every purpose.

Water engine, Grehant's apparatus for artificial respiration, and this kymograph, can all be made for a considerably less sum than will have to be paid for the ordinary clockwork kymograph alone.

The water engine takes up very little space. Without fly-wheel, its measurements are 11 inches high, 7 inches broad, and 5 inches wide.

It is desirable to have three or four extra

plates of glass fitted in frames, which can be readily placed in position as each plate is finished with.

In using this recording plate in experiments such as stimulating the pneumogastric, there are two very great advantages. The tracings immediately preceding stimulation can at once be compared as they are being made with those following it, shewing the effect of the stimulation. They can also be seen by a large number at the same time. Another very great advantage is the surface which can be used for tracing purposes is nearly three times the size of that in the cylindrical kymograph. The recording plate can be pushed back any number of times and by altering the height of the manometer or other pens in use, fresh tracings can be taken. If desirable the plate could be made much larger and worked just as well, it could easily be made several inches wider and in no way interfere with its action.

To see the prominence with which the tracings come out on the glass, one has only to smoke the outside of one of the white glass shades used with the "student lamp," and make tracings with a needle, holding the shade either between the window and the observer or in its place on the lighted lamp.

In the *International Review* for April, readers will find of political as well as general interest, articles on "Mr. Gladstone," "The Nihilists of Russia," "The Gothenburg Liquor-Licence System," and "TAMMANY HALL;" of general interest, Henry James, Jr.'s article on "The Letters of Eugene Delacroix," Sarah W. Whitman's highly appreciative sketch of the artist, "William Morris Hunt," and the article on "Contemporary Literature;" and of special scientific interest and importance, Prof. E. S. Holden's review of "Dr. Gould's Argentine Uranometry," showing recent astronomical progress in South America, and Dr. Cushing's "Sun-Spots and Epidemics." The previous number having prescribed a brake on the Republican machine, the *Review* very properly presents in this number a vivid picture of "The Democratic Machine," viz. Tammany Hall.

The entire number will be found excellent reading and full of information of a kind which it is important for everybody to have.

The price, by mail, is fifty cents, and the *International* is for sale by newsdealers and booksellers, or sent by mail post-paid, on receipt of price, by the publishers, A. S. Barnes & Co., 111 & 113 William Street, New York.

Progress of Medical Science.

ON THE TREATMENT OF ACUTE RHEUMATISM BY SALICIN AND SALICYLIC ACID.

By Dr. T. J. MACLAGAN, Examiner in Medicine to the University of Aberdeen.

Two questions are frequently put to me: First—Are salicin and salicylic acid antipyretic? and, if so, is their beneficial action in acute rheumatism due to their antipyretic effect? Secondly—Which is the better preparation, salicin or salicylic acid? The questions are important. I shall answer each in detail.

First, as to their antipyretic action. Fever is a collection of different phenomena whose co-existence constitutes the febrile state. Of these phenomena the most essential and most prominent is rise of temperature. Hence fever has been defined as *calor præter naturam*; and one whose temperature is above the normal is said to be feverish. A remedy which reduces or removes this abnormal rise is said to have an antipyretic action. Such a remedy may act in one of two ways. Either it may remove the condition—i.e., cure the disease—to which the rise of temperature is due; or it may reduce the temperature of the body without curing, or even curtailing the duration of the malady. An instance of the former we have in the treatment of intermittent fever by large doses of quinine. An instance of the latter we have in the action of the same drug in some other forms of fever. A further and more striking example we have in the external application of cold to the febrile body. Though salicin and salicylic acid do sometimes have an antipyretic action their effect in this way is not marked, and is not to be compared to that of quinine. I have given both salicin and salicylic acid frequently and freely (thirty grains every hour for six hours, and every two hours for three or four days) in typhus, typhoid, cerebro-spinal fever, scarlet fever, diphtheria, and pneumonia, and in no case was there ever produced any decided antipyretic effect. On several occasions I have seen the temperature pulled down (temporarily of course) two or three degrees by a couple of ten-grain doses of quinine, after frequently repeated thirty-grain doses of salicin and salicylate of soda had failed to have any influence on it. My answer to the first question, then is—No; salicin and salicylic acid are not antipyretic to any useful extent. They are anti-rheumatic; and their beneficial action in acute rheumatism is due, not to their allaying the fever, but to their putting a stop to the whole process of the disease, and to all that constitutes it—the fever as well as the other symptoms. As a rule, relief of pain precedes fall of temperature.

Second, Which is the better remedy of the two? It was in November, 1874, that I began to use salicin. When, a little later, salicylic acid was introduced as an antiseptic, and before anything had been written of its antipyretic action, I tried it too as a remedy in rheumatism. It benefited the rheumatism, but caused at the same time so much irritation of the throat and stomach that I abandoned it in favor of salicin, and did not try it again till after the publication of Stricker's observations. For the last three years I have used the two remedies in about equal proportions. The result has been to convince me that salicin is the better remedy of the two. As this is not the generally accepted view, it may be well to indicate, first, the reasons why salicylic acid is more used than salicin; and, second, my reasons for regarding this preference as misplaced.

Salicin is prepared from the bark of different species of willow. The bark is removed in spring, when it contains the largest quantity of the bitter principle, so that the quantity in the market during the summer represents all that is to be had till the following spring. Previous to the publication of my paper, salicin was scarcely ever prescribed, and was kept by chemists chiefly as a curiosity. There was very little of it in the market. At that time I resided in Dundee. Before publishing my paper, I asked the leading chemists there to lay in a good stock of the drug, as I anticipated there would be a considerable run upon it. They did so, and I thus had the advantage of having at my disposal for further observation a good supply of the pure drug. The anticipated result took place. There immediately sprang up a great demand for it. The price when my paper was written was two shillings an ounce. It speedily rose to six, eight, and even twelve shillings; and ultimately ceased for a time to be quoted in the druggists' monthly lists. The demand far exceeded the supply, and no more bark could be had till the following year. And yet chemists continued to prescribe it. They could not have prescribed pure salicin, for it was not to be had. The combination of rise in price, great demand, and insufficient supply, lead to the usual result of such a combination—adulteration. The substance used for this purpose was boracic acid, and much of what was sold as salicin was, I have been informed, a mixture of boracic acid and salicin, or even of boracic acid and quinine. For this English chemists were not to blame. Salicin was made at that time only in Germany, and was probably pre-cribed here by retail chemists just as it was imported. To this adulteration of the drug is probably due the unsatisfactory results which some physicians got from it at the time to which I refer. It is now manufactured largely in this country as well as in Germany, is back to the old price, and there is

not the same temptation to adulterate it. Those who were formerly disappointed I would ask to try it again. The high price of salicin and the difficulty of getting it led to the free use of salicylic acid, which could be got cheaply and in any quantity by the new mode of preparing it from carbolic acid.

As anti-rheumatics the two agencies are on a par; acute rheumatism seeming to be as effectually and as speedily cured by the one as by the other. Equally good effects being got from both it necessarily followed that the cheaper and more easily procured remedy got the preference over the dearer and scarcer one. Thus salicylic acid came into more general use than salicin. But there was yet another reason for this; Immediately after the publication of my original paper, Senator drew attention to it in an article in the *Centralblatt*, in which, as well as in a subsequent and more elaborate communication in the *Berlin Klin. Wochenschrift*, he expressed his preference for salicin as being more efficacious than salicylic acid. He further gave it as his opinion that salicin is converted into salicylic acid in the blood; and that its greater efficacy is due to the fact that it thus exercises its remedial action while in the nascent state. This idea of Senator's, that salicin is converted into salicylic acid in the blood, and that salicylic acid is therefore the true remedial agency, has been accepted by the profession with a readiness which, considering the absence of evidence to support it, is to me surprising. It is a mere hypothesis, in support of which Senator has brought forward nothing worthy of the name of evidence. The fact that a blue color is got when perchloride of iron is added to the urine indicates, not that salicylic acid has been taken or formed, but merely that one of the salicyl compounds exists in the urine, salicyluric acid, salicylic acid, salicylous acid, saligenine, would all give the same coloration. The fact remains, however, that Senator's idea was accepted; and that it was, and is, generally believed that salicin owes its anti-rheumatic virtues to its being converted into salicylic acid in the blood. His further idea, that the nascent salicylic acid thus formed is more potent than that taken by the mouth, does not seem to have been so readily grasped or understood. If, it has been argued, salicylic acid be the true remedial agency, why not give it at once and directly, instead of in a roundabout way? The result of this mode of reasoning has been a preference for, and the more general employment of, salicylic acid. It is curious to find that Senator himself prefers salicin, while those who pretend to follow him prefer salicylic acid; and that his reason for preferring the former is regarded by them as a reason for preferring the latter.

As already remarked, Senator's idea is a mere hypothesis. It is quite possible that salicin

may be converted into salicylic acid in the blood; but it is not impossible that salicylic acid may be converted into salicin; and more likely than either is it that both are converted into some other third substance. But there is no need for any such hypothesis. It is quite within the bounds of probability that two allied substances, such as salicin and salicylic acid, should exercise an equally beneficial action in a given malady; and our recognition of this remedial action does not impose upon us the necessity of denying the separate and independent action of either. The fact is that we know nothing certainly either of the changes which salicin and salicylic acid undergo in the system, or of the manner in which their anti-rheumatic effect is produced.

But I would do more than deny the existence of evidence in favor of Senator's view; I would assert the existence of positive evidence against it. For if that view were correct, if it were the case that salicin owed its therapeutic effects to its being converted into salicylic acid in the system, then ought both remedies to have the same action on the system. Now, though their action on the rheumatic poison is the same, their action on the system is not so, as is evidenced by the different results which are frequently got from their separate administration.

1. It is a fact that salicylic acid and salicylate of soda not unfrequently give rise to considerable and even alarming depression. Such an untoward effect is not produced by salicin. From a therapeutic point of view this is one of the most important points of difference between the two remedies. In a disease, such as acute rheumatism, in which the heart is apt to be involved, the absence of this tendency to cause depression points out salicin as a much safer remedy than salicylic acid. Its superiority in this respect is specially referred to by Senator, who, curiously, does not seem to see that the fact to which he directs attention is a strong argument against his view that salicin owes its therapeutic virtues to its being converted into salicylic acid in the system.

Of the depressing action of salicylic acid many instances are recorded. Several have come under my own notice. The following is of value as the unbiassed evidence of an intelligent, well-informed medical man, founded on his own experience of the two drugs. My friend and then neighbor, Dr. Sinclair, of Dundee, now physician to the infirmary of that town, suffered from an attack of subacute rheumatism last December. Before I saw him he had been taking salicylate of soda in twenty-grain doses with relief to the pain; but it so depressed him, and made him feel so wretched, that he said he could not go on with it. I recommended salicin instead. He took it in even larger doses than the salicylate, with

speedy relief to his rheumatism and without any untoward effect. On the contrary, he seemed, under its influence, to regain strength and appetite, and was soon quite well. The following is his own statement, given with his permission:—"Both drugs relieved the pain, tenderness, and swelling, when taken in full doses frequently repeated. But the salicylate, which I employed first, produced some very unpleasant effects. The taste I found to be disagreeably sweet and nauseous. After taking several twenty-grain doses, a copious perspiration was produced; the strength of the pulse was very distinctly diminished, while its frequency was increased; and a feeling of most uncomfortable depression, with ringing in the ears, ensued. Indeed, I hardly knew whether the disease or the remedy was preferable. Salicin, on the other hand, has a pleasantly bitter taste; it improved the tone of my pulse and digestion, and relieved the pains more rapidly. Neither drug gave any relief except when taken in twenty or thirty-grain doses every hour for from six to twelve consecutive hours. It may be said that, had I taken smaller or less frequently repeated doses of the salicylate, I might have escaped all the disagreeable effects except the taste—itsself no small matter. But such doses produced no effect on my rheumatism. To my mind one of the great merits of salicin is the absolute safety with which large doses can be taken. In the course of one period of twenty-four hours I swallowed an ounce of it with nothing but benefit."

I have seen salicylate of soda produce very alarming depression, closely resembling that of the typhoid state. Not long ago I saw in consultation a case in which it was a question whether the fatal result was not due to the depressing action of the salicylate. By some this effect has been attributed to the presence of carbolic acid, consequent on faulty preparation. Such an explanation may have been applicable to some cases, but is not so to all. I have more than once seen marked depression produced by a solution of salicylate of soda in which no trace of such impurity could be found, and which was given to another patient in the same dose without causing any unpleasant effect. The worst effects that I have ever seen follow the administration of large doses of salicin are a sense of fulness in the head and ringing in the ears; such symptoms as are commonly produced by large doses of quinine.

2. Further evidence against Senator's views of the mode of action of salicin we have in the fact that salicin cures cases of chronic rheumatism and of neuralgia in which salicylic acid fails to produce any effect on the ailment. Two instances I shall give by way of illustration.

Mrs. R.—aged thirty, the mother of four children, had rheumatic fever when she was sixteen, and again when twenty-two, shortly

after the birth of her eldest child. Since then she has been subject to chronic pains, which are worse in damp weather, and affect chiefly the back and thighs. When seen in May, 1878, she complained chiefly of the thighs, the rheumatic affection seeming to have its seat in the fascia. She moved about the house with some pain and stiffness, and was unable to go out. The temperature was normal. There was some prolongation of the first sound at apex. I gave her twenty grains of salicin every two hours. The next day the pains were much less, and on the following day she felt quite well. She took twenty grains of salicin three times a day for ten days, and at the end of that time expressed herself as feeling better than she had done for years. In November of the same year I saw her again, suffering in the same way. This time I gave salicylate of soda in the same dose as I had formerly given salicin, twenty-grains every two hours. On the following day she was no better, but complained of feeling weak and giddy. She begged me to give her the powders again. I gave her twenty grains of salicin every two hours, and on the following day found her much better, the pains nearly gone, and the giddiness entirely so. She was quite well in two days.

A lady consulted me regarding a periodic neuralgia affecting the left supraorbital nerve. The pain came in the evening. She had taken many remedies. Quinine removed the neuralgia, but gave her such intense headache, and made her so ill for days, that she dreaded its effects quite as much as the neuralgic pain. I gave her thirty grains of salicin every two hours. On the evening of the day on which she began to take it the pain returned as usual, but she thought it less severe, and it lasted for a shorter time. She went on with the salicin, and the next evening there was no pain. She remained well, but continued the salicin every four hours for some days. Three months later the pain returned in the same nerve, and had the same periodic character. This time I gave salicylate of soda in the same dose, thirty grains every two hours. It made her head feel very heavy, and herself very uncomfortable but did no good to the pain, though she continued it for two days. At the end of that time it was omitted, and salicin given in the same dose, and with the same result, as before. The pain vanished, and did not return.

In the face of the evidence which has been given, it seems to me impossible for us to accept Senator's view that salicin is converted into salicylic acid in the system, and that it owes its therapeutic virtues to such conversion.

Salicin and salicylic acid are two distinct substances. Being so, they not unlikely have different actions on the system. It is possible that they may be eliminated from the system in the same form. There is some evidence to

show that such is the case, and that both are eliminated as salicylic acid. But it is to be specially noted that their therapeutic effects have been produced, and their full action on the system exercised, before they have reached the stage of elimination and before they have undergone the changes which immediately precede it. Observation and evidence show that their action on the system is different—that the action of salicin is tonic, while that of salicylic acid is depressing, sometimes alarmingly so. This difference, be it noted (and the point is an important one), is quite compatible with their exercising an identical action on the rheumatic poison, and evidence all tends to show that their action in this respect is the same. To get the full beneficial effects of either remedy it is necessary to give it in large and frequently repeated doses—twenty to thirty grains, at first every hour, and then every two three, or four hours, as the symptoms decline. Salicylic acid and salicylate of soda cannot be given in such dose without some risk. Salicin may thus be given without fear.

The practical issue with which we have to deal is thus a very narrow one. Given two remedies which cure acute rheumatism with equal certainty and equal speed, but which, independently of their anti-rheumatic effect, exercise different actions on the system, which shall we prefer—that which has a tonic, or that which has a depressing action?—that which gives rise to no unpleasant effects, or that which may cause alarming, possibly fatal, depression? It may, indeed, be said that such large doses are not necessary. My answer is, that to get the full beneficial effects of either salicin or salicylic acid in acute rheumatism, such large doses are necessary. By smaller doses—ten or fifteen grains every hour or every two hours—an attack of acute rheumatism may be arrested in two or three days. But let the remedy be given in the larger dose, and the process of the disease may be arrested in half the time. In a malady which tends to involve the heart and entail on the patient the terrible results of an endocarditis, every hour is of consequence. Cut the malady short in one day, and you may ward off cardiac complications which may appear if it lasts for two or three. It takes about an ounce of salicin or of salicylic acid to cure a case of acute rheumatism. The sooner this quantity is got into, or rather is passed through, the system the better. My practice now is to give thirty grains every hour. By the time that an ounce has been thus taken—that is, in sixteen hours—the patient is generally free from pain, and the temperature at or near the normal. I then give thirty grains every two or three hours till another ounce is consumed. After that thirty grains are given three times a day for a week or ten days, to guard against the possibility of relapse. Not

unfrequently the patient feels better after three or four powders have been taken, and is practically out of the attack before the ounce is consumed. In such cases the interval between the doses may be widened after six or eight have been taken. Such is the course of events in favorable cases, and almost invariably their course in young subjects who have not previously suffered, or have done so only once or twice. In older subjects, who have had frequent and long-continued attacks, the acute symptoms may be as speedily allayed, but convalescence is more tardy and more apt to be interrupted. Cases treated by salicin seem to convalesce and pick up more quickly than those treated by salicylic acid or salicylate of soda.

Other of the salicyl compounds besides salicin and salicylic acid are available, and may prove of service. To only one of these would I now direct attention. Growing abundantly during the summer in our meadows, and by the sides of streams and ditches, is found the common meadow-sweet, the *Spiræa ulmaria*. The flowers of this plant contain a peculiar oil called oleum spirææ. This oil is salicylous acid. It is a slightly colored mobile liquid. Taken alone or dissolved in spirit, it has a hot, pungent taste. Like salicylic acid, it causes some irritation of the throat when swallowed. From the few observations which I have made, I am disposed to think that an infusion of the flowers of the meadow-sweet may prove a serviceable remedy in rheumatism. As the plant will soon be in flower, I throw out the suggestion now in the hope those who have the opportunity to do so may test its efficacy.—*Lancet*, June 21, 1879, p. 875.

MANAGEMENT OF NATURAL LABOR.

By P. W. LOGAN, M.D., of Stanford, Ky.

In order to fully understand and manage skillfully a natural labor, we should thoroughly acquaint ourselves with the pelvis and the entire generative sphere. We should correctly appreciate the normal dimensions of the fetal head; at the same time we must be ready to recognize every abnormal condition present or possible to arise. A thorough knowledge of the true pelvis and Carus curve is imperatively demanded. Dilatation of the os uteri constitutes the first stage of labor. Uterine contractions alone complete and perfect this stage. It is therefore wrong and unnecessary to exhort a female in labor to bear down, until the second stage of labor has begun. This act is evidenced by expulsive pains, which are made up not only of uterine contractions, but also the contraction of the abdominal muscles and the diaphragm. We must distinguish true from false pains in

order to decide the question as to whether the woman is in labor. If labor has begun the neck of the uterus will have been obliterated as it were, the os tincæ rendered ductile and thin. In order to ascertain the condition of the uterus, etc., we must make a digital examination. This examination is best made while the patient is upon her side, this position being less embarrassing than any other. While making the examination, we are to ascertain, if possible the presentation and position, relative proportion of foetal head to the pelvic excavation, condition of soft parts, etc.

A natural labor is a labor which is accomplished by the natural powers of the system, beginning at about the two hundred and eightieth day after the last show of the menses, or the one hundred and fortieth day after a quickening, and generally terminating without interference or assistance. We will not speculate upon the proximal causes of labor. Presentations of the vertex, face and breech, constitute the normal presentations of the fetus, all other presentations being classed under the head of preternatural labor. Hemorrhagic labor, placenta prævia, concealed hemorrhage, post partum hemorrhage, hemorrhage following delivery of after birth, hourglass contraction, convulsions, exhaustions, cramp, prolapse of cord, carcinoma uteri, fainting, hernia, engagement of loop of intestine in front of womb, twins, triplets, monströcities, version, deformed pelvis, rupture of uterus, etc., being treated under the head of preternatural labor, will not be included in this paper. In attending a labor, a physician should absent himself from the lying-in apartment as much as possible, from the fact that many times his presence embarrasses the patient and retards labor. The patient should be inspired with confidence and made as comfortable as possible, being allowed cold drinks, plenty of fresh air, cold sponging of hands and face, light covering, etc.

Should the rectum and bladder be in a loaded condition, their contents should be evacuated. In case of reluctant dilation of the cervix, venesection, aperients, injections, or the administration of castor oil is necessary. Castor oil, administered under those circumstances, "seems to relax the force of the retentive fibers of the uterus, just as it does that of the sphincter ani muscles. It encourages the expulsive powers of the womb as it does that of the colon, rectum, etc." Chloroform we find a good relaxing agent. Professor Thomas always gives his parturient patients chloroform, while in labor, usually beginning its administration when the expulsive pains set in, and states boldly that he has never witnessed any deleterious results from its use. He asserts positively that chloroform will do no harm when a female is suffering severe pain, if its administration is deferred until expulsive pains begin. The more intelligent physicians

of to-day agree with him upon this subject. Pressure upon the fundus of the uterus increases tenesmic force and overcomes obstruction. The position of the parturient female exercises great influence on the progress of labor, it being frequently hastened by changing the patient from the side to the back and vice versa, or allowing her to walk. Should the patient remain upon the back during labor, the shoulders should be considerably elevated in order to cause the foetus to properly engage in the pelvic excavation and follow the direction of Carus' curve. A woman who lies upon the back with the head and shoulders low, may suffer for hours unnecessary pain, from the fact that the axis of the superior strait in this position is disregarded. The foetal head should always enter the pelvic excavation in a flexed position. Should the flexion and rotation not be sufficient, we must make traction upon the parietal ledge, thereby bringing the vertex to the proper position. To accomplish this the vectis is sometimes necessary. Should vaginal vesicocele supervene, lift up the uterus, thereby allowing the bladder to empty itself and the vesicocele will vanish. In the management of this trouble we have succeeded with the gum catheter when the metallic instrument was of no avail. When the perineum resists the expulsion of the head, it should be relaxed by the application of "mucilaginous fomentations to the genital region; by relaxing drinks, anodynes, emollient enemata and the warm bath." As a rule, when the pains are strong we must wait patiently.

The perineum should not be supported until it is somewhat on the stretch; then it should be supported in such a manner as to cause extension, from the fact that extension begins when the head reaches the floor of the pelvis or perineum, and continues until restitution is reached. The support of the perineum should be gentle and well directed, as too much pressure in the wrong direction might lead to its laceration. We gain time and assist in the expulsion of the head, by slightly pressing the vertex down with the aid of a napkin, so that it can pass under the arch of the pubis, thereby diminishing the pressure of the head against the perineum and hastening labor.

In case the cord is around the neck, pull the yielding end and pass it over the head or shoulders. Sometimes the cord is so tightly drawn around the neck as to endanger the life of the child or interfere with labor, in which event it should be cut immediately and tied after delivery. This, however, is *very rarely* necessary. The child, after being expelled, should be removed out of the reach of the liquor amnii, blood, etc., to prevent its suffocation. Should the child be still-born, efforts at resuscitation should be made as soon as possible, by applying hot water and turning it from side to side, as in Marshall Hall's ready method, by dashing

cold water upon it, and if necessary, resorting to artificial respiration. Efforts at resuscitation should be continued until we are certain that the child is dead. Immediately after the delivery we should place one hand over the hypogastrium, for the purpose of ascertaining whether there is another child, and whether there is sufficient uterine contraction to expel the placenta. Kneading the uterus through the abdominal parietes will almost always effect good contractions, after which we can safely wait a short time for the unaided delivery of the placenta. Should the placenta seem slow in being expelled, pressure should be made over the fundus of the uterus, which will force the organ down into the pelvic excavation. Frequently we succeed best by continued pressure, as interrupted pressure is attended with ascent of the uterus into the abdominal cavity, which retards the delivery of the placenta.

Should the placenta not come away, then the introduction of a portion of the hand, or, if necessary, the entire hand, should be made; then its removal, with the blood, can be accomplished. The attachment of the placenta to the uterus is by cellular tissue unless there be morbid adhesions, and not by inoculation of the vessels. The afterbirth is generally easily peeled off with the hand, but this step is not necessary until we shall have resorted to the usual means of its delivery, unless unusual hemorrhage is present, in which event we should immediately proceed to empty the uterus in order that it may contract upon itself, thereby closing thoroughly the open mouths of the blood vessels.

The bandage should be sufficiently wide to reach below the hips in order to prevent its slipping up or down. The accoucheur, in the language of Professor C. D. Meigs, should watch his patient for at least an hour after delivery, as the cat watches the mouse. The woman's safety lies in a firmly contracted uterus. After delivery we should ascertain whether there be inversion. "Should inversion be present we should immediately introduce the hand and deliver the afterbirth or push the fundus back to its place, and forbid the patient to make any straining or expulsive effort." In effecting the delivery of the placenta, undue tension should not be made upon the cord, lest we invert the uterus.

Afterpains naturally accompany uterine contractions after delivery, and frequently increase in severity with the birth of each child. They commence soon after delivery and continue for several days; they are produced spontaneously or by reflex irritation brought about by applying the child to the breast, etc. For relief of the afterpains some preparation of opium is usually prescribed; sometimes an anodyne embrocation applied to the breast will assist in giving relief.

The inner surface of the uterus after delivery

has been compared to the granulating stump of a recently amputated limb. The condition is attended with a lochial discharge which is offensive, and usually continues for several weeks. Females should not sit up too soon after delivery, lest a fatal hemorrhage should supervene. In case of hemorrhage after delivery of the afterbirth, "always turn out the clot," remembering that the safety of the female lies in an empty and well contracted uterus. Diet during the puerperal state for the first few days should be light and unstimulating, consisting principally of milk. Professor Thomas, of New York, always gives his patients milk during their lying-in state; he considers it the best and most innocent article of diet for the lying-in female. There is, however, in the rural districts of Kentucky, much prejudice existing in the minds of the more ignorant against the use of milk just after confinement.

A labor of longer duration than twenty-four hours is considered preternatural and demands interference. The os uteri and perineum being dilatable, a vagina short and capacious is favorable, the opposite giving rise to protracted labor. Sometimes one portion of the parturient canal is relaxed and another contracted, one part of the labor being rapid and another slow and tedious. There is sometimes sudden failure of the pains; on the other hand, sluggish and feeble pains suddenly become strong and energetic, making our prognosis as to time of delivery uncertain. As a rule the membrane should not be ruptured until the os is fully dilated. Sometimes, however, a superabundance of liquor amnii necessitates earlier rupture of the membranes, as labor is thereby greatly assisted and hastened. The membranes in the primiparous patient, as a rule, should not be ruptured at all, or at least not until the perineum is put upon the stretch, from the fact that sudden evacuation of the liquor amnii and powerful uterine contraction may diminish the placenta site, thereby resulting in its premature detachment, which would be attended necessarily with hemorrhage. During first, and early part of second stage of labor, the direction of the axis of the womb should be observed; at the same time we should counteract anteversion, retroversion, or obliquity to right or left.

In supporting the perineum, the head should be pressed, during its passage; close to the pubis, so as to strain the perineum as little as possible. The cord should be tied so as not to include the bowel, should umbilical hernia exist. The lying-in female should always make an effort to evacuate the contents of the bladder within eight hours after delivery, whether she has any desire to urinate or not, as the sensibility of the organ is sometimes so diminished that it does not respond to the presence of the urine, and will continue to fill until cystitis or some other trouble is developed.

The infant should be allowed a sufficiency of breast milk, and all the sleep possible for it to have; its penis should be looked after within three or four days after its birth. We sometimes meet with jaundice in the infant, which trouble is supposed to arise from the change effected in the circulation of the liver by the establishment of respiration and the arrest of the current of blood between the penis and the liver. This usually disappears as the liver becomes accustomed to the conditions of intra-uterine life.

In the management of natural labor, we meet with presentations of the vertex, face and breech. The vertex has six positions, viz., vertex, to the left acetabulum, vertex to the right acetabulum, and vertex to the pubis; forehead to the left acetabulum, forehead to the right acetabulum, and forehead to the pubis. The above being Meigs' classification, and in my opinion the simplest and best for all practical purposes. In the first position of a vertex presentation, the head descends into the pelvic excavation flexed, comes in contact with the inclined plane of the ischium, rotates toward the pubis, and engages upon the floor of the pelvis (the perineum) when extension begins, and continues until the head is expelled, when rotation of the shoulders produces the last act of this mechanism, restitution.

The mechanism being the same in the second position of the vertex presentation as that of the first, except rotation is from right to left, the head assuming a position in the act of restitution corresponding with the position of the vertex in the second position. In the third position, vertex front, or to the pubis, we have no rotation, but extension and restitution. In the fourth position the vertex is rotated from the right sacro-iliac junction to the right acetabulum, thereby converting a fourth into a second position. In the fifth position the vertex is at the left sacro-iliac junction, but is rotated by the mechanical form of the pelvis to the left acetabulum, thereby converting it into a first position. In the sixth position we find the vertex at the promontory of the sacrum. This position is usually converted into the fifth, then into the first with little or no assistance, but the position is very rare. When the head presents extended, we have a face presentation, the chin being at one side of the pelvis and the forehead to the other. There are two positions of the face; in either of which the chin should be brought to the pubis.

When the face presents the chin must be born first, from the fact that the occipito-mental diameter is greater than any diameter of the pelvis. The chin should (if not of its own mechanical force rotate to the pubis) be brought to the pubis, lest rotation into the hollow of the sacrum might necessitate embryotomy after a hard and protracted labor.

Therefore in face presentations always bring the chin to the pubis, unless rotation to the pubis is effected spontaneously.

Delivery by the face can be accomplished spontaneously and without assistance from the accoucheur. When it is possible we should restore the flexion by pushing up the forehead and bringing down the vertex, but should failure attend our efforts in the accomplishment of this end, we invariably bring the chin to the pubis, in order that it may escape first, thereby allowing flexion to take place as soon as possible.

Obliquity of the womb is supposed to be a cause of face presentation; it is therefore important to correct uterine obliquity.

The reference to two face positions are quite sufficient. In the first position the forehead is to the left, and the chin to the right side of the pelvis; in the second position the forehead is to the right, and the chin to the left side of the pelvis. In either position we bring the chin to the pubis.

In face presentations, the face of the child is swollen and otherwise disfigured; we should, therefore, notify the mother prior to the birth of the child that such will be its condition, thereby preventing the attachment of unnecessary blame to the accoucheur. While presentation of the breech is a perfectly natural presentation, the life of the child is in much greater jeopardy than if the presentation were cephalic. We have about one breech presentation in every fifty cases of labor, and about one in every five cases is fatal to the fetus. The danger arising from breech cases results from asphyxia, which is due to compression of the cord, detachment of the placenta before the head is born, compression of placenta between the uterine parietes and the head of the infant; also constriction of the placental superficies of the womb during the time the child's head lingers in the vagina, the placenta-fetal circulation from this cause being interfered with and respiration prevented because of detention of the head; the life of the child (under these circumstances) if not sacrificed, is in imminent peril.

We should not hesitate, in the case of a breech presentation, to make considerable traction upon the body of the child, in connection with traction made upon the inferior maxillary, there being much more danger from asphyxia or suffocation than from injury of the spinal cord sustained by traction. We may save the life of the child by introducing two fingers into the vaginal canal and pressing the soft parts away from the mouth and nose of the fetus, thereby allowing it to breathe and cry lustily until there is sufficient tenesmic force developed to cause its expulsion.

Being thoroughly acquainted with the normal conditions attending a natural labor, we can readily anticipate and recognize an abnormal or preternatural condition, which should be taken

advantage of in due time. A natural labor may become preternatural; we should, therefore, constantly during our attendance upon the parturient female, be upon the alert and fully prepared for any emergency. By passing the finger along the linea ileo-pectinea, we ascertain the relative size of the foetal head and pelvic excavation. Presentation of the foot or knee is simply a deviation of the breech presentation. Artificial irritation of the os uteri will increase uterine contraction, and is frequently resorted to; the introduction of a gum catheter into a lazy uterus will increase its contraction. A physician in New York reports a number of cases of rigid os as having yielded readily to the injection of atropine into the substance of the womb. As a last resort, in case of rigidity of the os, we would force dilation by introducing one finger after another until sufficient dilatation was produced.

With reference to puerperal convalescence, Dr. Goodell writes as follows: "See to it that the patient has a good getting up. Lactation should be encouraged, and from the first day the diet should be generous." Premature exertion should not be allowed. On the other hand, the recumbent posture should not be too rigidly enforced, as it may, in some instances, retard the passage of clots and lochial discharge and induce local congestions of the uterus. The patient, after confinement, should be allowed ordinarily to sit up whenever she feels sufficiently strong and well enough to do so. The obstetric binder, when worn too long, weakens the retentive power of the abdomen and causes the uterus to press unduly upon the vena cava and the pelvic veins, whereby the uterine circulation is interfered with and the process of involution interrupted. Interruption of this physiological process leads to too long a continuance of the lochial discharge.

Unhealed lacerations of the cervix uteri are also a cause of protracted lochial discharge. Astringent vaginal injections and the administration of iron, ergot and nuxvomica, with a liberal use of wine, beer, etc., is advised in this condition. A vaginal wash containing carbolic acid is recommended after abortions and labor, because of its tendency to prevent septic disease. With reference to the communication of septic or puerperal disease of a specific or contagious character by a medical attendant during or after labor, we must state that if such disease is communicated by a physician, it would be developed within three days after the termination of labor, from the fact that the peculiar poison which produces the specific or contagious form of puerperal disease will have been absorbed before the raw surfaces are granulating. The granulating process occurs by the third day after labor, after which time the absorption of septic material does not take place. Therefore, puerperal disease, occurring twenty

days after confinement, could not be attributed to infection or contagion communicated by the medical attendant who had delivered the patient twenty days prior to the inception of puerperal disease.

Prof. Barker, of New York, states that "septic absorption must arise from traumatic lesions, which lesions are granulating by the third day, after which septic absorption cannot take place. Should absorption take place at the time of delivery, the effects of the poison will be developed by the third day." It is therefore impossible for a female, twenty days after birth of her child, to be stricken down with puerperal or septic disease arising out of the attendance of a physician twenty days before the inception of her disease.—*St. Louis Medical and Surgical Journal.*

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THE MONTREAL GENERAL HOSPITAL.

The position of an Attending Physician to the Montreal General Hospital has, so far as our memory enables us to speak authoritatively, always been considered one of honor. As a consequence it has been much sought after, but as vacancy succeeded vacancy, and was filled, it has long been noticeable that there remained, not alone among the defeated candidates, but among a very large number of the profession, a sense of injury, which was unaccountable, upon the plea of simple defeat and sympathy with defeated candidates. Why this state of things? Simply because the unsuccessful candidates have felt that they never have had an honest chance for success, and this feeling finds an echo among the profession in the city of Montreal. We believe that this feeling is a just one, and that it is high time the Governors of the Institution took the matter up and adopted some means

whereby every member of the profession shall, when a vacancy occurs, have an equal start, and a chance for a fair, open and manly contest. It is not so at present, or we would not hear the mutterings which are so frequent as to be almost universal, and which have already found utterance in the public press. Perhaps we should be more specific in stating what it is, so many of the profession complain of. It is simply this: That the Medical Staff of the Hospital, or at all events a portion of them, act as if the Institution was their own special property, and upon them devolved the duty of electing their colleagues. It is true the elective power is in the hands of the Governors, but a portion of the Staff act as if they were a Committee of Nomination, and, by keeping the knowledge of a vacancy occurring from getting abroad, endeavor thus to favor the candidate who in their opinion should fill the vacancy. This gentleman at once starts upon the canvass, as do also some of the Staff, but, by keeping within the circle upon which they bring the most influence, the news does not spread for some time. When it does get out, and the other candidates enter the field, it is at an enormous disadvantage, for they find that, what with thoughtlessness and the personal pressure brought to bear upon them, a large number of the Governors, possibly sufficient to carry the election, have pledged themselves to the first candidate who had called upon them. Now all this is radically wrong—nay it is more, it is positively outrageous. The member of the Staff who intends to resign should communicate his intention to some officer of the Hospital, who should at once, by advertisement, announce the vacancy, and ask for applications. Moreover, the Staff from motives of delicacy, not to speak of the general relations which they ought to bear to all their brother practitioners, should abstain from all participation in the canvass. As to the duty of the Governors, we think that a constituency so intelligent should not pledge themselves to the first candidate who may call upon them. On the contrary we hold the opinion that, until ample time has elapsed to enable all the candidates to place their claims before them, or even until all who have sent in applications have called upon them, they should hold themselves unpledged, and then weighing all the facts, come to an in-

telligent decision as to their vote. What are the facts which should influence them in coming to this decision? We will try and point out some of them, and endeavor to show that in all similar institutions throughout the world a very different policy is carried out to that which prevails among the Governors of the Montreal General Hospital. Here a large number of the Governors have become educated, through the influence of a few, to look upon the Hospital appointment as being the perquisite of the young physician, who, having influential friends to back him, is elected to a field golden with opportunities, in which he is expected to receive that practical information which will make him *entirely* worthy of public confidence. In other words, the young man occupies the Hospital chariot, and he rides into practice upon Hospital patients. It is not so elsewhere. When a vacancy occurs in most, if not all the large Hospitals of the Mother-land and the United States, the selection is made from among those who, by force of industry, perseverance, and successful practice among the public, have made for themselves a professional reputation. This class of men, on election to an Hospital, carry to it the reputation which they have won, and they at once give to its patients the benefit which that experience is capable of exerting. It is surely worth something to be able to guarantee poor patients, who may be *compelled* to accept Hospital treatment, that the physician who attends them has already proved his success upon those who *willingly* sought his service. To the students who may follow him around the ward, such a man is invaluable. He may not sit up half the night, that on the morrow he may recite a treatise upon one or two of the prominent cases under his care, but, day by day, he will be able to give out of the storehouse of his experience valuable remarks, valuable because of their practical character. The Hospital is not the place to study the theory of disease; there all should be of a practical character. Is the young man just entering on his professional career the one to give such information? We think not; rather will it be got from him who, by day and by night, has worked out his destiny, and has at last compelled the public to admit that he is worthy of the best confidence they can bestow upon him.

In years long gone by there possibly may in Montreal have been difficulty in filling appointments in the manner we indicate, but certainly within the last fifteen years half a dozen such men could have been had for every vacancy which has occurred. Our contemporary, the *Canada Medical and Surgical Journal* for April, has an editorial upon this subject, and with much of it we agree. We, however, think that in some of his arguments he is not quite logical. For instance, he complains that one of the candidates has used political influence to secure votes, and this he most strongly condemns. At the same time he admits that, other things being equal, private friendship and ordinary social influences will always turn the scale. Where in lies the difference? Suppose we transpose it thus: other things being equal, political influence will always carry the day. Surely the one which is most powerful will carry the day, and, as political is more powerful than personal or social influence (an admitted fact), what objection can he offer against the one which is not valid against the other, "other things being equal." Our contemporary complains also of one of the candidates having got as many of the Governors as he could to sign a paper in his favor, "a thing hitherto unknown." Were the Hospital Staff and the Governors to accept the advice we have given them in this article, such action would be unnecessary, but, as matters stand at this moment, we for our part feel that any action which candidates may feel necessary to take in their own interest must be judged with a lenient eye. It is not pleasant to have votes taken from you "because Governors are told that the election of the one they had pledged to, would be a calamity to the Hospital," and yet that such instances have occurred we are assured is the case. There are other points connected with these Hospital appointments which we may subsequently write about. In the meantime we have said sufficient to show that the manner in which they are made is not that which prevails in the majority of similar institutions elsewhere, and that it is not satisfactory to the majority of the profession in Montreal. If any one is prepared to deny our assertion, we are willing to go to proof.

PURPERAL MALARIAL FEVER.

Dr. Fordyce Barker has read a paper with

the above title before the Medical Society of the County of New York. It throws some light on cases that might have passed under the category of puerperal fever or septicemia.

He states: "The most prominent symptoms were chills, sometimes very slight; a temperature higher by one or two degrees, frequently, than was found in the beginning of any other puerperal disease; rapid pulse, greater prostration than was usual with other diseases during this period. After such an explosion, there was a remarkable remission on the following day, but the alarming symptoms returned after one, two or three days, yet usually less severe. Only typical cases presented such a succession of phenomena." Dr. Barker's treatment consisted of Warburg's tincture, which he found more effective in producing the desired results than the largest doses of quinine.

Quite recently we had in our own practice, on Ontario street, a case answering to the above description. The first attack began five days after confinement, consisting of a severe chill, followed by a hot stage, a temperature of 104°, and a quick pulse. A ten grain dose of quinine was given. The next day she was much better, the temperature almost normal. She complained of excessive prostration, but this rapidly lessened during the next twenty-four hours. On the third day from the first attack, and at about the same hour in the afternoon, another chill was experienced, followed by similar symptoms as the first. The temperature did not rise higher than 103°, but the prostration was as extreme as with the first attack. These attacks came on every third day for two weeks. The confinement was a normal one in every respect. Our patient had never lived outside of the Province of Quebec. The lochial discharge was normal, but was lessened during each explosion, and returned during the interval. The lactal secretion was abundantly established, but disappeared during the illness and did not return. If we remember that Montreal, at least some parts of it, is built upon low lying ground, as Ontario street, which was a marsh as far as it extends eastward, and as most of us have had occasional cases of ague originating here, perhaps the gate is open for further investigation into the action of malarial poison upon parturient women. Some years ago, ague was common enough in Griffintown, but no record has come to light how it affected lying-in cases.

DOCTORS' BILLS.

The *New York Medical Record* has a spicy article on this subject, from which we cull a few paragraphs. After alluding to the difficulty of collecting this kind of bills, the writer remarks:—

Willingness to pay the doctor is too often narrowed to that short period when the grateful patient can focus his pocket-book through his tears. In looking over the items in his day-book, the physician can now recollect when was the favorable opportunity for receiving the fee, and how he missed it. Then, any sum would not have been too great to pay him for the relief of pain or the actual saving of life. The doctor smiles now as he thinks of the pretensions of his grateful patient, and verifies afresh the forgetfulness of impetuous gratitude. The man who then would have no other attendant now apparently feels so many obligations to the one who once saved his life, and whom now he owes, that he does not wish to trouble him any more. His readiness to pay at the time he thought his wife was dying, or when his Harry was snatched from the jaws of death, has vanished into the shadowy uncertainties of a more convenient season, and he now comforts his conscience that, after all, it was nothing more than an ordinary service, and the doctor can wait for his money. . . .

To return to the relations of gushing thankfulness to actual pay,—what a sorry lesson does the man of experience learn in studying them! We almost imagine him to be cold-hearted, when, unmoved, he listens to the tearful acknowledgments of Jones when Johnny is out of danger; to the outpourings of generous sentiments by Mrs. Black when Cræsus Black, Esq., is again restored to health. Nor must the younger practitioner believe his elder brother to be unthinking or profane if, when long after he bill is due, he hears him humming Rabelais's couplet concerning the sick devil who thought of becoming a monk. When the young man's ledger is four or five years old, and he refreshes his memory concerning promises of patients unfulfilled, he too will become a trifle suspicious, and learn to sympathize with his seniors. It has often been said, even by those who are disposed to pay every one else promptly, that physicians should never be in a hurry for their money. Really, it would seem that the services

of the doctor are placed even below those of the plumber in regard to the time and willingness for payment. On the other hand, it is well-known that, in the majority of cases, the longer the bill is deferred after the thankful, appreciative, or tearful period, the less the chances are of getting it at all.

In a subsequent number of the same journal a physician gives the following amusing experience, called to mind by the article from which we have quoted:—

I was called at midnight to visit a gentleman who had just returned from a late dinner, where he had succeeded, by hasty eating, in lodging a large fish-bone in his throat. I provided myself with an emetic, a pair of œsophagus forceps, and other paraphernalia designed to give him relief, and hurriedly repaired to his room. I found him pacing up and down the floor with a look of intense distress and anxiety, occasionally running his fingers down his throat and gagging. He told me, in tones of despair, that he thought it was all up with him, but begged me, if the least glimmer of hope remained, to proceed at once in my efforts to relieve him. He extravagantly declared, in the generosity of spirit begot by the vividness of his fears, that he would give a million dollars to have that fish-bone removed. I assured him that such cases were frequent, and ordinarily not attended with much danger, before proceeding to carry out measures for relief. His fears underwent some diminution on the strength of this, and he then declared that fifty thousand dollars would no more than repay the skill and art required to extricate the unwelcome intruder. I smiled and proceeded to introduce the forceps, but, after several attempts, failed to grasp the bone. His fears again induced him to mention a fabulous sum as the meed of the service that would expel the object of his terrors. I then gave him the emetic, its depressing effect causing his generosity to rise again, barometric-like, to a very high pressure. In a little while the emetic disburdened him of the greater part of his dinner and with it up came the fish-bone. He gave a sigh and a look of relief, and solemnly looking towards me said, "Doctor, I wouldn't have that thing in my throat again for five dollars!"

My fee eventually resolved itself into the "valuable experience" that the occasion afforded me.

VOLUNTEER MEDICAL OFFICERS.

The following general order appears in the *Canada Gazette* of the 27th of March :

HEAD QUARTERS,

Ottawa, 24th March, 1880.

GENERAL ORDERS (6).

No. 1.

Retired Rank to Surgeons.

Under provision of an order of His Excellency the Governor General in Council, dated 12th March instant, Surgeons who have served consecutively during fifteen years as Assistant Surgeon or Surgeon in any Corps of Active Militia, the last five years being in the rank of Surgeon, may be placed on the Retired List with the rank of Surgeon; and to those who after twenty years service as Assistant Surgeon or Surgeon in any Corps of Active Militia, of which the last ten years have been in the rank of Surgeon, the rank of Surgeon Major on the Retired List may be granted.

We do not believe that this order will prove satisfactory, as to obtain the rank of Surgeon Major you not only have to serve twenty years but you must likewise resign. The time is too long, and the necessity of resignation to obtain it is, to say the least, not fair and reasonable. We have so fully and so recently expressed our views on this matter that we will not now repeat them, beyond saying that the sooner the Militia authorities concede the demands which we made on behalf of Medical Militia officers, the sooner will contentment reign among them. They only ask what is granted to their fellow practitioners in the British Army. Surely that is not an unreasonable request. We have reason to believe that the Minister of Militia and his subordinates have the interest of the force at heart, and are anxious to do what they can. This is, however, a professional matter, and no one but a professional man, and he a member of the Volunteer force, can thoroughly understand it.

LAVAL UNIVERSITY HOSPITAL.

We have been informed upon good authority that Laval University has secured the old Donegani Hotel in Notre Dame street as an Hospi-

tal for its Medical Faculty. The necessary alterations have been commenced, and it is hoped that in less than three months it will be ready for occupancy. Few buildings in the city can be so readily transformed into a Hospital; of really excellent accommodation, and its situation must attract considerable surgical material. It is within five minutes walk of the berths of three large steamship lines, while seldom less than a dozen other steamships are berthed within easy distance of it. It will thus come in for its share of accidents. It is said that the Seminary of Montreal have guaranteed the rent, and that the nursing will be done by the Sisters of one of the Convents, on condition of their getting the money from private patients.

THE WOMAN'S HOSPITAL OF MONTREAL.

The first building of the Western Hospital being completed, and ready for occupancy, and the Corporation of the Western Hospital not seeing the way to open it as a General Hospital, it has been leased to the Women's Hospital of Montreal. This Institution has during the last seven years been in operation at 51 St. Antoine street, principally as a Lying-in Hospital in connection with the Medical Faculty of Bishop's College, although now and then its beds have been occupied with patients suffering from diseases peculiar to women. It also has had a very considerable out-door clinic on female diseases. It is now proposed to extend the operations of the Institution, and this large and beautiful building having been secured, a committee of influential gentlemen has been organised, who will assist in its management. It is proposed to have about twenty lying-in beds, and ten beds for female diseases. There will be eight private wards, at the disposal of any physician in the city of Montreal, a boon which we believe will be appreciated by them. The situation of the institution is most beautiful, being on the outskirts of the city, and its sanitary position is all that could be desired. We believe it will grow in importance, and that in a very few years Montreal will be able to boast of possessing a Woman's Hospital which will do it no discredit.

UNIVERSITY OF BISHOP'S COLLEGE.

FACULTY OF MEDICINE.

The Ninth Annual Medical Convocation of Bishop's College was held in the Synod Hall, Montreal, on the 7th April. R. W. Heneker Esq., Chancellor of the University, occupied the chair, supported by Rev. R. W. Norman, Vice-Chancellor, and His Lordship the Bishop of Montreal. The attendance was very large, the ladies turning out most numerous. The Dean of the Faculty, Dr. David, read the following report:

REPORT FOR SESSION 1879-80.

The number of matriculated students during the session just closed was 27. Of this number two were from the Province of Ontario, one from the United States, one from the West Indies, and the remainder from the Province of Quebec.

The attendance and the general good conduct of the entire class was such as to give the Faculty entire satisfaction.

This year being the last of the three years for which the Assessors who watch the examinations on behalf of the Provincial Medical Board were appointed, these gentlemen took occasion, at the close of the examinations, to express the extreme gratification which everything connected with the College had given them, the practical character of the teaching being evidenced in the examinations, especially the written examinations, extending as they did over two entire days from 9 in the morning till 10 at night, with short intervals for meals.

The following gentlemen passed Botany:—C. Dexter Ball, Stanstead, Q., prize; Edmond Labrie, Chicopee Falls, U. S.; William Albert MacKay, St. Eustache, Q.

Passed Practical Chemistry—Frank M. R. Spendlove, Ayer's Flats, Q.; Heber Bishop, B.A. Marbleton, Q. [both these gentlemen received honourable mention]; Ninian C. Smillie, Montreal, Q.

Passed Practical Anatomy—Heber Bishop, B.A., Marbleton, Q.; Ninian C. Smillie, Montreal, Q.; Walter DeMouilpied, Nicolet, Q.; Robert H. Wilson, Montreal, Q. [all honourable mention]; Francis Joseph E. Tetrault, St. Pie, Q.; Edmond Labrie, Chicopee Falls, U. S.; Charles S. Fenwick, Montreal, Q.

Passed Materia Medica—Frank M. R. Spendlove, Ayer's Flats, Q.; Philip Dubé, Quebec, Q.; Charles S. Fenwick, Montreal, Q.; William C. McGillis, Montreal, Q.

Passed Physiology—Charles S. Fenwick, Montreal, Q.

The following gentlemen passed their examinations upon all the primary branches [Chemistry, Anatomy, Materia Medica and Physiology]:

—Heber Bishop, B.A., Marbleton, Q., prize; Ninian C. Smillie, Montreal, Q., honourable mention, and, in the order of merit: Walter DeMouilpied, Nicolet, Q.; Francis J. E. Tetrault, St. Pie, Q.; Robert H. Wilson, Montreal, Q.; Edmond Labrie, Chicopee Falls, U. S.

The final examinations for the Degree of C. M., M. D. consists of the following branches:—Principles and Practice of Medicine, Theory and Practice of Surgery, Obstetrics and Diseases of Women and Children, Medical Jurisprudence, Clinical Medicine, Clinical Surgery, Pathology, and Hygiene. This examination was passed by the following gentlemen, whom it will be my pleasing duty to present to you, sir, for graduation—Henry B. Chandler, Barbadoes, West-Indies, "The Wood" gold medalist; James Leslie Foley, final prizeman. [The contest between these two young men was extraordinary close, there being at the termination but 15 marks between them.] Louis Henry Ulric Gill, Napierville, Q., honourable mention; Edmond Labrie, Chicopee Falls, U. S.; Philip Dubé, B.M., Quebec, Q.; Francis J. E. Tetrault of St. Pie, Q., also passed all his final examinations, taking his place fourth on the list, but, owing to his being under age, he cannot receive his degree to-day.

PRIZES.

Henry B. Chandler, of Barbadoes, W. I., takes "The Wood" gold medal. This gold medal is awarded to the graduate in the Faculty of Medicine who has attended at least two sessions at Bishop's College, and has attained the highest number of marks in all the subjects of both primary and final. [Mr. Chandler, who this year obtains the medal, has passed the entire period of his studies, the four years in Bishop's College.]

James Leslie Foley, Montreal, final prizeman. Heber Bishop, B.A., Marbleton, Q., primary prizeman.

Ninian C. Smillie, Montreal, takes senior disector's prize.

C. Dexter Ball, Stanstead, Q., takes junior disector's prize.

C. Dexter Ball gets the botany prize.

Certificates of Honourable Mention have been granted to the following gentlemen:—For Practical Chemistry—Frank M. R. Spendlove; Heber Bishop, B.A.

For Practical Anatomy—Heber Bishop, B.A.; Ninian C. Smillie; Walter DeMouilpied; Robert H. Wilson.

For the Primary Examination—Ninian C. Smillie.

For the Final Examination—Louis Henry Ulric Gill.

At its conclusion the oath of allegiance was administered to the graduating class by the Chancellor, afterwards "God save the Queen" was sung, and then the Medical oath was taken, Dr. F. W. Campbell swearing the graduates.

CONFERRING OF DEGREES.

The candidates for degrees were now called up, and the Chancellor, after reciting the usual Latin form, handed The University parchment in a tin case to each of the lucky men.

PRIZES AND HONOURS.

The presentation of prizes and honourable mention certificates now took place. Dr. Chandler, the Wood gold medalist, on being called up, was greeted with wild applause, as was also his rival for the prize, Dr. Foley. Both are very youthful in appearance, and in the examination were very close, out of 5,000 marks only fifteen marks separated them on the final.

Bishop Bond and Vice-Chancellor addressed the Convocation, and thus terminated the most successful Convocation this young Faculty has yet had.

PERSONAL ITEMS.

Sir Thomas Watson, Bart., M.D., celebrated the eighty-eighth anniversary of his birth in London on the 7th of March.

Dr. Wilks, of Guy's Hospital, has been appointed physician to the Duke and Duchess of Connaught, in succession to Dr. Murchison, deceased.

REVIEWS.

The Hypodermic Injection of Morphia, its History, Advantages and Dangers, based on the experience of three hundred and sixty Physicians. By H. H. KANE, M.D. New York, Charles L. Bermingham & Co.

This work of between 300 and 400 pages is the result of the replies to six questions, propounded some year or so ago by Dr. Kane of New York, and published by nearly every medical journal in the United States, Canada, and also in Great Britain. These answers have enabled Dr. Kane to construct a work of rare interest and importance, and as it may be well said that no physician has his armamentarium complete without a hypodermic syringe, so, with equal truth may we now add, no one who uses this syringe can afford not to be possessed of Dr. Kane's work. So common in use has this little pain destroyer become that it is resorted to, we might with truth say, without

fear, and with often but little thought of the difficulties which may follow. That all is plain sailing, this book shows us, is not always the case. A perusal of it will we believe instil an amount of caution into those who employ it, and this can but be productive of good. We are glad to notice Dr. Kane writes strongly against entrusting the hypodermic syringe, for use, into the hands of any but medical men. We know of cases where it (on the advice of the medical attendant) forms a portion of the family medicine chest. This should not be.

Sore Throat, its Nature, Varieties and Treatment, including the Connection between Affections of the Throat and other Diseases. By PROSER JAMES, M.D., Physician to the Hospital for Diseases of the Throat and Chest. Fourth Edition, illustrated with hand-colored Plates. Philadelphia, Lindsay & Blakiston, 1880. Montreal, Dawson Brothers.

This is a very popular work among British Practitioners, as is evidenced by the fact that the third edition was exhausted within three months of its appearance. The fourth edition, which is the one now before us, has received very careful revision at the hands of Dr. James, who is regarded throughout Britain as a most enthusiastic worker, and (what is even still better) careful observer in this specialty. As might therefore be expected, this work is one of very considerable merit, dealing with the various varieties of sore throat in a practical manner. It is not intended to be an exhaustive work, but as a fair-sized treatise it would in our opinion be very hard to surpass it. We have, however, to say that the illustrations are in our opinion not quite up to the mark.

Headaches, their Nature, Causes and Treatment. By WILLIAM HENRY DAY, M.D., M.R.C.P.L., Physician to the Samaritan Hospital for Women and Children. Third Edition with Illustrations. Philadelphia, Lindsay & Blakiston, 1880. Montreal, Dawson Brothers.

This little volume appeals at once to our sympathies, and entices to a perusal from its very title. Of all the common ills to which flesh is heir, headache is indeed a common one. Hardly a day passes in the practice of those who receive even fair encouragement from the public without this *symptomatic* disease claiming a share of attention. Its weariness is exhaust-

ing, and its persistency in spite of treatment is vexatious. We sometimes have heard patients exclaim, "They never knew what a headache was," and we have been ready to reply, "Happy mortal, thou dost not know one half the cares of life." Few, however, can so declare; headaches, many of them we are sorry to say quite preventible, are the lot of the many, and while our skill is required in their treatment, works such as the one now before us will always claim attention. We believe also they receive general encouragement. We have read various chapters of the book with much pleasure and, we can truthfully add, profit, but we have been especially pleased with the last one, "On the Headaches of Childhood and Early Life." This is one which should be read by every father, mother and teacher in the land. If the principles which it inculcates could only be carried out, many a fair and lovely flower would be saved, childhood would not be robbed of its growth to supply the demand for brain material, and the future men and matrons of the land would be wonderfully improved specimens of the human race. We need hardly say that we commend most strongly this book to every reader of the RECORD.

MEDICO-CHIRURGICAL SOCIETY.

MONTREAL, March 19, 1880.

The ordinary meeting was held this evening. In the absence of the President and Vice-Presidents Dr. Hy. Howard was elected to take the chair. There were present Drs. Hy. Howard, Trenholme, Kennedy, MacDonald, Kerry, Finnie, Ross, Gardner, Guerin, Armstrong, Brodie, Browne, McConnell, MacDonald, Bessey, F. W. Campbell, Larocque, John Reddy, Shepherd, Hingston and Edwards.

Dr. OSLER exhibited:

- 1st. Tumor of the thyroid.
- 2nd. Dermoid cyst.
- 3rd. Two cases adherent pericardium—endocarditis—incompetency of the valves.
- 4th. Mitral stenosis.
- 5th. Cancerous ovarian tumor, involving both ovaries.

Dr. KENNEDY stated that the patient from whom this heart and ovarian cyst was removed,

post-mortem, was about 19 years of age, and had been in service. She was first seen on the 4th of February, suffering from severe cardiac disease, a loud double murmur existing. Owing to extreme dyspnea and tenderness of the chest a prolonged examination was inadmissible. The heart labored with extreme violence keeping the head in constant motion. The difficulty of breathing was so great that at this time I was of opinion that she could last but a few hours. There was a history of an acute attack of rheumatism at the age of 14 years, which lasted a very long while, subsequently recovering sufficient to enter upon the duties of a domestic servant. Two weeks prior to her last illness a sister had died of puerperal convulsions, and, on the girl visiting her, she had to tramp for some distance through very deep snow, which exertion was the apparent cause of her last illness through getting chilled afterwards. At the time she came under treatment menstruation, which had been slight, had just ceased. For the first few days there was a slight improvement in her condition, a severe substernal pain then manifested itself, and auscultation discovered besides the valvular murmur, a friction sound synchronous with the heart's action, and, as the post mortem revealed, to be due to extra cardiac extension, involving the surface of the adjoining portion of the right lung. This pain was very much relieved by the application of a fly blister. About February 12th an extensive attack of certicaria set in, and, on examining the abdomen, there was discovered a tumor rising out of the pelvis in the median line which, from its shape, exactly resembled the gravid uterus at the fifth month. Pregnancy was suspected, but this the patient denied, and, as there was no reason, owing to the patient's state, to make a particular examination as to its true nature, none was made, there being no hope of recovery. The post-mortem soon revealed it to be ovarian, as shown in the specimen. Her condition remained about the same until the 18th, when advantage was taken of a slight improvement in her breathing to have her conveyed into Hospital, where she died on the second day of entrance.

Dr. Ross read a paper on Diabetes Insipidus.

Dr. Hy. Howard read a paper on Chronic Dementia, in which he took the ground and defended the position taken that it was impossible in a case of consecutive chronic dementia

to have priapism. (This paper will be found among our original communications.)

Dr. OSLER remarked that he did not see any good physiological grounds for supposing that the individual mentioned in the report was necessarily incapable of having an erection, as this act was, in a measure, independent of the brain, and, as shown by Goltz, could be excited reflexly in animals whose spinal cords were cut in the dorsal regions. The erector centre is believed to be situated in the lumbar cord. Physiologists very generally believe that there is no satisfactory evidence of the connection of the cerebellum with the sexual functions; indeed the experiments of Eckhard go to show that the central stimuli exciting the act of erection pass not along the cerebellar peduncles, but down the crura cerebri, *i.e.*, they proceed from the cerebrum.

Dr. F. W. CAMPBELL stated that he had under his care for the past year and a-half a case of Dementia, due to softening of the brain, and which had, in its early stage, been seen by Dr. Howard. This patient had for months past been so bad as to pass his feces involuntary, and yet during that time he had frequent satisfactory intercourse with his wife—whom, in fact, he had impregnated.

Dr. H. HOWARD, in defending his paper, said: "In reply to Dr. Osler's remarks I can very well understand that a man may be paralyzed in the lower extremities from disease or injury of the lumbar portion of the spinal cord, and yet be capable of cohabitation; for a man suffering from general paralysis can have an erection of the penis, and for the simple reason that in neither cases does it follow that there must be disease of the cerebellum, as there is in consecutive chronic dementia. I say the lower portion of the spinal cord may suffer from disease, and no injury result to the nervi-evigen-tes, for its connection with the cerebellum is not through the spinal cord, but by means of the splanchnic, or great sympathetic, and its ganglia, at least according to such physiologists as Eulenburg, Gutman and Lövan, no mean authorities.

I therefore maintain that, when the cerebellum is diseased, as we find it is in chronic dementia, it being what we might call the *entia* of the nervi-evigen-tes, the consequence will be impotency, at least in so far that it would be

impossible to have an erection of the penis. And this fact is fully borne out by my own experience."

With regard to bloody flux as a result of irritation of the cerebellum, he considered it to be a feasible theory (for the reasons already given), even though post-mortem examination failed to find an exciting cause, for we all know that we had much yet to learn in pathological examinations. The microscope had not yet revealed to us, by any means, every thing in the human brain, although wonders had been accomplished by its use. He did not think that ulcers in the intestines was a satisfactory explanation for the cause of the hæmorrhage in the case alluded to for Dr. Osler had at various times called the attention of the members of the Society to ulcerated intestines in typhoid fever where there had been no bloody flux.

In reply to Dr. Hingston, he said that there must be a great distinction drawn between the dement and the imbecile, the latter was due to congenital malformation of the brain in part or whole, or arrest of brain development after birth, consequently many imbeciles wanting in intellect, and consequently reason, had their emotional organization perfectly sound, and, not having reason to control their animal impulse, were erratic imbeciles and dangerous to society. But such cases were not analogous to the dement, who not only lost his reason from disease, but also had his emotional organization from the same cause, exhausted and atrophied. He, however, recognized the fact that there could be intellectual dementia previous to having the cerebellum engaged in the disease, then there would be a form of dementia, without its being necessarily accompanied with impotency or exhaustion or atrophy of the emotional organization, and such probably was the case mentioned by Dr. F. W. Campbell. He remembered seeing the man Dr. Campbell alluded to, and given the opinion that it was softening of the brain, but if he did not express it, he meant of the intellectual portion of the brain, that is, some portion of the cortical substance with its cells. In conclusion, he had heard nothing that he felt would justify him in altering his opinion as already expressed.

The meeting then adjourned.

MONTREAL, April 9th, 1880.

The ordinary meeting was held this evening,

the President in the chair. There were present Drs. R. P. Howard, Hy. Howard, R. MacDonnell, Kennedy, Cameron, Gurd, Ross, Fenwick, Frenholme, Guerin, Browne, Simpson, Smith, R. W. Campbell, Osler and Edwards.

Dr. OSLER exhibited, 1st. Aneurismal dilatation of the arch of the aorta. The patient had been under Dr. Ross' care, and concerning this case Dr. Ross gave a short account of the clinical facts:

The patient was a strongly built man of 38 years, who had had both syphilis and rheumatism. The symptoms from which he had suffered were, severe neuralgia of the right side of the neck, the pain shooting up behind the ear and down to the shoulder, a gradually increasing hoarseness of voice, troublesome cough, and occasionally an attack of marked dyspnoea. He was treated in the General Hospital. An ovoid, very strongly pulsating, tumor was found rising above the right sterno-clavicular joint. He was seen by several members of the staff, and the unanimous opinion held was that it was situated in the innominate artery. Dr. Ross had shared the same opinion, but thought that, probably, the arch was also somewhat involved. One reason for thinking so was the strong pulsation communicated through the trachea on making upward traction thereon. It was interesting to find that such conditions might occasionally be observed in an aneurism springing wholly from the aorta itself.

The PRESIDENT remarked that the specimen exhibited by Dr. Osler for Dr. Finney, with the clinical facts noticed by Dr. Ross while the patient was under his observation suggest several interesting observations: 1st. This aneurism of the arch presented the physical signs of an innominate, rather than of an aortic, aneurism, and it would not have been possible to have avoided mistake owing to a pouch of the aneurismal sac projecting exactly up in the course and alongside of the innominate artery, and to an absence of distinctive signs of dilatation of the arch itself. 2d. A surgeon could not have been blamed had he ligated the arteria innomina or the carotid under the impression that the aneurism was innominate. 3rd. This is an additional instance to the many others which have occurred here within the past few years of the occurrence of thoracic aneurism in persons the subjects of syphilis. It can hardly be alleged

that the rheumatic fever which the patient had suffered was the cause of the disease, as in that case it would have to be contended that the rheumatism had skipped over the part it usually attacks, the valves, and had invaded the aortic walls, which it rarely, if ever, does. On the other hand has a special tendency to induce disease of the arterial walls. 4th. The absence of hypertrophy of the left ventricle in this muscular man suggests the idea that the aneurism probably ran a rapid course, and that sufficient time was not afforded for the development of marked hypertrophy. Lastly the co-existence of evidence of compression of the trachea by the tumor, with attacks of dyspnoea, and the support thus afforded Dr. Bristowe's views on that point.

The second specimen was one of congenital deficiency of the rectum, upon which Dr. Fenwick had operated. An incision was first made where the anus should have been, but the open bowel could not be reached in that way. An incision was then made in the groin, and the bowel opened and the edges stitched. The case, however, proved fatal on the following day.

Dr. RICHARD MACDONNELL exhibited to the Society an occipito-attoid ankylosis.

Dr. FENWICK then read a paper on the removal of a tumor in the vicinity of the thyroid gland, a portion of the right lobe being partly involved.

A vote of thanks to Dr. Fenwick was moved by Dr. F. W. Campbell, seconded by Dr. Hy. Howard.

Dr. CAMERON stated to the Society his wish to bring before the consideration of the members the subject of the communicability of typhoid fever by a portion of the milk supply of Montreal, expressing also the fact that Mr. McEachran would, if agreeable, give a paper on the Transmissibility of Tuberculosis from animals to man. It was decided that these subjects should be presented at the next meeting.

The meeting then adjourned.

O. C. EDWARDS, M.D.,
Secretary.

MARRIED.

On April 1st, by the Rev. Gavin Lang, Alexander H. Kollmyer, A.M., M.D., Professor of Materia Medica and Therapeutics in Bishop's University, to Margaret A. Gaynor, fifth daughter of William Gaynor of Beech Ridge.

DIED.

At Pittsburgh, Pa., U. S., on the 14th of March, Ernest Robert, infant son of Charles Black, M.D., aged six months.