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HALIFAX, NOVA SCOTIA, JULY, 1897.

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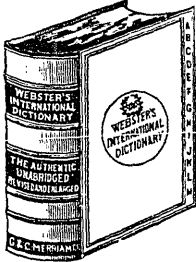


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1897.

Maritime Medical Association.

SEVENTH ANNUAL MEETING.

The Annual Meeting will be held in St. John, N. B., on Wednesday and Thursday, July 21st and 22nd.

Extract from Constitution:

"All registered Practitioners in the Maritime Provinces are eligible for membership in this Association."

All who intend to read papers at this meeting will kindly notify the Secretary as early as possible.

J. W. DANIEL, M. D.,
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THE
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A MONTHLY JOURNAL OF MEDICINE AND SURGERY.

VOL. IX.

HALIFAX, N. S., JULY, 1897.

No. 7.

Original Communications.

THE RELATIVE VALUE OF EXCISION AND ARTHRECTOMY
OF THE KNEE, WITH A REPORT OF FOUR
CASES OF EXCISION.*

BY N. E. MCKAY, M. D., C. M., M. R. C. S. Eng'., Surgeon Victoria General
Hospital, Halifax.

At a meeting of the Maritime Medical Association held here in July, 1893, I reported twelve cases of excision of the knee-joint. Of these, ten were entirely satisfactory: two cases had to be amputated. The cause of failure in one case was due to the irritation and subsequent suppuration produced by the pegs employed to keep the bone in position. Since then I have ceased to use pegs or wire in the operation and now depend entirely on the splints to keep the bones in proper position. In the other case, I attribute my failure to the advanced state of the disease in the joint and also to the unfavorable condition of the patient's general health at time of operation. This was my second case of excision, and I may say that the treatment employed before the operation—the actual cautery—did not contribute towards its success. The actual cautery was the treatment for tubercular arthritis in the Provincial and City Hospital up to 1885, and it was considered *par excellence*. Excision and arthrectomy were not then thought of.

The average amount of shortening of the limb in my ten successful cases was from three-quarters of an inch to an inch. The age of my patients ranged from fourteen to thirty-one years. There is no tendency to flexion or deformity of any kind in any of my cases, and in only one

* Read before Maritime Med. Association, Charlottetown, July, 1896.

was there any appearance of a recurrence of the tubercular disease, and in this case the recurrence did not take place in the knee-joint or scar, but in the tibio-fibular articulation.

Since then I have operated upon four additional cases with very satisfactory results. In three of these union took place by first intention and their future progress was uneventful. The fourth case, however, developed a tubercular abscess on the outer aspect of the wound, which had to be curetted three or four different times before it healed. Convalescence was consequently slow. The average shortening of limb in these four cases was from one-half to three-quarters of an inch.

(" In my report of cases of excision of the knee, in 1893, I overlooked case No. 17. Shortly before the Charlottetown meeting of the M. M. A. in July last, I operated on case No. 18, and although its progress at the time was everything that could be desired, yet I did not report it, as I could not say with absolute certainty what the ultimate result would be. Since then I have operated successfully on case No. 19, and on 9th June, 1897, I operated on case No. 20. So far, the progress of this case is everything that I could wish.

CASE 17.—F. F., age 20, single, laborer, was admitted to hospital 18th April, 1888, with tubercular arthritis of knee. The history of this case was mislaid. The knee was excised, and he was discharged well on the 20th October, 1888. He was in the hospital 26 weeks and three days. In talking to Dr. MacDonald, St. Peter's, C. B., the other day, who knows this patient well, he tells me that this man can walk very well and is in splendid health.

CASE 18.—J. F., fisherman, age 29, was admitted to the Victoria General Hospital June 1st, 1896, complaining of pain and stiffness in the left knee-joint and in both hips, and sometimes in all the joints. The trouble in the left knee came on gradually. In November, 1895, the pain was so severe that he had to give up work and he has done nothing since. Mother died of consumption. Sister died a year ago, cause unknown. When patient entered the hospital he was poorly nourished and was blind in left eye. The left knee was enormously swollen and painful and tender. The swelling was semifluctuating. He had several enlarged lymphatic glands about the neck. Excised the knee on the 26th June. The synovial membrane was one large mass of gray gelatinous substance. The articular cartilages were eroded considerably, especially around their margins, and the synovial membrane, which was fully an inch and a half in thickness, was carefully dissected away with knife and scissors, and every vestige of diseased structure was thoroughly removed. Patient had a great deal of pain in the knee the first eight or nine days after the operation. Highest temperature registered 100°·6 F. He made a good recovery and was dis-

charged well Nov. 30th. Amount of shortening of limb, half an inch. The enlarged lymphatic glands were removed before patient left the hospital.

CASE 19.—Mrs. C., age 33, was admitted into the hospital Aug. 18, 1896, with tubercular arthritis of the knee. She was in the hospital ten years ago for an abscess in her side. Eight years ago she was hit in the knee with a shovel, to which accident she dates her trouble. Family history negative. Patient was fairly well nourished when admitted. Her right knee was somewhat spindle-shaped and swollen. The swelling was chiefly on inner side of knee. Slight fluctuation over inner condyle of femur. No redness nor increased local heat. From date of admission till she was operated upon she suffered a good deal of pain, especially at night. Excised the knee on 1st September. The cartilages on inner condyle of femur and corresponding part of head of tibia were completely destroyed. Temperature rose on second day after operation to 101° 8 F., but after this it did not register over 99°. The first three weeks after the operation there was a good deal of thinnish discharge from each angle of the wound. It then ceased and the patient made an excellent recovery. She was discharged well on the 14th Nov. Amount of shortening about three-quarters of an inch.

CASE 20.—H. U., age 23, single, was admitted to the hospital 8th June, 1897, suffering from disease of the right knee-joint. Present trouble began when patient was two years old. It came from an injury. Following the injury the knee became inflamed and he was compelled to take to bed. When he got a little better he would go on it again and hurt it, causing a recurrence of old symptoms. The knee was kept in a state of irritation till patient was five years old, when an abscess developed over head of fibula. Dr. MacDonald, of St. Peters, opened the abscess and kept the leg at rest by confinement in bed. He also aspirated the joint several times. With this treatment and great care the knee was completely well at 9 years, and continued well until he was 19 years old. About this time he had a severe attack of typhoid fever. Then noticed that after much exercise the knee got tired and inflammation reappeared, and after prolonged rest and great care it would recover. After each attack the joint became stiffer and more irritable. Eighteen months ago he fell on the ice and struck the patella a severe blow. This brought an inflammation in the joint from which he has never recovered.

On 8th Nov. 1896 he went to Boston for treatment. Entered the Carney Hospital. Here an incision was made over inner side of joint three inches in length and a small hole was drilled into lower part of inner condyle. Wound healed in nine days and limb was put up straight in plaster of Paris, which remained on for three months. Was told by the surgeon who operated that "it was a rare form of tuberculosis, and that it would never trouble him." Plaster removed in three months. Could now move joint slightly. Flexion not enough to enable him to walk and swing leg properly. No pain however on motion. On moving

about much, knee was kept constantly irritated, and soon the old pain and inflammation were set up and leg assumed the condition in which it was when he entered the hospital. Family history negative.

When he entered the hospital his general condition was fairly good. Knee joint was partially ankylosed. Joint could be very slightly flexed. The whole limb was greatly wasted. Patella was totally fixed. Tenderness on pressure on lower and outer side of knee-cap. Motion not painful except when suddenly jarred.

Operated on the 9th of June. Patella firmly united by bone. It had to be chiselled off. The cartilages on outer condyle and corresponding surfaces of head of tibia were entirely gone, and fibrous union had taken place. Those on inner condyle were partially eroded. The limb was put up in my usual splint. Highest temperature registered so far 99°. Dressed wound for first time on the 20th. It looked very well. The condition of patient and limb could not be better and I am safe to anticipate a perfectly satisfactory result.

If the results in my 20 cases of excision of the knee were tabulated it would show that 18 were entirely satisfactory; 2 were amputated; $\frac{1}{2}$ to $\frac{3}{4}$ inch average shortening of limb; no deaths.)

Other operative methods have been employed in the treatment of tubercular arthritis of joints. They are destruction of the diseased synovial membrane by the actual cautery, injection of iodoform emulsion, and erosion or arthrectomy.

The operation of arthrectomy was first brought to the notice of the profession by Mr. GEO. A. WRIGHT, of Manchester, in 1881, in an article published in the *Lancet* entitled "Cases Illustrating the Surgery of Childhood." Since then he has practiced it at the Children's Hospital, Pendlebury. In 1885, four years later, VOLKMANN published his paper on "Arthrectomia Synovialis." So much for the history of the operation.

What do we understand by arthrectomy, and wherein does the operation differ from excision?

Arthrectomy, or erosion, as I understand it, consists in laying the cavity of the joint freely open and in completely eradicating all the diseased synovial membrane, bones, cartilages and ligaments without a formal removal of the articular ends of the bones, as in excision. In Mr. Wright's words, "Arthrectomy is removal of all the diseased structures from a joint, and removal of diseased structures only."

Now, as regards the operation of excision. In performing this operation as it must be done, in the light of our present knowledge, the diseased synovial membrane, bones, cartilages and ligaments must be removed with the same care and thoroughness as is done in arth-

rectomy. Scraping the diseased tissue away with a sharp curette will not do in the one any more than in the other. In excision the articular surfaces are formally removed. The difference, therefore, between the two operations is, that in excision the articular ends of the bones are formally cut away while in erosion they are not. It should be borne in mind, however, that the amount of bone removed does not determine the operation.

Not a few of the admirers of erosion endeavour to create the impression that to do an excision a large block of bone must be removed from the tibia and femur. This is misleading. For as long as there is a formal removal of the articular surfaces, let the slice be ever so thin the operation is an excision. The extent of involvement of bones alone determines the size of slice to be removed.

THE RELATIVE VALUE OF ERASION AND EXCISION.

In discussing the relative value of the operations of arthrectomy and excision the points to be considered are: 1. Their relative danger; 2. Which is most successful in eradicating the disease; 3. The subsequent utility of the limb as regards (*a.*) Mobility; (*b.*) Deformity; (*c.*) Shortening.

With regard to the first point, the relative danger of the two operations. Both arthrectomy and excision are prolonged operations and the danger from shock is great, but not any greater in the one than in the other. In none of my twenty cases of excision did shock assume a dangerous form. The diseased tissues are removed from the joint quicker by excision than by erosion and the time taken to complete the operation is shorter. Hence the danger of shock should be proportionately less.

As to the second point, viz., which is the more successful in eradicating the disease. Mr. CHEYNE, in his work referred to, says on this point, "I should say decidedly that recurrence is less likely after excision than after arthrectomy. * * * The parts where it is most difficult to get rid of the disease in arthrectomy are about the margin of the cartilage, on the surface of the cartilage where small pits containing tubercular tissue may readily be overlooked, and recesses of joints, such as the intercondyloid in the knee, the olecranon fossa and the neighbourhood of the articular ligament in the elbow. These are parts which are cut away or thoroughly exposed in excision, while the diseased synovial membrane can be readily removed in either operation. Further, in

arthrectomy deposits in the bone are undoubtedly more likely to be overlooked than in excision, though in the latter operation they are occasionally missed." (Vide pp. 190-1.) Again, Mr. EVE, Surgeon London Hospital, in an article on "Arthrectomy of the Knee," (*B. M. J.*, Aug. 25th, '94) mentions "the danger of overlooking osseous foci lying beneath the articular surface," as one of the great drawbacks of the operation.

Mr. WM. THOMSON, Surgeon Richmond Hospital, Dublin, in a paper read on "The Operative Treatment of Tuberculous Disease of the Knee-joint," before the section of surgery of the Royal Academy of Medicine, Ireland, on Nov. 8th, '89, says: "I have seen cases in which with cartilages looking perfectly healthy, we have found on section of the bones isolated necrosis or nests of tuberculous matter. Now these are just the cases in which the thorough-going-eraser would regard as typically good for his method: yet, if the sections had not been made, we should have shut up the disease we wished to get rid of."

My own experience is that the greater the care with which the diseased structures are removed from the joint, the better the results, and unquestionably the disease can be more thoroughly eradicated by excision than by erosion. This is especially true when the primary mischief is seated in the bone, and this happens in 61 per cent. of cases under the age of ten years, in 51 per cent. of cases from 11 to 20 years, and in 65 per cent. of cases over 20 years of age, according to Willemer's statistics, and these are admitted to fairly represent the results obtained.

I have frequently operated on tubercular arthritis of the knee in which I found sequestra and caseous bone deposits imbedded in the condyles of the femur and head of tibia, where it would be impossible for the thorough-going-eraser to discover them. They were out of sight and beyond his reach. In these cases erosion would be valueless. On the question of recurrence of the disease arthrectomy is therefore at a disadvantage.

The third question to be considered is, the subsequent utility of the limb after these operations. Let me consider this question first as regards mobility, secondly as regards deformity, and thirdly as regards subsequent shortening.

First, as regards the subsequent mobility of the limb after these operations.

In the operation of arthrectomy, when the cartilages are intact or partly so, bony union does not as a rule occur, but if the joint is left at

rest for some time afterwards, fibrous ankylosis is likely to take place, which may admit of slight motion. Complete stiffness occurs in some cases. On the other hand, in excision of the knee, bony union almost invariably takes place and complete stiffness results. Mr. WATSON CHEYNE, Surgeon Kings' College Hospital, in his work on "Tuberculous Disease of Bones and Joints," in discussing the question of mobility after arthrectomy says: "In some cases, however, useful movable knee-joints have been obtained after arthrectomy, although *I do not think it is a thing to be aimed at in children.*" Indeed, he might well have added "in adults." To obtain motion in the joint is the exception, not the rule. The question, to my mind, in this connection is, Is the limited motion obtained after some cases of arthrectomy an advantage or a disadvantage to the patient? My own opinion is that it is a disadvantage because it tends to contribute to a sense of insecurity of the limb. Mr. HOWSE, in an able article on excision of the knee, in Guy's Hospital Report for 1892, says, in discussing the question of mobility, that "such movement is very generally absolutely prejudicial to the patient, as it contributes to the sense of insecurity of the limb, and if by accident the movement be extended to a greater range than allowed for by adhesions, it tends to strain them and to lighten up again an attack of acute inflammation of the part."

Mr. WM. THOMSON, in the paper already referred to, says: "The principal advantages claimed for the operation instead of excision are these: 1st. That the movement of the joint may be preserved. 2nd. That there is no subsequent shortening." Mr. THOMSON has expressed my views on the question of preserving motion in the joint after arthrectomy so clearly and concisely that I cannot do better than quote him verbatim. Here is what he says:—

"With regard to the first claim I have to observe that all surgeons would be glad if they could secure movement in the joint. But movement is a very relative term and we may have motion that is rather a disadvantage than otherwise, or we may have motion that is next door to fixity. Just let us remember what is done in these cases of so-called erosion. The whole of the synovial membrane is to be removed, diseased bone is to be gouged away, loose cartilages are to be clipped off, and in a word all diseased tissues are to be eradicated. Of course, the operation may not be as extensive as this; but still I ask, if all that I have mentioned is done, may we reasonably expect a moveable joint, and if so, what is the use of the beautiful arrangements that exist in

our knee when they may all be removed without practically interfering with its function ? ”

But the cases we read of show that the claim after all is based on very insufficient grounds, and that in practice *it is not a desirable end to aim at*. It has been found that there is a very great tendency to flexion of the limb even so far off as a year after operation. We know that we have to guard against this even in cases of excision in young children. Therefore, we are not surprised to learn that as the result of experience, *this claim of movement is being gradually abandoned, and ankylosis is being sought for*.

I may here observe that in studying the literature of arthrectomy I find that nearly every surgeon of experience has practically abandoned the idea of preserving the movements of the knee after this operation. They have failed to obtain useful motion after it and are now convinced that ankylosis is a much more desirable result. This being the case I cannot understand why surgeons should try to secure a straight stiff joint in such a circuitous and tedious manner as crasion, especially in adults. The quickest and easiest way to obtain what a surgeon wants to accomplish is surely the best. Let me quote from Mr. WM. THOMSON on this point. I entirely agree with him. He says : “ But why should it (ankylosis) be obtained in this round about fashion ? Can it be secured as quickly between the articular surface of bones, kept in fixed position, as between two level freshly divided surfaces ? Certainly not.”

Mr. PAGE in a paper “ On Arthrectomy ” read before the Harveian Society of London Nov. 1st, 1888, strongly expressed himself in favor of ankylosis as being the best thing to be obtained. Further on in his paper he said, “ Mobility could only be expected in cases where the amount of disease was limited in extent, the very cases where there was difficulty in diagnosis and where there would be hesitation to operate early.”

In the discussion that followed the reading of this paper Mr. EDMUND OWEN agreed with Mr. PAGE that “ in the present state of knowledge it was better not to think of securing future movement for the joint.” “ To admit ” he says “ that the slightest cases gave the best results was not to pay the highest tribute to the operation.”

Mr. MARMADUKE SHIELD concurred and remarked that “ absolute immobility after operation was the main factor in success after either excision or arthrectomy.”

Movement of the knee-joint after an arthrectomy is not now aimed at by experienced surgeons, an ankylosed joint being the best thing to be attained. But this is not obtained as quickly after excision as after arthrectomy. The operation which accomplishes the surgeon's purpose the quickest and from which the patient recovers the most rapidly is the best.

Next as regards deformity. This question has reference chiefly to the knee joint. In young children there is a tendency to flexion after both operations, and also to genu-valgum and to external rotation; but this tendency is much greater after arthrectomy than after excision. Mr. W. CHEYNE says that, "On the whole the tendency to deformity is somewhat greater after arthrectomy than after excision." The reason of this is obvious. After an excision the union is almost invariably bony and unyielding, consequently flexion or any other deformity of the limb is not likely, as a rule, to ensue, while in arthrectomy the union is chiefly fibrous in character and hence pliable, and subsequent deformity is almost sure to occur.

Mr. B. POLLARD, Assistant Surgeon to University College, in an article "On the Treatment of Tubercular Disease of the Knee-joint by Arthrectomy," which appeared in the *Lancet* June 23, 1888, concludes with the following words: "The greatest drawback to the operation is the tendency to flexion of the joint which occurs after artificial support is left off. In order to check this, the patients whose cases are now recorded are, at periods ranging from seven to twelve months after operation, still wearing Thomas' splint. It remains to be seen how far the increased strength of the joint which is secured by the transpatellar operation will counteract the tendency to flexion." Again, Mr. EVE in his article already referred to, mentions "the greater liability to flexion" amongst the disadvantages of arthrectomy.

On the question of deformity arthrectomy is again at a disadvantage.

Lastly with regard to the subsequent shortening. In the case of young children the question of shortening is of great importance. It is claimed for arthrectomy, that no subsequent shortening of the limb takes place. Indeed, it is held by some surgeons that actual lengthening of the limb occurs in some cases after the operation, just as overgrowth not unfrequently follows necrosis from acute periostitis, (vide Mr. WRIGHT's article in *Lancet* Dec. 21st, 1888, p. 1086), and they inferentially claim elongation of the limb as one of the advantages of the operation.

Mr. W. CHEYNE in his work already referred to says, on the question of subsequent shortening, that "unless a deposit involves the epiphysial line there is no interference with the growing part of the bone at the operation (arthrectomy) and consequently no subsequent shortening." He might as well have said, and be frank about it, that this is equally true of excision: and further he might have added that the converse holds true of arthrectomy as well as of excision. Then he says "with reference to excision the results as regards shortening are very bad, and hence in children, excision of the knee is almost absolutely contra-indicated." Does Mr. CHEYNE mean to say that in excision a surgeon deliberately interferes with the growing lamella, for the mere pleasure of doing it, regardless of whether the disease involves this part or not? Surely not. It seems to me that in either operation whether we encroach upon the growing cartilages will depend entirely on the extent to which the disease involves the bones. If the tubercular lesion encroaches upon the growing part, we must go up that far no matter what operation we perform. Every vestige of diseased structure wherever found must be completely eradicated before we can hope for success. The danger, therefore, of encroaching upon the growing lamella and of interfering with the subsequent growth of the limb is equally great in the two operations.

In operating upon children under 14 years of age, it would be well to have an idea of the probable thickness of the tibial and femoral epiphysis, as it would help us to determine approximately the amount of bone that we could safely remove in excision without endangering the epiphysary line.

Mr. HOWSE, in an article on excision of the knee in Guy's Hospital Report for 1892, gives the depth of the tibial and femoral epiphysis in an adult over puberty, as obtained in specimens in Guy's Hospital Museum, to be as follows: (I give Mr. Howse's report verbatim).

"Average depth of femoral epiphysis:—

As measured in a section of the bone over the inter-condyloid notch, nearly one inch: over the condyles, about one inch and an eighth.

As measured at the sides—the epiphysis still adhering to the bone—about one-eighth of an inch greater than these, owing to the concavity of the upper surface of the epiphysis.

Average depth of tibial epiphysis:—

As measured in sections of the bone over the tuberosities, nearly one-half an inch: through the most prominent part of the spine of the tibia about five-eighths of an inch.

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It need scarcely be said that for operative purposes the measurements taken from the section of the bone are more reliable than those from the margin; and it is manifest that the *smallest* thickness of the epiphysis should be much more taken into account than the greatest. It is clear, therefore, a considerably thicker slice may be taken from the femur than from the tibia without damaging the growing lamella. When it is remembered in addition that the facet for the tibio-fibular articulation is always on the epiphysis and not on the diaphysis, and that it is not wise to damage this articulation in the operation, the reason becomes all the stronger for only taking a very thin slice from the tibia and a thicker one from the femur.

The depth of the epiphysis in children is less than the above in accordance with the age. Corresponding care, therefore, in these young patients should be taken not to remove too much bone."

I am ready to admit that a certain amount of shortening of the limb necessarily results from excision, but whilst I do this, I claim that the amount of shortening need not exceed one-half or three-quarters of an inch. Of course if the disease involves the bones to such an extent that the epiphyseal line is encroached upon, more shortening than this will ensue no matter what operation is performed. It must be borne in mind that the amount of the subsequent shortening of the limb depends more on the extent of the involvement of the bones than on the operation *per se*. The question then arises, Is one-half to three-quarters of an inch of shortening an advantage or a disadvantage to the patient? My own opinion is that it is a great advantage, for I hold that a person with a straight stiff limb from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch shorter than its fellow, walks with greater ease and grace than he can if both limbs are equal in length. Many eminent surgeons, I am aware, say that not unfrequently elongation of the limb follows erosion and they inferentially indicate this as one of the great advantages of the operation over excision. Now is elongation of the limb advantageous to a patient? Certainly not. To my mind a straight, stiff, elongated limb is cumbersome and awkward to him. We have all seen a person walk with a stiff, straight limb of equal length with its fellow. How does he walk? He throws the weight of his body on the well leg while he swings the stiff limb in a semicircular manner outwards and forwards. His gate is clumsy, awk-

ward and laborious. The longer the stiff limb is than its fellow, the more awkward and laborious the walking and the more difficult it is for the patient to get over an obstruction or go up and down stairs.

It is quite different with a person with a stiff, straight limb, exhibiting one-half to three-quarters of an inch of shortening. He swings the limb backward and forward like a pendulum and walks with greater ease and grace and gets over an obstruction with less difficulty than a person with a stiff, straight, elongated limb can.

A large majority of the advocates of arthrectomy limit its application almost wholly to children and even in them they say it should be confined for the most part to cases in which the disease is synovial in origin and almost entirely limited to that membrane. The reason of this is because in them only can the chief advantage claimed for the operation—continuance of the growth in the limb—be of any avail. When the primary and main portion of the tubercular lesion is bony in origin arthrectomy cannot have much success.

On this point Mr. GEO. WRIGHT in an article in the *Lancet* of 31st December, 1888, says: "The operation is chiefly applicable to the knee joint though I have performed it in the ankle and elbow; but in joints where the primary and main lesions are bony the operation can, I think, never have any great measure of success."

Dr. SENN, in his work on "Tuberculosis of Bones and Joints," says of arthrectomy: "In primary tuberculosis of the synovial membrane this is the operation *par excellence*. * * * Anatomically the knee-joint presents the most favourable condition for operation; from a pathological point *it is not often indicated, as primary synovial tuberculosis of the joint is much less frequent than the osseous form.*" * * * Then he says: "Primary osteo-tuberculosis with secondary involvement of the joint usually consists of more than one focus in one or both articular surfaces." (p. 307). It is well for the surgeon to remember this as it ought to satisfy him of the inapplicability of erosion in such cases.

Again, Mr. MACNAMARA, in discussing a paper by Mr. EDWARD OWEN on "Erosion of Joints," read before the "Medical and Surgical Society" of London, in 1888, said: "In his belief the pulpy diseases of joints so called, began in the ends of the bones." Mr. BARWELL in the course of the same discussion remarked that "The full operation of excision was wanted when the disease had begun in the bone underneath the cartilage, as by this means both bone and synovial membrane were

removed. * * * Arthrectomy was best suited in those cases in which there was no bone disease."

With regard to the primary seat of tubercular affections of the knee-joint and also with regard to the nature of the osseous deposits Mr. WILLEMER collected statistics with the following results:—

Nature of Deposit.	1 to 10 Years.	10 to 20 Years.	Above 20 Years.
Sequestra	19.4 per ct.	19. per ct.	49. per ct.
Caseous bone deposit.	41.6 per ct.	32. per ct.	16. per ct.
Pure synovial disease	38.8 per ct.	49. per ct.	33. per ct.

Mr. W. WATSON CHEYNE in his work on "Tuberculous Disease of Bones and Joints" says that these statistics "fairly represent the results obtained" (vide p. 249.)

An analysis of this table shows that between the age of 1 and 10 years in only 38.8 per cent. of cases the disease was purely synovial in origin, while in 61. per cent. the primary seat of the disease was in the bone, and between 10 and 20 years the disease was synovial in origin in 49 per cent. and bony in 51 per cent.

Now, if arthrectomy is applicable in only very young children and even then in cases in which the tubercular mischief is synovial in origin and where the disease is almost wholly limited to that membrane—this is all the scope its advocates seem to claim for it—and that the disease originates here in only 38 per cent. of cases under the age of 10 years, according to WILLEMER'S statistics, the chances of the operation ever supplanting excision in knee-joint affections are not very bright.

For the benefit of those who jump at new operations too often for no other reason, as far as I can see, than that they are new, allow me to direct their attention to the conclusion to which Mr. WM. THOMSON came regarding the relative merits of erosion and excision. He sums up the able paper already referred to in the following words: "I believe that once we determine upon cutting open the knee-joint in general tuberculosis of the synovial membrane, we had better go the whole way and perform the ordinary excision. The operation is, I maintain, safer and more satisfactory in its general results than erosion. * * * I am satisfied that the patients who have submitted to excision of the joint have on the whole been better treated than if they had undergone

exploratory incisions and tentative scrapings at the hands of a surgeon.' (*B. M. J.*, Dec., 1889, p. 1274.)

In the discussion that followed the reading of Mr. THOMSON'S paper, Sir WM. STOKES endorsed Mr. THOMSON'S opinion as to the superiority of excision of the knee over the operation of arthrectomy. Mr. LENTAIGNE agreed with Mr. THOMSON and Sir WM. STOKES, "That excision was the best treatment for tubercular disease of the knee-joint, and remarked that it ought to be performed as soon as the disease is recognized." He also said: "That if the limb became crooked afterwards it was the fault either of the surgeon or the patient or very often both. Mr. THORNBY STOKER said: "That for the last two years he had been watching to get a suitable case for erasion, but in every instance where he commenced the operation he had been obliged to complete it by carrying out excision."

Mr. EDMUND OWEN, senior surgeon to the Hospital for Sick Children, Great Ormon Street, and surgeon to St. Mary's Hospital, London, in an article on the "Surgical Diseases of Children," in the Year-Book of Treatment for 1890, pp. 182-3, says: "Increasing experience of the operation is leading to these conclusions, that except in very slight cases—such, indeed, as used formerly to recover, and still might do so, without operation—future movement in the joint should neither be aimed at nor desired; and that to secure the best results in the greatest number of cases, a thin slice should be taken both from the femur and tibia, so that solid synostosis may ensue. Thus in all except slight cases, arthrectomy, as applied to the knee at least, will simply mean a more economical excision, with a thorough removal of all diseased tissues from the joint and its neighborhood."

I have yet to perform the operation of arthrectomy, but I have had to do with five or six cases of it in the surgical wards of the V. G. Hospital, and I must confess that I have not been favorably impressed by it or the results obtained. I am convinced that excision would have given these patients infinitely better limbs and that their recovery would have been much more rapid.

Therapeutic Review.*

By M. A. B. SMITH, M. D., Dartmouth, Class Instructor in Clinical Medicine at the Halifax Medical College.

TUBERCULINS, A., O. AND R.

On April 1st, Professor KOCH, of Berlin, in a published article, announced the discovery of certain new forms of tuberculin, one of which he asserts, with some reserve, to be the perfect form which he at first expected but did not realize.

He states that immunity from infectious diseases may be made up of one factor or more. For instance, the tetanus antitoxin does immunize the patient for a certain number of weeks from the effects of the tetanus bacillus. It does not, however, destroy the bacillus, which may live in the system and still cause fatal illness after the antitoxin has spent itself. Then again, the case is different with immunization against the bacteria of cholera and typhoid fever. In the body of an immunized animal these bacteria themselves perish. In tuberculosis, when ideal immunity takes place, it is with the destruction of the tubercle bacilli.

In tuberculosis as it occurs, immunity does occasionally obtain, but the difficulty is that it does not come about until a large number of bacilli have been rapidly spread through the whole organism, and then immunity comes too late. To immunize, the bacilli (cultures) must be absorbed and it has up to this been impossible to produce their absorption with safety. The injection of bacilli, even when dead, leads to the formation of abscess and complications which may in the end prove fatal.

KOCH tried to render the bacilli absorbable by treating them with mineral acids and concentrated alkalis, but in this he was not very successful. He next tried to obtain immunization by extracting absorbable substances from them.

Now the ordinary tuberculin exerts no influence whatever on the bacilli themselves. The immunity is exclusively restricted to the toxins and does not exist against the bacilli. Even this KOCH considers was sufficient to recommend it; but now he claims to have discovered a substance both destroying the toxin and the bacilli of tuberculosis.

*Read at meeting of N. S. Branch British Medical Association, Halifax, May 21, 1897.

At this point he gives a definition of tuberculin A, or T A, as he terms it. It is produced by the action of a 10 per cent. solution of caustic soda on the tubercle bacilli. It was found unsatisfactory, inasmuch as that when it contained a few dead bacilli, although its action was much more constant than tuberculin, it gave rise at the seat of its injection to abscesses. When the dead bacilli were filtered out by a stoneware filter, its action was no better than ordinary tuberculin, and besides, it would not keep. This, in brief, is what is designated tuberculin A.

As to the tuberculins O and R, KOCH had found from former experiments that tubercle bacilli contained two special chemical bodies belonging to the class of non-saturated fatty acids. These are distributed in the interior of the rods and protected against external agencies by a protecting envelope. The difficulty was to destroy this envelope. He placed well dried cultures of tubercle bacilli in an agate mortar and triturated them for a long time with a pestle of the same material. By this means he obtained a mass which contained very few intact bacilli. In order to get rid of these, he made an emulsion by trituration with distilled water, and subjected the mixture to a process of centrifugalization for from thirty to forty-five minutes, in a powerful machine which made 4000 revolutions per minute. "The emulsion was then found to be divided into two distinct layers: an upper layer made up of a whitish, opalescent-transparent liquid, which did not contain any bacilli at all; a lower layer, consisting of a muddy residue, which adhered firmly to the walls of the apparatus. This residue was dried anew, then crushed in a mortar, and centrifugalized as before, giving again an upper transparent liquid layer and a solid residue. When this same operation had been repeated several times, there was at last almost no residue left, save what was made up of certain foreign bodies which had got into the liquid, such as cotton fibres, dust, etc. In other words, the entire mass of the culture of tubercle bacilli had been transformed into a series of fluid layers."

The first layer, or upper layer, obtained after the first centrifugalization, Prof. KOCH calls tuberculin O, and to the solid residue after the first centrifugation he gives the name tuberculin R. By experiments on animals it was found that these preparations were all entirely absorbed, and never gave rise to the formation of abscess.

Experiments later proved that the precipitate formed after the first centrifugalization, or what is called T R, consisted mainly of the constituent elements of the tubercle bacilli, whereas the upper layer

obtained after the first centrifugalization, or T O, closely resembles ordinary tuberculin.

T R is endowed with striking immunizing properties. It also produces a reaction in tuberculous subjects when injected in too strong a dose, but its immunizing action is effected independently of this reaction. With ordinary tuberculin, with T A or T O, it is necessary, in order to obtain a curative effect, to excite the reaction; with T R, on the contrary, KOCH endeavours as much as possible to avoid producing a reaction, simply trying to render the patient insensible to the action of doses as large as possible, by increasing progressively and rapidly the quantities injected.

By this agent then, KOCH claims (and he says there is now no doubt on the subject) that the patient is immunized against "all the constituent elements of the tubercle bacillus:" that is, both the toxin produced by the bacillus is neutralized, and the bacillus itself is destroyed. This is a gravely important statement, and the medical world will watch results with an interest proportionate to the faith they have in Prof. KOCH's theory.

The professor says the mode of application and the dosing of these preparations are very simple. The injections are practiced, as for ordinary tuberculin, under the skin of the dorsal region, with any easily sterilized syringe. The liquid for injection contains per cubic ctm. 10 mg. of solid matter. It is diluted with the physiological solution of sodium chloride (not with the carbolic acid solution) until the appropriate dose for each particular case is reached. The first injection is made with a dose of 1-500 mg. of solid matter. This is such a small dose that it is quite exceptional for it to give rise to any reaction at all; should this, however, be the case, the liquid would simply have to be still further diluted. The injections are repeated every other day or so.

"The quantity of active principle is increased very slowly so as to avoid as far as possible a reaction of more than 1°C. When an injection has been followed by a rise in temperature one must wait until this has gone down to normal before giving the next injection. I have generally carried the injections up to the dose of 20 mg."

THE SCHOTT TREATMENT OF HEART DISEASE.

There can be no doubt that this treatment furnishes a method which is destined to be permanent in the management of cardiac failure. It has been endorsed by Sir GRAINGER STEWART, LAUDER BRUNTON, Sir WM. BROADBENT and many others. BEZLY THORNE, of London, has

warmly supported it, and done more than any other in England to make it generally known.

This method, as Dr. THORNE has stated, is not for acute cases of heart disease nor for cases of extreme exhaustion or heart failure, but for a class between these two extremes, the great class of cases of chronic heart disease. It is a method consisting of the use of medicinal baths and systematic "resistance movements," both of which have the remarkable characteristic effect in most cases of increasing immediately the force and diminishing the rate of the heart's action, and of diminishing the area of cardiac dulness in cases of cardiac hypertrophy and dilatation. It is claimed that after a series of these baths and exercises the improvement becomes permanent.

The method is also called the Nauheim treatment as is well known, because it originated at Nauheim, a small town in Germany, north of and not far from Frankfort, and near the Rhine. In this town lived the two brothers, Drs. AUGUST and THEODOR SCHOTT, who have promulgated the method which has come to be known by their name.

Although this method has only become prominent during the last year, its first employment dates back perhaps some thirty-five years, since Professor BENEKE is said to have reported in 1859 and 1861 the beneficial effects of the baths of Nauheim in the treatment of heart disease. He spoke not only of the soothing effect of the baths, but of the improvement in compensation. About 1880, Dr. A. SCHOTT wrote his first work on "Baths as a First-class Tonic for the Diseased Heart." Dr. SCHOTT's first paper on gymnastics in the treatment of heart disease appeared in 1885. The latter method was originally devised by Swedish physicians, and was applied at Nauheim first for the relief of hysterical patients, but its effect in steadying and toning cases of nervous, weak hearts led to its employment in other cases of cardiac disease. The method as advocated by the SCHOTT brothers did not attract much attention abroad for some time, till Dr. BEZLY THORNE drew special attention to it two years ago.

The movements are nineteen in number, and are described in the *British Medical Journal* of Nov. 2nd, 1895. The peculiarity of them is that they are performed against the resistance of an operator, who opposes them with the hand held flatly. The resistance must not be very strong, but graduated to the patient's strength. Consequently, a woman makes the best operator. The exercises last about twenty minutes, and an interval is allowed between each movement, during

which the patient sits down. To give an example of these movements, I may mention the first. Arms extended in front of body on a level with shoulder, hands meeting; arms carried out till in line, and brought back to original position.

I will just mention the general rules, as stated by Dr. BEZLY THORNE, borrowed from Dr. SCHOTT :

(1.) Each movement is to be performed slowly and evenly, that is, at a uniform rate.

(2.) No movement is to be repeated twice in succession in the same limbs or group of muscles.

(3.) Each single or combined movement is to be followed by an interval of rest.

(4.) The movements are not allowed to accelerate the patient's breathing, and the operator must watch the face, for the slightest indication of (*a*) dilation of the *alæ nasi*; (*b*) drawing of the corners of the mouth; (*c*) duskiness or pallor of the cheeks and lips; (*d*) yawning; (*e*) sweating; (*f*) palpitation.

(5.) The appearance of any of the above signs should be the signal for immediately interrupting the movement in process of execution, and for either supporting the limb which is being moved or allowing it to subside into a state of rest.

(6.) The patient must be directed to breathe regularly and uninterruptedly, and should he find any difficulty in doing so, or for any reason show a tendency to hold his breath, he must be instructed to continue counting in a whisper during the progress of each movement.

(7.) No limb or portion of the body of the patient is to be so constricted as to check the flow of blood.

Sir GRAINGER STEWART'S experience with the method has led him to the following conclusions :—

(1.) That in a large proportion of cases it effects immediate improvement in the condition of the heart, as shown by percussion and auscultation, the sounds becoming more distinct and the area of dulness diminishing to a greater or less extent.

(2.) That in many cases the rhythm of the pulse improves and the beat becomes more vigorous.

(3.) That while the immediate effect is so far temporary, the heart rarely goes back to its previous condition of dilatation, but remains somewhat smaller than it had been before the exercises, and that gradual improvement of a lasting kind sets in, so that the heart recovers its tone and the area of dulness diminishes.

The demonstrations of the extent of cardiac dilatation before and after the application of the treatment has led to a good deal of discussion on the method and merit of auscultatory percussion and its value as compared with the ordinary method of percussion. Most of the diagrams illustrating the areas of the heart dulness have been drawn from the result of auscultatory percussion.

In the Nauheim treatment of heart disease equal value appears to be attributed to the exercises and the baths, but Sir GRAINGER STEWART prefers beginning with the baths and afterwards going on with the exercises, alternately with the baths. A word should be said first of the waters of Nauheim, and then of how they may be artificially imitated. These waters are derived from twelve springs, of which four are used for drinking and three for the baths. "The bath waters contain from 2 to 3 per cent of sodium chloride, 2 to 3 per thousand of calcium chloride, some carbonate of iron, and a very large amount of carbonic acid." There appears to be no doubt that the results obtained from these baths are not due simply to the bathing but to the ingredients with which the waters are impregnated. At first the bath waters which do not contain carbonic acid are used, afterwards those charged with this gas, and finally "the Strombad, with its continuous rush of foaming water," is permitted.

The temperature of the bath should be from 92° to 95° at first, but it may later on in the course fall as low as 81°. The duration of the bath should be about eight minutes. After the bath the patient should be carefully rubbed down, great care being exercised against catching cold, the feet especially being kept warm. He is also instructed to rest an hour. The baths are not at first repeated every day, but on alternate days, afterwards one day is missed in three. The course should be continued for six weeks.

The brothers SCHOTT have always maintained that the waters of Nauheim could be successfully imitated for the purpose of this treatment, and Dr. BEZLY THORNE is of the opinion that the baths can be chemically prepared. Dr. SAUNDBY gives the following formulæ, calculated for 40 gallons of water.

Bath No. 1. Sod. chloride, 4 lbs. ; calc. chloride, 6 ozs.

Bath No. 2. Sod. chloride, 5 lbs. ; calc. chloride, 8 ozs.

Bath No. 3. Sod. chloride. 6 lbs. ; calc. chloride, 10 ozs. ; sod. bicarb. 6 ozs. ; acid hydrochlor. 7 ozs.

Bath No 4. Sod. chloride, 7 lbs. ; calc. chloride, 10 ozs. ; sod bicarb. 8 ozs. ; acid hydrochlor. 12 ozs.

There are certainly serious drawbacks in attempting to carry out this system of treatment in private practice, but in many cases it surely might be accomplished. It is a treatment suitable for cases of weak heart from any cause, scarlatina, influenza, etc. There appears to be no reason why it should not be applied in our hospitals. All the distinguished men mentioned bear testimony of the excellent results obtained from it. It is quite usual in cases of dilated and hypertrophied hearts for the area of cardiac dulness to recede an inch in all directions after each treatment. And it is said that this diminution in the cardiac area becomes permanent at the termination of the treatment. If this is so every effort should be made to extend the relief to patients when practicable.

A great deal of discussion has taken place on the subject of auscultatory percussion, in arriving at an estimate of the results due to this treatment. It has been thought that by auscultatory percussion alone accurate results could be obtained. An exhaustive paper, read by W. P. HERRINGHAM, M. D., at the last annual meeting, on this subject, appeared in the *B. M. J.* of Sept. 19th, 1896, in which he reaches the conclusion that "finger percussion gives results of very great accuracy." Sir GRAINGER STEWART also says that one can by percussion make out the margins of the heart quite definitely. Sir WM. BROADBENT is of a similar opinion. I believe it will not be necessary for those unacquainted with auscultatory percussion to practice any other than careful finger percussion to obtain accurate tracings of the heart's area.

As to the physiological explanation of the benefit derived from the baths and exercises, Dr. SCHOTT himself believes that an innervating effect is produced upon the nerves of the heart, which instead of wasting its energies in rapid and fruitless contractions, is made to act more slowly and effectively. Three plausible reasons have been given: (1) The heart is stimulated to more powerful action. (2) The arteries dilate and receive more blood. (3) "The influx of venous blood is increased, the removal being diminished, and so long as this influx does not rise beyond the heart's power of propulsion, the action becomes more vigorous, and the arterial tension is raised, the balance of the circulation being improved." (GRAINGER STEWART.)

Dr. SCHOTT states that his method is contra-indicated in cases of myo-carditis, advanced arterio-sclerosis, and in aneurism.

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Editorial.

BRITISH MEDICAL ASSOCIATION.

MONTREAL MEETING.

SINCE our last notice of what is being done in regard to the approaching meeting, considerable progress has been made towards the completion of the arrangements, more especially in the work of the excursion, printing and publishing, museum, and local entertainment sub-committees. The preliminary programme has been printed and distributed, some 16,000 copies having been sent to members of the association. It appears in the shape of a pamphlet of some 50 pages, neatly printed on heavy paper, with an artistic cover in colors. It is plentifully illustrated with lithographs and wood-cuts representing some of the chief points of interest in Montreal, Toronto and Quebec, more especially the university and hospital buildings. The text briefly refers to Montreal, its medical institutions and hospitals. Several pages are devoted to a description of how to reach Montreal from Europe, referring to some of the advantages of the St. Lawrence route as compared with that to New York on the magnificent liners landing there from Liverpool and Southampton. Quebec and the picturesque St. Lawrence route are referred to in glowing descriptive language so ingeniously woven as to give at the same time a bird's-eye glimpse of the early history and characteristics of the province of Quebec.

Reference is made to the hotels and lodging accommodation in Montreal, and some useful hints are given to travellers in regard to securing berths, luggage, clothing, United States and Canadian money, etc. The excursions arranged for are described, and their attractions set forth in a way which must arouse the liveliest anticipation among those whose

privilege it will be to take advantage of the low fare and enjoy the grand scenery of the St. Lawrence, the Saguenay, Lake St. John, or the grandeur of the Rockies. At the end is a note on the game laws, and a table indicating the open season for hunting various kinds of game. The whole pamphlet is exceedingly well and tastefully gotten up, reflecting credit on the printers and engravers, and those whose good judgment is displayed in the appropriate selection of the text. The distribution of this programme at this early date throughout Britain will doubtless exert a favorable influence in the way of giving necessary information to those contemplating the trip, and may in some instances constrain the undecided to avail themselves of the treat that is in store for those who attend the 65th annual meeting. The local guide, which is in active preparation, will be on a more elaborate scale, and form a volume of over 200 pages. It will be distributed at the meeting.

Prof. ADAMI, who has been indefatigable in the preparations for the meeting, left on the 22nd of May for England, and will be absent some six weeks. He has been delegated by the executive committee to visit the various branches of the British Medical Association in England and Scotland, and those in Dublin and Belfast, to advise with them and give all instructions required to facilitate arrangements for the journey, and at the same time to endeavor to secure as large a contingent from across the Atlantic as possible. He will also confer with and assist the English secretaries in regard to securing papers for the meeting, and members to take part in the discussions. At the same time his presence in England will be of the greatest service to the general secretary, Mr. FRANCIS FOWKE, and Dr. SAUNDY, the president of the council, as he will be able to advise with them on all matters pertaining to the various details connected with the arrangements for the meeting on this side. The president-elect, Dr. T. G. RODDICK, M. P., has left to visit Ottawa, Toronto, and London with a view of furthering matters connected with the branches of the association there. In the latter city the attempt to form a branch has not been very successful, and we hope Dr. RODDICK's visit will result in organizing, in this field of abundant material, an active and live addition to those already existing in the Dominion.

The Montreal Branch has made remarkable strides in its membership during the past year, the number having increased from 70 to 243. Dr. RODDICK will also, while at Toronto, confer with the local executive committee of the British Association for the Advancement of Science, and endeavor to secure their co-operation in regard to excursions.

The transportation difficulties, which at one time threatened to prevent a number from coming, are being gradually overcome. The steamship "Lake Ontario," which leaves Liverpool on the 21st of August, is a large and commodious vessel having accommodation for 150 passengers, most of which is taken up by members.

The Allan Line ships which sail on the 5th, 12th and 19th of August will bring over a number, and it is expected that the Peterson Line will dispatch a vessel on the 20th of August, which would meet all requirements. It will be part of Prof. ADAMI'S mission to see that ample transportation facilities are afforded to all who desire, and he will make any special arrangements that may be considered necessary.

The local entertainment committee, of which Dr. GIRDWOOD is chairman, will have a full and attractive list of entertainments provided for the guests, details of which we will give later. A committee of ladies is being organized to assist the sub-committee. The Golf Club has arranged for a series of matches to be held at their magnificent new grounds at Dixie, to take place on Thursday Sept. 2nd, and a cricket match is being arranged for among the Montreal clubs. Dr. RODDICK has written to all the branches of the association, both English and Colonial, requesting them to send delegates; answers have already been received from a number, most of them stating that the matter will be placed before the next meeting of their councils.

CREOSOTE IN PNEUMONIA.—CASATI (*Gazz. degli Osped. e delle Clin.*, April 11th, 1897,) with the idea that creosote is a cardiac and nerve stimulant, was led to try it in 26 cases of pneumonia, forming part of a somewhat serious epidemic of that disease. The only case recorded in detail by the author is that of a man, aged 70, who was given creosote and recovered. Some of the cases were treated with creosote (in tincture of gentian) alone; in others this was supplemented by digitalis or caffeine in small doses. The author believes that the cases treated with creosote recovered more rapidly and more thoroughly than those treated in other ways. He pushed the drug freely, but never saw any unpleasant symptoms follow its use.—*Brit. Med. Jour.*

SYR. HYPOPHOS. Co., FELLOWS,

CONTAINS

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And the Vitalizing Constituent—Phosphorus; the whole combined in the form of a Syrup, with a Slight Alkaline Reaction.

It Differs in its Effects from all Analogous Preparations; and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

It has Gained a Wide Reputation, particularly in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

Its Curative Power is largely attributable to its stimulative, tonic and nutritive properties, by means of which the energy of the system is recruited.

Its Action is Prompt; it stimulates the appetite and the digestion, it promotes assimilation, and it enters directly into the circulation with the food products.

The prescribed dose produces a feeling of buoyancy, and removes depression and melancholy; hence the preparation is of great value in the treatment of mental and nervous affections. From the fact, also, that it exerts a double tonic influence, and induces a healthy flow of the secretions, its use is indicated in a wide range of diseases.

NOTICE—CAUTION

The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, FINDS THAT NO TWO OF THEM ARE IDENTICAL, and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen, when exposed to light or heat, IN THE PROPERTY OF RETAINING THE STRYCHNINE IN SOLUTION, and in the medicinal effects.

As these cheap and inefficient substitutes are frequently dispensed instead of the genuine preparation, physicians are earnestly requested, when prescribing to write "Syr. Hypophos. FELLOWS."

As a further precaution, it is advisable that the Syrup should be ordered in the original bottles: the distinguishing marks which the bottles (and the wrappers surrounding them, bear can then be examined, and the genuineness—or otherwise—of the contents thereby proved.

FOR SALE BY ALL DRUGGISTS.

DAVIS & LAWRENCE CO. (LIMITED), MONTREAL
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A
Palatable
Laxative
Acting without
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CATHARTIC APERIENT
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There is no medicine for which physicians feel so great a need as an effective cathartic and aperient, one that will act promptly, without pain, griping or nausea, as some action on the bowels is required with almost every ailment or indisposition.

We make many hundred cathartic formulas of pills, elixirs, syrups, and fluid extracts; and for that reason, our judgment in giving preference to the MEDICATED FRUIT SYRUP, we feel is worthy of serious consideration from medical men.

The taste is so agreeable that even very young children will take it without objection; the addition of prunes and figs having been made to render the taste agreeable rather than for any decided medical effect. It is composed of Cascara, Senna, Jalap, Ipecac, Podophyllin, Rochelle Salts and Phosphate of Soda, being treated separately, enabling us to deprive the vegetable drugs of the bitter and disagreeable taste, inherent in nearly all of them.

The preparation has been carefully tested, largely and freely in hospital, dispensary and private practice, by a number of physicians (many of whom were interested in determining satisfactorily if the combination deserved the claims urged upon them by us), for quite a year previous to asking attention to it from the medical profession at large, being unwilling to bring it to their attention until we were confident of its merits, and had exhausted every effort to determine by satisfactory results.

The absence of any narcotic or anodyne in the preparation, physicians will recognize is of great moment, as many of the proprietary and empirical cathartic and laxative syrups, put up and advertised for popular use, are said to contain either or both.

It will be found specially useful and acceptable to women, whose delicate constitutions require a gentle and safe remedy during all conditions of health, as well as to children and infants, the dose being regulated to suit all ages and conditions; a few drops can be given safely, and in a few minutes will relieve the flatulence of very young babies, correcting the tendency of recurrence.

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MONTREAL.

Society Meetings.

SAINT JOHN MEDICAL SOCIETY.

President, Dr. J. H. MORRISON, in the chair.

MAY 10.—A case was exhibited by Dr. J. H. MORRISON which had shown evidence of tuberculosis of the lungs and cervical glands. The enlarged glands had been treated with both injections of iodine and emulsion of iodoform, while creosote was administered internally, up to eighty minims a day. There had been marked improvement in the condition of the lungs and glands.

Dr. P. R. INCHES read a paper on "Cerebral Hæmorrhage," especially dealing with its differential diagnosis from such conditions as hyperæmia or congestion, embolism, thrombosis, softening, abscess, tumours, and uræmia.

MAY 17.—A paper was read by Dr. DOHERTY on a special method of treatment of Fracture of the Clavicle. This method was originated by Dr. MOORE, of Rochester. The elbow of the injured side is carried backwards and drawn to the side, and retained by a form of figure-of-eight bandage from the elbow. This position is found to allow the fragments of the clavicle to come into apposition.

MAY 24.—A case of Post-pharyngeal Abscess was reported by Dr. JAS. CHRISTIE. The illness began as an ordinary coryza and sore throat, the abscess forming in a few days. An incision with a curved bistoury evacuated the pus, but infiltration spread laterally, the temperature rose to 105.6° F., and the condition proved fatal.

MAY 31.—Specimen. Dr. JAS. CHRISTIE showed a piece of metal about two and one-half inches long, which a man had introduced into his urethra with the hope of relieving retention of urine. It passed up into the bladder, and was successfully removed by supra-pubic cystotomy.

Dr. G. A. B. ADDY read a paper on "Medical Men in Public Institutions." He referred to the work gratuitously performed by medical men in public institutions. Those institutions, he thought, which are supported by taxation should fairly remunerate medical service. "Local applications" were made.

JUNE 7.—ANNUAL MEETING.

The SECRETARY, Dr. J. H. SCAMMELL, reported that there had been thirty-seven meetings of the Society during the year, that the members numbered thirty-nine, and that the average attendance at the meetings was 11.6.

The number of papers read was twenty-five, there were seven reports of cases, two addresses, and a discussion. Numerous cases and pathological specimens had been exhibited.

The PRESIDENT referred to the year's work. There had been a gain in membership and a marked increase in the interest taken by the profession in the Society. The condition of the Society is satisfactory and encouraging, while there was a general excellence in the papers that had been read.

The election of officers resulted as follows:—

President—Dr. W. W. WHITE.

First Vice-President—Dr. G. A. B. ADDY.

Second " " " " J. H. SCAMMELL.

Secretary—Dr. STEWART SKINNER.

Treasurer—Dr. J. CHRISTIE.

Corresponding Secretary—Dr. C. OLDING.

Librarian—Dr. J. R. MCINTOSH.

Pathologist—Dr. W. W. WHITE.

Drs. MOTT and DOHERTY were appointed Room Committee. The night of meeting was again changed to Wednesday. After adjournment, the Society was entertained by the new President.



Books, Pamphlets and Exchanges.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE FOR 1894.—This comprehensive volume contains the most important papers read during the year 1894 at the New York Academy of Medicine, and we cannot but express our appreciation of the high value of the articles contained therein. This volume, which has just come to our notice, ought to merit the perusal of our readers who endeavor to keep abreast of the advance of scientific medicine. JOSEPH COLLINS' review on the "Recent Measures in the Treatment of Epilepsy," in which he gives his experience in FLECHSIG'S method, is of particular interest. The opinions expressed in the discussion which followed the reading of this paper, showed that it was generally considered that FLECHSIG'S treatment, while not in any sense curative, was a distinct gain in the therapeutics of epilepsy. "The Prevention of Disease," by POTTER, "The Treatment of Inoperable Tumors with the Toxins of Erysipelas and Bacillus Prodigiosus," by COLEY, "The Influence of the Bicycle in Health and in Disease," by GRÆME HAMMOND, and an exhaustive article by BERG on the "Treatment of Diphtheria," are all of the highest order, while the Wesley Carpenter Lecture by BRYANT, who took for his subject "Important Facts Relative to Malignant Disease," must, in preparation, have necessitated a great amount of time and trouble, especially in regard to the statistical part of the paper.

THE ACTION OF TAKA-DIASTASE IN VARIOUS GASTRIC DISORDERS.—Reprint from *New York Medical Journal*. By JULIUS FRIEDENWALD, A. B., M. D.

THE JUNE OPEN COURT.—A handsome portrait of Pythagoras, reproduced from an ancient cameo, forms the frontispiece of the June number of *The Open Court*. The main article is on "The Life of Pythagoras" by Prof. Moritz Cantor of Heidelberg, Germany. Mr. A. F. Campbell, Secretary of the Police Department of Chicago, writes on "The Department of Police as a Means of Distributing Charity," and the Rev. Bernhard Piek's "Historical Sketch of the Jews since the Captivity," is concluded in the present number.

The editor discusses "The Immorality of the Anti-Vivisection Movement." He regards certain features of the anti-vivisection crusade as extravagant and, in so far as the sentiment on which it is based is unreasoned, he views it as immoral. He takes as his text the article "In the Dissecting-Room," in the same number, where the ethical and utilitarian aspects of dissection are considered.

The remainder of the number is occupied by discussions on comparative religion, and by reviews of recent French philosophical works and of numerous important English and American publications.

(The Open Court Publishing Co., Chicago. Single copies, 10 cents. Annually, \$1.00.)

Obituary.

Dr. GEO. L. TAYLOR died at his residence in Hampton, N. B., on May 31st, of cerebral hemorrhage, after three days illness. He was but fifty-five years of age, was in good health until struck down, and had previously shown no sign of arterial degeneration.

He received his preliminary education at Mount Allison, and his medical training at Bellevue, New York. He was in active practice in Hampton for twenty-five years, and besides took a leading part in the municipal affairs of the county. He was a representative of King's Co. in the local legislature of the province from 1886 to 1892, when he withdrew from active practice, and was appointed Registrar for the county, which position he held at the time of his death.

His attention to medical ethics and his sympathetic interest shown towards his brother practitioners, made him a favorite with them. Up to the last his advice was frequently sought in consultation by the several medical gentlemen of the neighborhood, while his kindness of heart, and deeds of charity endeared him to his patients and all with whom he came in contact.

Dr. TAYLOR was married in 1892 to the widow of Judge Otty, of Hampton, who survives him.

The Medical Meetings.

MARITIME MEDICAL ASSOCIATION.

MEETING AT ST. JOHN, N. B., JULY 21, 22, 1897.

PROVISIONAL PROGRAMME.

Presidential Address—J. W. DANIEL, St. John.

Discussion on Diphtheria—Opened by D. A. CAMPBELL, Halifax.

Discussion on Causes and Treatment of Puerperal Septicæmia—Opened by M. A. CURRY, Halifax.

Discussion on Fracture of Vertebra—Opened by JOHN STEWART, Halifax.

Report of a Case of Pylorotomy with Gastro-jejunostomy, for Carcinoma—By A. B. ATHERTON, Fredericton.

Woman in Medicine—By MARIA L. ANGWIN, Halifax.

Treatment of Phthisis—By ALEX. J. KEITH, St. John.

A Plea for Intubation in Diphtheria—By J. H. MORRISON, St. John.

Report of a Case of Spinal Dislocation, with Laminectomy—By MURRAY MACLAREN, St. John.

Report of a Case of Pemphigus Foliaceus—By JAMES ROSS, Halifax.

Adenoid Vegetations—Effects—Operation—Instruments—By E. A. KIRKPATRICK, Halifax.

Papers have also been promised by GEO. E. COULTHARD, Fredericton, and J. R. MCINTOSH, St. John.

Railway rates have been arranged for as follows:—

I. C. R.—If ten or more purchase tickets, and obtain "standard certificate" at starting point, this certificate—when duly signed by secretary of the meeting—will entitle to return free. If there be less than ten, a half-fare will be charged for the return trip. Certificates are good for three days after meeting. Wives and families of members are included in these rates.

C. P. R.—If over 100 delegates are in attendance, return tickets will be issued free. If 50 or more attend, return tickets will be issued at one-third fare, and if 49 or less attend, at one-half fare. Tickets are not to be purchased before July 18. Certificate is required as for I. C. R.

D. A. R.—Single fare. (Return from Halifax being thus \$4.50.) Certificate required.

STAR LINE S. S. Co.—(St. John River) and SHORE LINE RAILWAY offer similar terms.

More complete particulars will be issued shortly.

NEW BRUNSWICK MEDICAL SOCIETY.

MEETING AT ST. JOHN, JULY 20, 1897.

Presidential Address—O. J. McCULLY, Moncton.

General Business Meeting.

(This Society meets with Maritime Medical Association for discussion of papers, etc.)

MEDICAL SOCIETY OF NOVA SCOTIA.

MEETING AT PICTOU, JULY 7, 8, 1897.

PROGRAMME.

PRESIDENT'S ADDRESS.—J. F. McDONALD, M. D., Hopewell, Pictou Co.

Subject: "The Duty of our Profession as Physicians and Citizens in the work of Sanitation and Preventive Medicine."

At subsequent sessions the following Papers and Reports of Cases will be read and general business disposed of:—

1. "The present state of Vaccination in this Province," by Dr. CARLETON JONES, Halifax, N. S. Paper to be discussed by Dr. A. C. PAGE, and others.
2. "Clinical evidence that the Micro-organisms of Puerperal Septicæmia and Erysipelas are the same," by Dr. DUNCAN MURRAY, Lower Stewiacke.
3. Discussion in Midwifery. Subject: "Extra-uterine Pregnancy." Opened by Dr. GEORGE MCKENZIE, Pictou. Discussed by Drs. J. C. McDOUGALL, Parrsboro; A. C. PAGE, Truro; J. J. CAMERON, Antigonish.
4. "Etiology of Pleurisy," by Dr. D. A. CAMPBELL, Halifax.
5. "Skin Clinic," by Dr. JAMES ROSS, Halifax.
6. "Cases in Practice," by Dr. D. N. MORRISON, Oxford.
7. Discussion in Medicine. Subject: "Pulmonary Tuberculosis," opened by Dr. W. H. HATTIE, Halifax. Discussed by Dr. J. J. MCKENZIE, Toronto; Dr. D. A. CAMPBELL, Halifax; Dr. H. H. MCKAY, New Glasgow; Dr. J. W. REID, Windsor.
8. "Gastric Contents in relation to Migraine," by Dr. ANDREW HALLIDAY, Shubenacadie.

9. "Case of Tumour of the Brain," by Dr. M. S. DICKSON, Great Village, N. S.
10. Discussion in Surgery. Subject, "Appendicitis," opened by Dr. EDWARD FARRELL, of Halifax. Discussion by Drs. JOHN STEWART, Halifax; R. A. H. MCKEEN, Glace Bay; JOHN W. MCKAY, New Glasgow.
11. "Eruptions produced by Drugs," by Dr. GEORGE E. BUCKLEY, Guysboro.
12. "Pyoktanin-Merck-Blue," by Dr. H. H. MCKAY, New Glasgow.
13. "Cannabis Indica," by Dr. F. W. GOODWIN, Halifax.
14. "Anaesthetics in Midwifery," by Dr. J. J. CAMERON, Antigonish.
15. "A case of Puerperal Convulsions, fatal," by Dr. C. J. MORRIS, Middle Musquodoboit.
16. Discussion on Diseases of Children." Subject, "Bronchitis and Broncho-pneumonia," opened by Dr. G. CARLETON JONES, Halifax. Discussed by Dr. D. MACKINTOSH, Pugwash; Dr. A. HALLIDAY and Dr. M. S. DICKSON.
17. Paper by Dr. WM. NORRIE of West Branch. Subject not yet received by the Secretary.
18. (a) "Ichthyol and its uses."
(b) "A note upon the frequency of 'Exophthalmic Goitre' in Nova Scotia," by W. S. MUIR, M. D., Truro.

Other papers have been promised, but the titles have not been received in time for publication.

Particulars as to railway fares, etc., are contained in circular just issued by the secretary, Dr. W. S. MUIR, Truro.

"PROFESSOR," asked a sweet young lady, "is the germ theory of disease so called because the horrid things come from Germany?"

The astute professor passed a moment in deep thought, and then replied: "It has been so alleged by some authorities. There are other theories, however. One is that they should be called Parasites, because of the fact, of course, that many of them come from Paris. But I have a little notion of my own that they should be termed Microbes, because such numbers of them have their origin in Ireland.—*E.e.*"

Matters Medical.

THE germicidal principle in the secretions of the mucous membrane, especially saliva, which is among our most effective protections against pathogenic microbes, has been found by EDINGER to be sulpho-cyanate (or rhodanate) of potassium; a narcotic poison, in an attenuated potency fatal to bacilli. It is said (*Pop. Sci. News*) that quinolin rhodanate, in a solution of three parts to the thousand, will kill the cholera bacillus in a minute, and in a solution of three times this strength, will kill the diphtheria bacillus in the same time. It was found by further researches that this rhodanate has the effect of carbolic acid and of corrosive sublimate, and at the same time is harmless to man.

DEATH AFTER THE INJECTION OF ANTITOXIN.—At Wheelersburg, Oregon, on March 22nd, a practitioner who has had considerable experience in the use of serum injected the usual prophylactic dose over the scapula of a boy aged five years, when asleep. An hour before the injection the child was known to be in perfect health. In less than five minutes afterwards the doctor was hastily summoned from an adjoining room to find the boy dead.—*Medical News*.

ALLOXUR BODIES AND LEUKEMIA.—GUMPRECHT (*Centralblatt für allgemeine Pathologie und Anatomie*), taking the term "alloxur bodies" in KOSSEL and KRUGER'S sense as meaning those bodies which have an alloxan and a urea nucleus, and therefore, as meaning beside uric acid, also xanthin or nucleus bases (xanthin, guanin, hypoxanthin, adenin, or their derivatives) found that in leukaemia in the cases where uric acid excretion is normal or diminished, (it is generally increased) the alloxur bodies are increased, and that their amount varies directly with the amount of leucocyto-sis. He gives one case of his own in which this is shown very clearly, and points out that it forms an additional support to HORBACZEWSKI'S view that uric acid comes from degeneration of leucocytes, being formed from their nuclei. The "alloxan nucleus" or erythric acid, is a substance obtained from uric acid by the action of nascent chlorine or nitric acid, in the form of colorless crystals, large and small, that impart a red color to the skin. This substance has been found in the intestinal mucus of catarrhal enteritis.—*British Medical Journal*,

THE COCAINE TRADE.—Four thousand seven hundred and sixteen kilogrammes of crude cocaine were exported from Peru in 1894—an almost astonishing amount.—*Meyer Brothers Druggist*.

THE REMEDY WORSE THAN THE DISEASE.—The *Texas Medical News* is responsible for the statement that a physician of the Lone Star State, "who has the good of mankind at heart," has discovered iodoform dusted about the face and over the extremities will effectually keep away mosquitoes.

Give us the "skeeter."—*Medical Age*.

X-RAYS AND CALCULI.—Roentgen rays render no aid in diagnosis of renal and biliary calculi by reason of interposition of ribs, proximity of kidney to vertebral column, depth of cavity, and thickness of over-lying tissues. Reproductions of shadowgraphs show the effects of the rays on the various salts composing the calculi after removal from the body. The lime salts of thin sections offer greater resistance, and show darker in the shadowgraph than do the thicker sections which are composed of uric acid and urates entirely. Also, the rays seem to find a greater difficulty in passing through the two media when one is superimposed directly upon the other, than when passing through either the lime salts or the urates separately. It is a question if calculi composed of uric acid and the urates and biliary calculi would cast any appreciable shadow when acted upon by rays strong enough to pass through the thickness of the renal or hepatic areas of the body. But with calculi composed of oxalate of lime or mixed phosphates this doubt does not apply, because these salts leave a deeper shadow than bone. From this comparison it is deduced that the shadow cast by the skeleton is due to the lime salts in the bones. Shadowgraphs of a rib and a decalcified rib were made under like conditions of exposure, etc. The former left a deep shadow, the latter scarcely any.—*Massachusetts Medical Journal*.

PRECOCIOUS MOTHERS.—In February last we noted the fact that a girl ten years and two months of age had been delivered of a healthy child. In the *Atlanta Medical and Surgical Journal* of April, 1896, Doctor T. J. MITCHELL, of Locust Grove, Ga., has an almost equally young mother—one who at the age of thirteen years was already the mother of three children! She first became a mother at the early age of eleven years, three months, and twenty-three days, and gave birth to twins at the age of thirteen years, one month, and fifteen days.—*American Journal of Surgery and Gynecology*.

EFFECT OF ERGOT.—If an ergotic pain is produced to last thirty minutes, in a case where the placenta is on the fundus uteri, and to be jammed for thirty minutes against the child's breech, without an instant of relaxation, who can doubt that its circulation is either wholly or nearly abolished, and that when the child emerges at last from the mother's womb, it will emerge quite dead, or in a profound asphyxia from the long suppression of its placental circulation? Multitudes of children are born dead from this very cause, by the imprudent exhibition of a medicine which as certainly excites spasm of the womb as nuxvomica does of the other muscles of the body.—MERZ.

EFFECTS OF THE PUBLIC HEALTH ASSOCIATION.

We have boiled the hydrant water,
 We have sterilised the milk ;
 We have strained the prowling microbe
 Through the finest kind of silk ;
 We have bought and we have borrowed
 Every patent health device,
 And at last the doctor tells us
 That we've got to boil the ice.

Buffalo Med. Journal.

—Unknown.

HOW TO ADMINISTER OILY ENEMATA.—Oil has of late been administered by the rectum with good results to patients worn out by wasting diseases. The best method of administration is not yet agreed upon. DEUCHER, who has experimented extensively along this line, reports in the *Semaine Medicale*, April 9, 1897, that the maximum of absorption is attained with an emulsion of equal parts of oil and a solution of carbonate, to which is added a little sodium chloride. The whole is administered at the temperature of the body.—*Medical News*.

CHORAL TO PREVENT NAUSEA OF MORPHIA.—Dr. W. H. COWAN, of Shiloh, Tex., says (*Med. World*, May, 1897), to prevent the nauseating effect of morphine on particular individuals, he is in the habit of following the administration of morphine, in from twenty to thirty minutes with a three to five grain dose of chloral hydrate. He says this "effectually prevents the nausea."—*Virginia Med. Semi-monthly*.

Therapeutic Suggestions.

ASSES' MILK IN INFANT FEEDING.—Dr. KLEMM, in *Jahrbuch für Kinderheilk.*, says:—The ass is the least susceptible to, and also the least liable to succumb to disease, among all the various species of the animal kingdom.

Observers in every part of the globe have unanimously come to the conclusion that, naturally, tuberculosis does not exist in the ass family. Glanders is very seldom observed, and never in a very dangerous form. On the other hand, it is well known that cattle have a mortality from tuberculosis ranging from 25 to 70 %.

Dr. KLEMM states, as the result of his analyses, that (with the exception of the proportion of fat) asses' milk most nearly approaches the human. As the average of a great number of tests he gives the following as being nearly exact in the proportions of albumen, sugar, fat and salts, the specimens being human, asses' and cow's milk:—

	HUMAN.	ASSES'.	Cow's.
Albumen	1.28	1.46	3 %
Sugar	6.00 "	6.20 "	
Fat	3.80 "	1.38 "	
Salts	0.20 "	0.40 "	.7 %

With regard to digestibility, human and asses' milk are about equal. Both human and asses' milk, as far as can be ascertained by natural and artificial digestion, coagulated into the same homogenous flocculent mass.

The practical experiments made with asses' milk have been very satisfactory, not only when used by infants suffering from disturbances of the stomach and bowels, but also as food for healthy infants.

In the Children's Hospital in Paris, during the last year, when asses' milk was used instead of cow's milk, the mortality among syphilitic and strumous infants fell 30 %.

Unfortunately, however, must this very promising and satisfactory means of nourishment for infants confess to a drawback. On account of the small proportion of fat, it seems to be necessary to supplement this, in some way, after the fourth month of infantile life.

The high price is also a very serious hindrance to its general use. The price in both France and Germany is about 4 francs per litre. To cheapen this valuable product, Dr. KLEMM suggests that breeding farms be established. Under proper supervision, and carefully and economically conducted, he has no doubt but that they would be found to return a reasonable profit to the investors, as well as being the means of lowering the price of this valuable product, so as to place it within the reach of all.—*Munchener Medicinische Wochenschrift*, May 11, 1897. Translated by Dr. G. R. J. CRAWFORD, St. John.

ST. JOHN PRIVATE HOSPITAL.

A Private Hospital has recently been opened by Miss ELIZA HEGAN, a graduate of the St. John training school for nurses, and formerly matron of the General Public Hospital, St. John; and night superintendant of the Polyclinic Hospital of New York.

The hospital is situated at 149 Hazen Street and is excellently adapted for the purpose, as the street is quiet, but easily accessible.

The rooms are large, airy, and sunny, the operating room well lighted and furnished with an Edebohl-Morris operating table and a well equipped sterilizing apparatus.

Miss HEGAN has associated with her trained assistants, and the hospital may be fairly considered one of the best in Canada.

It will prove of great advantage to members of the profession as well as to people of the province generally.

IT HAS NO RIVAL.—At the meeting of the American Medical Association, held at Washington, D. C., Dr. John H. McLatyre reported "Ten Selected Cases of Laparotomy, with Remarks." From this paper, published in the *Journal of the American Medical Association*, we quote as follows:

"I use but little opium or morphia, for the reason that these drugs, by locking up the secretions, limit the power of elimination, and therefore favor septicæmia. For over a year past, in cases of laparotomy where pain and temperature were present, I have used antikamnia in ten-grain doses, with the happiest effects."

A further objection to opium and its derivatives is referred to in an article by Dr. Herman D. Marcus, resident physician Philadelphia Hospital (Blockley), published in *Gaillard's Medical Journal* from which we quote: "There is probably no group of diseases in which pain is such a prominent and persistent symptom as uterine or ovarian disorders, and in no class of cases have I been more convinced of the value of antikamnia than in the treatment of such affections. An obstacle in the use of morphia is the reluctance with which some patients take this drug, fearing subsequent habit. Antikamnia causes no habit, and I have never found a patient refuse to take it."

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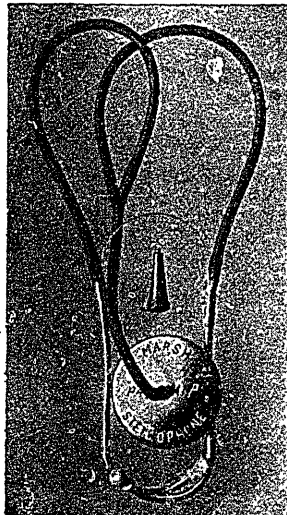
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DOSE.—For an adult, one table-spoonful three times a day, after eating; from 7 to 12 years of age, one dessert-spoonful: from 2 to 7, one teaspoonful. For infants, from five to twenty drops, according to age.

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Graduates of other accredited Medical Colleges are admitted as fourth-year students, but must pass examinations in normal and pathological histology and pathological anatomy.

The annual circular for 1897-8, giving full details of the curriculum for the four years, requirements or graduation and other information, will be published in July, 1897. Address: Austin Flint, Secretary, Bellevue Hospital Medical College, foot of East 26th Street, New York City.

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