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# THE CANADIAN PRACTITIONER

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## Original Communications.

SKIN, HAIR, AND NAIL LESIONS, PRODUCED BY THE  
ACTION OF "X" RAYS.

BY EDMUND E. KING, M.D. TOR., L.R.C.P. LOND.,

Surgeon to St. Michael's Hospital, Physician to House of Providence and Home for Incurables  
Pathologist, Toronto General Hospital.

THE following case is of sufficient interest to the profession to warrant its being published. The lesions are the result of the "X" rays' action alone. I have eliminated, as far as possible, other causes, and am perfectly satisfied that no extraneous agent was at work.

So much has been printed in the daily press about injuries produced by the "X" rays, that bore on the face of it the stamp of impossibility, that I have watched this case with great care. I have come to the conclusion that no ordinary exposure will produce these effects, and that it is only by long and continuous exposure to very powerful rays that any deleterious effect will be produced.



Photograph of hand, showing shedding of nails and blistering of skin.

My own hands and face have been more or less in contact with the rays since February last, and yet no symptoms have developed. From this fact alone I am satisfied that the exposure must be very long and frequent.

I will relate the history briefly, and as nearly as possible in the patient's own words :

Mr. R. First began to use and experiment with "X" rays in May. Towards the latter part of the month he gave public exhibitions of the subject. He used and was exposed to the rays for an average period



Right side of face, showing normal condition of hair ; double shedding of nails.

of two hours daily during May without symptoms. In June his business increased, and he was exposed to the rays on an average of six hours daily—some days he would be in contact with the rays for fully ten hours—with only momentary cessations.

In July his exposure was about the same as in June. His right side was toward the coil and tube. About the middle of July the right hand began to swell, felt stiff, and large blisters raised on its dorsal aspect. As soon as the blisters raised, great pain was produced. The face was not affected. He treated his hand with picric acid, which allayed the pain,

and had the effect of rendering the hand less susceptible as he continued the use of the apparatus, without new symptoms appearing.

He changed his location, and for some time did not exhibit. During this time the hand recovered, with no bad symptoms remaining. The last week in August he again began to exhibit the rays, and was employed from seven to eight hours daily. This time he placed his left side toward the instrument. In about two weeks he began to notice his lips swelling, with a feeling of tension. His left cheek was swollen, and somewhat tender to touch. A few days after this the left hand began to swell; was



Left side of face, showing loss of hair and eyebrows ; double shedding of nails.

very tender ; skin discolored, and ached in every way like a severe sunburn would. In about ten days it had blistered, and reached the stage shown in the accompanying photograph of the hand. The finger nails were showing marked signs of shedding, which is also apparent in photograph of hand. The eyelids were œdematous, and a conjunctivitis was present in both eyes, although the left was much more intense. The face was affected in about two-thirds of its surface, but only in that portion exposed to the rays. It showed no tendency to blister, although the tension and erythema was very painful.

A shield of metal was now placed between the operator and the tube, but the skin was so sensitive that this was of very little protection. The bombardment was so perceptible and produced so much pain that he gave up the work. In about three weeks the injury was healed, only an amount of tenderness remaining that one would naturally expect.

The present condition is of considerable interest.

*The hands.* On examining the hands, the skin is noticed to be infiltrated, unusually smooth; congested, and on left almost entirely free from hairs; the right not so much so. All of the nails are exfoliating, and, as can be seen in the cuts of the hand resting on the cheek, it appears to be a double exfoliation. I attribute this to the fact that the first injury was done in July, and the second in September, thus destroying the matrix on two separate occasions. The distances between these lines of separation are pretty nearly uniform, which clearly show two distinct injuries.

*The face.* The left side of the face shows an entire absence of hair in the region of the temple and for some distance behind the ear. Comparing this with the right side, one can see just how far this depilatory action has gone. There had been no burning of the skin in this region noticeable when the remainder of the face was affected. The eyebrows are almost gone, only a small portion remaining near the nose. The conjunctiva is still in a subacute state of congestion.

*The moustache* on left side is almost gone, while that of the right side is not so much affected. The whisker on left cheek, chin, and neck is almost gone. The face in these regions is very smooth, and of a much different feeling from that of the other side of the face. He believes his sight is somewhat impaired.

I have presented these photographs to show the matter more clearly, and believe that this is the first authentic case in which "X" rays are shown to produce injuries to the nails and hair.

## A REPORT OF FORTY CASES OF DIPHTHERIA TREATED WITH ANTITOXIN.\*

BY ANDREW B. EADIE, M.D.,  
Professor of Physiology in the Ontario Medical College for Women,

AND

T. F. McMAHON, M.D.  
Professor of Medicine in the Ontario Medical College for Women; Physician to Toronto General Hospital and St. Michael's Hospital.

IN all, we have treated thirty-two cases, of varying degrees of virulence, including one case of laryngeal diphtheria which showed alarming stenosis, and one case of severe nasal diphtheria. It would not prove of interest to enter into details as to the clinical features of each case, and we shall, therefore, content ourselves with a few general observations. In the majority of cases the serum was injected within twenty-four hours of the onset of symptoms, and, of the remainder, but five were injected after forty-eight hours. The dose injected ranged from 500 to 1,000 antitoxic units, and in only three cases was the injection repeated. In three cases an urticarial eruption followed the injection, but no other untoward results were observed.

The diagnosis was confirmed by bacteriological examination by Professor Shuttleworth, except in four cases. In two of these the examination was not made at all, and in the other two, although made, the Klebs-Loeffler bacillus was not found. In these four cases, however, the clinical features were so clearly those of diphtheria that we are satisfied that they were such, and that the swabs in the two cases noted must have been faulty. The syringe was always sterilized, and the procedures carried out with the strictest antiseptic precautions. The injections were made into the subcutaneous tissue of the outer part of the thigh. No case of post-diphtheritic paralysis has yet appeared.

In eighteen of the cases absolutely no other treatment was used than a single injection of the serum.

All the cases recovered. One was a case of laryngeal diphtheria, and was characterized by alarming stenosis, which was partly relieved within two or three hours after using the serum; this patient was quite safe in two days. In another the nostrils were almost plugged with membrane

\* Read before the Toronto Medical Society.

and the foul smell had already appeared, but in forty-eight hours the membrane was separating and the child almost well. In no case did marked improvement fail to appear within forty-eight hours, and, on visiting our patients the second day after the injections, it was a common experience to find them singing and calling for a substantial meal. The temperature sometimes dropped to normal in twenty-four hours, and nearly always within forty-eight hours. In many cases the swelling of the throat subsided and the membrane began to disappear within twenty-four hours; but usually the membrane did not disappear until from forty-eight to seventy-two hours. The results were better when the cases were treated early. Thus in one case, a boy, *æt.* 8, which was seen within a few hours after inception, 1,000 antitoxic units were injected at midnight, and thirteen hours later the membrane had almost entirely disappeared. In two of the cases—the laryngeal and nasal—we should have looked for a probable fatal termination under the old expectant plan of treatment, and it was gratifying to find both out of danger within forty-eight hours. Twelve of the other cases were of the severe pharyngeal type, and would, in our experience, have lasted from one to two weeks under the old treatment. In fact, we feel justified in saying that even the most virulent cases yielded to treatment sooner than the mildest had done, in our experience, under the old methods. In only one case did the membrane fail to disappear before the fourth day.

Cases of great severity have been reported in which the antitoxin, although used early, did not save life. We would explain its failure in one of three ways.

(1) The disease had existed for some time before detection. Membrane may have been present in the naso-pharynx, where it is not visible.

(2) The dose of serum injected may have been insufficient.

(3) The fatal result may have been the result of the action of other toxins than those of diphtheria.

We need not expect the antitoxin to repair the damage already done to the tissues before its injection, but a sufficient dose will usually, if not always, prevent any further destructive action of the toxin upon the organs of the body.

Dr. A. D. Watson reports to us that he has treated seven cases with the serum within the past few months, and that all recovered promptly, although in two cases the larynx was involved. Dr. Hunter also reports a case which is referred to in another part of this paper. Here, then, are, including Dr. Watson's and Dr. Hunter's cases with our own, forty cases of diphtheria, including four laryngeal and one nasal, not only without a death, but followed by recovery so prompt that no reasonable man can attribute it to anything but the antitoxin.



In the early part of this year the New York Pædiatric Society obtained reports from nearly six thousand cases of diphtheria treated with the serum in private practice. This collective report emphasizes the necessity of using the serum at the earliest possible moment after the disease has been recognized. The rate of mortality was 4.9 per cent. in cases where the serum was used on the first day, 7.4 on the second day, 8.8 on the third day, and 20.7 on the fourth day. The results obtained in the treatment of laryngeal diphtheria were certainly most encouraging. Even in those cases where intubation was required in addition to treatment with serum the death rate was greatly reduced.

O'Dwyer, of New York, reports: "In my last one hundred intubations in the first seventy treated without serum the mortality was 73 per cent.; in the last thirty, with serum, the mortality was 33.3 per cent.

McNaughton, of Brooklyn, reports an equally low death rate.

Neff, of New York, reports twenty-seven intubations, with twenty-seven recoveries.

Rosenthal, of Philadelphia, reports eighteen intubations, with sixteen recoveries.

Over 50 per cent. of all the cases of laryngeal diphtheria treated with the serum recovered without intubation, and many others after intubation was done in addition. Formerly 10 per cent. of recoveries was the best record for laryngeal cases not operated upon.

We find upon enquiry that a very large number of the physicians of the province, and indeed of this city, do not use the serum. We believe that the time has come when no practitioner is justified in neglecting so valuable a means of saving life. We would ask those who still doubt if at least 90 per cent. of their cases of laryngeal diphtheria did not perish under the old treatment, and, if so, what do they think of the report of the New York Pædiatric Society, which shows about 75 per cent. of such cases saved? We must not be guided by the reports from contagious diseases hospitals, although many of these are favorable, for patients do not come into such hospitals early enough to give the antitoxin a chance. The reports of the medical officers of these institutions has done a great deal of harm in this way. They used the antitoxin in a number of cases, certainly seldom, if ever, on the first or second day, and reported that the results were not better than under the calomel fumigation or other plans of treatment. The calomel treatment is certainly an excellent one, especially for laryngeal cases, and it has saved many lives, but after considerable experience with both it and the antitoxin we believe that the latter, when used early, gives far better and more prompt results. In hospitals, again, the danger of broncho-pneumonia is greater, and many of the deaths are due to this cause.

With regard to giving immunizing injections to those exposed to the disease we have had little experience. We watch the other members of the family from day to day, and use the serum if any suspicious symptoms appear.

No unpleasant effects were observed after using the antitoxin, with the possible exception of a mild urticarial rash in three cases. This rash lasted about four days, when it disappeared entirely, and the inconvenience from it was trifling. A few cases have been reported in the journals where sudden death of the patient has occurred in a remarkably short time after the serum has been injected. The exact cause of death in these cases is, apparently, still a matter of dispute. Seibert, after many experiments on rabbits and guinea-pigs, believes that it is caused by the injection of air directly into a vein. In most of the cases so far reported labored respiration, cyanosis, and symptoms of suffocation were present, for a short time at least, before death. This fact seems to bear out Seibert's contention that death was caused by the injection of air along with the serum, rather than by any constituent of the serum itself. However, for the present, the matter must be left in abeyance. Fortunately, the number of sudden deaths that might fairly be attributed to the injection of the serum has been extremely small, and have certainly not yet been sufficient to contraindicate its use. Extreme care, of course, should always be taken that no air is injected with the serum.

Appended are a few notes on the laryngeal cases :

CASE 1. K.C., æt. 4 years. Patient of Dr. A. D. Watson. First used calomel fumigation, but no relief followed. Injected serum thirty-six hours after onset, and intubated six hours later. Removed tube in two days, and inserted it again eight hours later. Four small doses of serum were injected at intervals of twelve hours. Recovery uninterrupted after second insertion of tube.

CASE 2. V.C., æt. 2½ years. Sister of No. 1. Calomel fumigations tried, but failed to relieve dyspnoea, which increased. Patient almost moribund when first dose of serum was used. Five doses of 500 units administered in all. Intubation was done to relieve dyspnoea until antitoxin would act, and, not giving any trouble, was left in fourteen days. Good recovery. Dr. Watson says he intubated six times before using the serum, and all died. The two cases reported were as severe as he ever met—indeed, both were almost moribund when first injection was made.

CASE 3. Jane B., æt. 4 years. Patient of Dr. Eadie. Contracted disease from a companion. Had suffered from gradually increasing dyspnoea for twenty-four hours. When first seen there was marked dyspnoea, with cyanosis, and feeble pulse. Injected 1,000 antitoxic units. In two hours she was quite decidedly relieved, and had a fairly good sleep.

Next day the dyspnoea was still further relieved, but did not entirely disappear until the third day.

CASE 4. A.B., boy, *æt.* 5 years. Reported by Dr. Hunter. On Oct. 22nd had chills, vomiting, and dyspnoea at night. On 23rd throat was sore, and at midnight dyspnoea became alarming, and doctor first saw him. There was sanguino-purulent discharge from nose, and the tonsils, soft palate, and uvula were covered with false membrane; dyspnoea was intense, face cyanotic, general *œdema* of skin, some stupor, and vomiting. Ordered calomel fumigations and other appropriate treatment. No improvement next morning. Bacteriological examination of exudate showed abundance of Klebs-Loeffler bacilli, together with streptococci and staphylococci, and 1,000 antitoxic units were injected at noon. Twice during the next forenoon (Oct. 25) he passed into a state of collapse, and his mother thought he was dying. Two more such attacks occurred in the afternoon, and in the last the doctor thought he was dying, and for ten or fifteen minutes the only signs of life were some shallow respirations and feeble fluttering heart-beats. Whisky was administered hypodermically, and hot-water bottles packed about the patient, and after a time some reaction occurred, although dyspnoea continued for two or three days. On the 27th the membrane disappeared. The urine was from the first loaded with albumen, but in twelve days this disappeared also, and recovery was complete. The collapse was not due to carbonic acid poisoning, for the cyanosis continued for three or four days after the collapse had passed away. It must have been due to the absorption of toxins, and the antitoxin appeared to prevent any fresh poisoning from this source. Had the antitoxin not been used he would probably have gone on absorbing fresh doses of poison, with inevitably fatal results.

## A NOTE ON AMPUTATION AT THE HIP JOINT IN ADVANCED TUBERCULOUS DISEASE.

BY A. PRIMROSE, M.B., C.M., EDIN., M.R.C.S. ENG.,

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St. Michael's Hospital, etc.,  
TORONTO.

ONE can hardly find a subject for discussion upon which more divergence of opinion exists than that of the advisability of amputating at the hip joint in advanced tuberculous disease of the articulation. Among British surgeons one finds the expression of most adverse views. The conditions which contraindicate the operation, in the opinion of some authorities, are the very conditions in which amputation is considered necessary by others. Thus the association of profuse suppuration with lardaceous disease, diarrhoea, albuminuria, tuberculous disease in other organs and extension from the acetabulum into the pelvis, has been mentioned in a recent text-book on the surgical diseases of children as necessitating the performance of amputation in order to save the life of the patient. It is a familiar fact that most of the conditions indicated have been considered by many as precluding the possibility of performing a *successful* operation by amputation.

One cannot narrate a train of symptoms either for or against the operation; there are many considerations to be carefully weighed in each case, and no two patients will present exactly the same association of symptoms. In some instances the only chance of recovery for the patient seems to lie in the performance of amputation. It must be admitted, however, that whilst the immediate dangers from the operation may not be as great as we might imagine, yet the prospect of ridding the patient of the disease is not encouraging. Let me give you a picture of the kind of case in which I believe the question of amputation should be considered:

A. T., æt. 6, developed symptoms of hip-joint disease in July, 1890. Previously a healthy boy, and no history of tuberculosis in the family. He was admitted, under my care, in the Hospital for Sick Children, Toronto, in August, 1890. He was a thin, delicate-looking lad, and had a slight cough. There was a slight amount of flexion at the hip, no short-

ening, but a considerable degree of abduction. He was treated by fixation of the joint in a Thomas' splint. In December, 1891 (eighteen months after the onset of symptoms), I excised the joint and found pus within the joint cavity; the head of the bone was separated, the cartilage eroded, and the acetabulum perforated. The tubercular tissue was freely removed and free drainage provided. He did not improve after the operation, but became much emaciated, the temperature remained high, and the discharge excessive. In May, 1892, and again in January, 1893, I operated, making an attempt at each operation to remove the diseased tissue and to provide more efficient drainage.

The child is now eleven years old, and has had hip-joint disease for six years. He has numerous sinuses about the hip, discharging pus in large quantities. The limb is greatly shortened, adducted, and flexed; the upper end of the femur has been drawn up on the ilium, so as to form a marked prominence below the iliac crest. The patient is emaciated, the liver is greatly enlarged, and presents a firm lower margin below the umbilicus. The spleen comes well forward into the umbilical region; the kidneys are also diseased, there is  $33\frac{1}{3}$  per cent. of albumin in the urine, with pus and mucous corpuscles. There is no diarrhoea.

This patient can scarcely recover unless we can help him surgically. Few surgeons would advocate operation in such a case, where we have such advanced amyloid disease complicating very extensive local trouble in the hip joint with pelvic implication. I have advocated amputation in this case, but so far the parents have not consented. A cure is, in my opinion, not impossible, and I believe that the time has come when such cases will be submitted to operation more frequently than in the past.

If we examine recent literature we will find the record of the result of operation in equally hopeless cases. Mr. R. Langford Knaggs has reported such a case, which may readily be compared with the one the history of which I have related. The case is as follows:

Child, eight and one-half years of age, with advanced hip-joint disease with suppuration. The liver reached to the umbilicus; urine contained one-fifth albumin. Amputation at the hip joint was twice discountenanced by the hospital house-staff. After nine months, when the patient was at her worst, amputation at the knee was performed on March 9, 1888. This healed and the symptoms improved. The hip disease relapsed, and amputation, by Furneaux Jordan's method, was performed in October, 1888, and fragments of bone removed from a large cavity in the acetabulum. She left the hospital convalescent. In January, 1892, all sinuses had healed and the hip disease was quite well. The liver could no longer be felt.

You will agree with me that here we have a case presenting an asso-

ciation of symptoms which would be looked upon by many as contraindicating treatment by surgical operation. In this case, as in the one I narrated occurring in my own practice, we find amyloid disease and albuminuria complicating extensive tubercular disease at the hip with perforation of the acetabulum. Mr. Langford Knaggs' case has demonstrated the *possibility* of cure in such cases.

Apart from the question of the possibility of cure by amputation in such cases, one should inquire into other circumstances influencing one in forming an opinion. The magnitude of the operation suggested should be taken into account. The correct method of estimating this is to determine the mortality. Now, the rate of mortality is usually placed far too high, because we do not differentiate cases operated upon for tubercular disease from other cases.

In general terms, we find most text-books place the mortality after amputation at the hip joint at 60 per cent. Again, whilst the mortality after amputation at the hip for injury is 80 or even 90 per cent., that after amputation for disease (to quote Ashurst's figures) is 40.2 per cent. The mortality after the operation for disease is, however, much reduced in recent years, chiefly because of improvements in the technique of the operation.

I have taken the results attained by six surgeons, comprising in all eighty-five cases of amputation at the hip for disease, and I find the mortality to be only 10.6 per cent.. Of these I find, where I have been able to trace the ages of the patients operated upon, that in children the mortality is even lower. Thus Davy reports ten cases (with one exception inveterate cases of morbus coxæ); all the children in this list (8) recovered; two adults (29 and 43 respectively) died. Again, Gardner, surgeon to the Aberdeen Royal Infirmary and Sick Children's Hospital, reports fourteen cases without a death.

It would appear, therefore, that the mortality following amputation at the hip joint for tuberculous disease in children is not greater than 10 per cent.

I performed amputation at the hip joint in a case of tuberculous disease last March. The patient was a girl six years of age when she came under my care in March, 1893. In July of the same year an abscess was detected, and I excised the joint and provided for efficient drainage. The condition at the time of operation was as follows: The head of the femur was separated, the cartilage eroded, the acetabulum roughened, but not perforated, the ligamentum teres was as thick as one's little finger, and there was a large amount of soft, pulpy, gray material within the articulation. The greater part of the great trochanter was removed in order to get entirely rid of the disease. Sinuses continued to discharge for a lengthened period. In October, 1895, I opened an iliac abscess. In January, 1896,

I noted that there was apparently some slight enlargement of the liver ; the patient was extremely emaciated, the discharge excessive ; there was no albuminuria.

In March, 1896, I removed the limb by Furneaux Jordan's operation. She recovered well from the shock of the operation ; she gained in flesh and appeared much better ; she was much more comfortable than she had been, and she was very much less irritable. About ten weeks after the operation she developed headache and vomiting, and died with symptoms of tubercular meningitis three months, all but a few days, after the operation.

Death in this case can hardly be attributed to the operation, but was caused by a complication which may occur at any time during the course of tubercular arthritis.

The narration of this case is of value, indicating, as it does, the fact that a child suffering from extensive disease, and whose general condition is extremely bad, is capable of rallying from the shock of such a severe operation.

One cannot in a short paper discuss all the aspects of this important question, but one may be pardoned in suggesting a few points in the technique. The operation is simple in the extreme ; it is never done unless excision has previously been performed ; as a primary operation in tuberculous disease it is most justifiable. By Furneaux Jordan's method, after excision there is no difficulty ; the operation is performed easily and rapidly.

To my mind, however, the most important point in the technique of the operation is the prevention of hæmorrhage. It is held that 70 per cent. of fatal cases of disarticulation die of hæmorrhage. Wyeth's so-called "bloodless method" of amputating at the hip joint by the introduction of skewers, and the application of rubber tubing above these to constrict the limb, should not be employed when we have to operate on a child. The method is an admirable one, when we have to deal with a healthy hip joint (*e.g.*, in a case of sarcoma affecting the femoral shaft) in a well-developed adult, where it is impossible to control the circulation in the femoral without resorting to a tourniquet. The method, however, should not be attributed to Wyeth, as a similar method was adopted by other surgeons many years before Wyeth described it. Thus a pupil of Volkmann's claims that the method was originated by Brashear in 1806, and reintroduced by Volkmann seventy-five years later. I myself saw a very similar method employed in Edinburgh thirteen years ago, some years before it was utilized by Wyeth. The method of controlling hæmorrhage by constriction of the limb should, however, never be called "bloodless" ; a less appropriate term could not be chosen.

There may be little blood lost at the time of operation, but the subsequent oozing is excessive. My attention was first called to this, as a student, by Lister, who showed that Esmarch's method of controlling hæmorrhage was objectionable; because he held that the excessive pressure on the nerves of the limb caused vaso-motor paralysis, and upon the removal of the constricting band the small vessels dilated. This can be observed at any time by noting the blushing which occurs in a limb after the removal of a tourniquet.

The method I adopt in amputating a limb, wherever practicable, is that of digital compression of the main artery. Thus in the case of amputation at the hip which I referred to, my assistant compressed the femoral artery over the pubis; the amount of blood lost at the operation was almost *nil*, and the subsequent oozing inconsiderable. Digital compression is always possible in children in amputation at the hip, and should always be employed.

I believe that the method suggested by Mr. Howse of removing the limb by instalments has much to commend it, although I have never tried it. Thus in disease of the hip requiring amputation Mr. Howse first amputates at the knee, and subsequently at the hip. The advantages claimed for the method are :

- (1) Freedom from pain is often secured to a large extent.
- (2) Improvement in the hip disease is noted in many instances.
- (3) It is claimed that the severity of the subsequent amputation at the hip is much diminished.

In conclusion, one may note the following points : The operation of amputation at the hip joint should never be performed except in otherwise hopeless cases. Amputation should be reserved for those cases in which excision has previously been performed. Hæmorrhage should be controlled by digital compression. Amyloid disease and perforation of the acetabulum do not contraindicate the operation.



## Selected Articles.

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### THE THEORY OF ELIMINATIVE TREATMENT OF TYPHOID FEVER.\*

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BY W. B. THISTLE, M.D., L.R.C.P. LOND.,

Assistant Demonstrator of Anatomy, University of Toronto; Lecturer of Nervous Diseases and Diseases of Children in the Woman's Medical College; Physician to the Victoria Hospital for Sick Children,

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**A**LTHOUGH the practice of administering purgatives freely and frequently throughout the entire duration of typhoid fever has extended widely in this country since the publication of my first paper on "Eliminative and Antiseptic Treatment of Typhoid Fever" in *THE CANADIAN PRACTITIONER* for April, 1893, and the objection that great danger is associated with such a course is now seldom heard, yet there still exists much misconception regarding the ideas which underlie this plan of treatment. This misapprehension is mainly due to a faulty appreciation of what is meant by "elimination," the term being made to indicate only the clearing of bacteria from the intestine, the far-reaching effects of purgatives on the body generally being altogether ignored. The misapprehension I refer to is well illustrated in the inaccurate report of the eliminative and antiseptic treatment of typhoid which appears in the recent edition of a well-known work on the practice of medicine.<sup>1</sup> In addition to the common mistake, the writer of the book asserts that this treatment is based on erroneous ideas of the pathology of the disease. Eliminative treatment is, in the paragraph referred to, said to depend on the erroneous idea that the specific bacteria are confined chiefly to the intestine. Continuing, the writer of the book makes the positive statement that the specific bacteria are not present in the intestine until the ninth day of the disease. It is also pointed out that the specific germs are found in the spleen and in other parts of the body, the reader being led to infer that

\*Read before the meeting of the Canadian Medical Association, Montreal, August 27, 1896.

the advocates of the eliminative treatment had failed to appreciate that fact.

In a paper devoted to the theory of eliminative treatment I hope to make more apparent the ideas upon which it is based, and to indicate more clearly the objects to be attained by the continuous administration of purgatives throughout the disease; but more especially do I wish to combat the assertion that this treatment is based on an erroneous conception of the pathology of the disease.

I shall at the outset, and at the risk of being tedious, briefly set forth the eliminative and antiseptic plan of treatment, in no way varying from that which appeared in the papers published by me in the *Medical Record* of March 10, 1894, and September 14, 1895. In the papers referred to, I subscribed to the view that typhoid fever is a condition in which prolonged poisoning occurs, the toxins being produced by certain bacteria which enter the body and flourish mainly in the alimentary canal, but which are also found in the glands of the intestinal wall, in the lymphatic nodes of the mesentery, in the spleen, and less frequently in the lungs and other viscera. Their original location, however, is the intestinal canal; that is, they are first free in the intestine, but are afterward to some extent carried by the absorbents into other parts of the body. Wherever located they, as a necessary part of their life, produce a toxic substance, which in turn produces the phenomena of the disease. Wherever the bacteria are, there of course will be the toxins which have been elaborated as a result of their activity; so that in the course of the disease the absorbents would carry toxins from the bacteria in the intestinal contents; from the colonies of bacilli within the lymph glands in the intestinal wall and mesentery, while those generated by the bacilli which have reached the spleen or are located in other viscera will be thrown directly into the circulation.

In the former papers referred to, I held to the view that the toxæmia of typhoid is due to more than one form of bacillus; that while everything points to a specific bacillus, such as that described by Eberth, yet it is impossible to ignore the extreme likelihood of a portion of the toxæmia being due to poisons produced by other bacteria, notably by the bacillus coli communis. In support of that view I cited the facts that under certain conditions the colon bacilli do become exceedingly poisonous; that they produce the toxin which leads to fatal results in peritonitis; that it has been pointed out that wherever the intestine is injured these bacteria take on virulent properties.<sup>2</sup> There is also the probability that the bacillus coli communis becomes virulent as a result of association with Eberth's bacillus.

I also urged that in addition to poisons produced by Eberth's bacillus and by the colon bacillus, some portion of toxæmia must be attributed to putrefactive and other bacteria in the intestine.

Throughout the course of the disease there is a continual augmentation of the toxæmia by absorption from the intestine, and from accessions of quantities of poison produced by the colonies of bacilli in the spleen, mesenteric glands, or Peyer's patches.

As to the manner in which these toxins affect the system, I quoted Woodhead<sup>3</sup> to show that, like many substances spoken of as poisons, they had what might be termed a constitutional and also a local action. In the circulation they bring about widespread disturbance of function, *e.g.*, fever, headache, vertigo, delirium, coma, etc., and where gathered together or concentrated at one point irritation of tissue occurs, with the usual phenomena of increased rapidity of cell multiplication, increased vascularity, and increased exudation from the vessels into the surrounding tissues. If concentrated still further, or if the period of contact be extended beyond a certain point, increased activity in the tissues is replaced by stagnation and death of the part, with subsequent casting off of the necrotic portion.

While there is undoubtedly a great difference in the virulence of epidemics, as well as a difference in the susceptibility of individuals, yet in a given case the symptoms increase in severity in proportion to the quantity of toxins in the system. The symptoms, taken as a whole, indicate the degree of toxæmia.

Turning now to the most recent English work on medicine,<sup>4</sup> I find that the writer on typhoid fever, Professor Dreschfeld, of Manchester, believes Eberth's bacillus to be the primary cause of the disease, but that many of the symptoms and much of the toxæmia are due to the colon bacilli and to other germs.

He also gives, without comment, the results of investigation by Pisenti and Bianco-Mariotti to determine the relation between the typhoid bacillus and the bacillus coli.

(1) On simultaneous injection into animals of cultures of bacillus typhoides and bacillus coli (which latter had been proved to be inactive), bacillus coli increased in virulence so as to act like any virulent bacillus typhoides on animals.

(2) If sown on gelatin mixed with filtered cultures of bacillus typhoides, bacillus coli also gained in virulence, owing to the typho-toxin acting on bacillus coli.

(3) Healthy intestinal epithelium hinders infection from the intestine, but if Peyer's patches undergo changes this defence is in abeyance.

Filtrates from typhoid cultures exert an influence on Peyer's patches, so that in typhoid fever the toxin in the blood alters the Peyer's patches, and thus bacillus coli enters the body and adds to the virulence of the typhoid infection.

(4) With very virulent cultures of bacillus coli results were produced (such as thermometric curves, for instance) similar to those obtained by very virulent bacillus typhoides, and animals could be thus immunized against bacillus typhoides. At the same time the experimenters refrained from any expression of opinion as regards the identity of the two.

Regarding the mode of infection, Professor Dreschfeld believes that the bacilli "reach the alimentary canal, multiply, penetrate into the mucous and submucous coats, invade the lymphatic tissues, and pass thence through the lymph channels into the mesenteric glands. Some of the bacilli reach the blood and pass to internal organs, principally the spleen. The bacilli produce various poisons, at present hardly known; some of these have a pyrogenetic action and thus produce the fever. As a result of their irritant action and that of their products, we get the intensely inflammatory signs in the intestine leading to necrosis."

I have quoted sufficient to show the ideas regarding the pathology of typhoid adhered to in this most recent work on medicine. I submit that these ideas as to pathology and mode of infection in typhoid are identical with those upon which I based eliminative treatment, as can be shown by reference to my published papers on the subject. In addition, however, I questioned the correctness of the very general statement that the specific bacteria are not present in the intestinal contents during the first nine or ten days of the illness. I maintained that, having in view the very great similarity between bacillus typhoides and bacillus coli, and the failure to find methods of differentiation which could be considered at all reliable, simply because bacteriologists working with uncertain methods had not found Eberth's bacillus before the ninth day, the assumption that this bacillus is absent from the intestinal contents before the ninth day was not justifiable. I argued that since there can be no doubt of their presence and multiplication originally in the intestine before infection of the glands—for how otherwise can the simultaneous invasion of Peyer's patches for several feet of the length of the intestine be explained?—and since there is no difference of opinion regarding their presence in the intestine after the ninth day, the dogmatic assertion of their absence during the first nine days is unreasonable. More than that, if adhered to, it led to the absurd contention that the bacilli enter the intestine, multiply there, penetrate into the intestinal walls over a large extent, the process occurring without symptoms of any kind, but when the last specific germ has passed from the intestine into the body, then, and not until then, are there signs of illness. Such a theory is manifestly unreasonable, yet, unless it be maintained absolutely, the contention that the specific bacilli are absent from the intestine during the early period of the disease must be abandoned. In other words, the process of invasion of the glands is coincident with the earlier symptoms of toxæmia.

This is the only point in which the ideas expressed by me in the papers on eliminative treatment differ from those set forth by Professor Dreschfeld. But he does not assert the absence of Eberth's bacillus from the fæces in the early period; he merely states that they have not been found there during that time. He appends, however, a paragraph pointing out that since his article was in press, the new method of Elsner, which appeared "to fill the long-felt want of easily isolating the bacillus of typhoid and to distinguish it from the colon bacillus," had been discovered. By this method, Elsner was able to easily separate Eberth's bacilli from the fæces in fifteen out of seventeen cases in the various stages of the disease. The two cases in which he failed to obtain them were entering upon convalescence and the temperature was normal.

Elsner's method was tested by Brieger<sup>6</sup> in eleven cases and by Lazarus<sup>7</sup> in forty-one cases, and his results were confirmed.

Brieger found Eberth's bacilli in the dejections of typhoid patients while the symptoms were still obscure.

In repeating Elsner's examinations, in forty-one cases Lazarus found that the specific bacilli disappeared from the dejections with the beginning of convalescence, but that in the case of relapse they were again found in the fæces.

Thus it seems that what I argued must be the case in my article in the *Medical Record*, September 14, 1895, has actually been demonstrated.

That the tests made use of prior to Elsner's method for the differentiation of bacillus typhoides from bacillus coli were not to be relied upon is shown by investigations carried on by Professor Dreschfeld and Mr. Robinson in the laboratory of Victoria College, Manchester. They found that some apparently typical colonies of Eberth's bacillus produced gas in saccharine media, others did not. Of those which produced no gas, some gave the indol reaction, and three did not. These three coagulated milk.<sup>4</sup>

My great error, according to the author of the American work on the practice of medicine, to which I referred in the beginning of this paper, was in believing the specific bacilli to be present in the intestine during the early period of the disease. I submit again that, in the light of what has been demonstrated by Elsner and corroborated by Brieger and Lazarus, the error is not mine.

I asserted at the beginning of this paper that there exists much misconception regarding the objects to be attained by the continuous repetition of purgatives throughout the disease. I also expressed the opinion that the misapprehension arose chiefly because elimination is taken to mean simply the clearing out of the specific bacteria from the intestine, whereas a much wider process is indicated by the term "eliminative"—how much wider I hope to show when we come presently to the effect of purgation in typhoid.

However, before entering upon the treatment, there are some fundamental facts which it is necessary to keep prominently in view in order to appreciate the logic of the eliminative treatment.

(1) There is the constant augmentation of the toxæmia ; the toxins produced by bacilli in the intestinal contents, and that elaborated by the colonies located in Peyer's patches and in the mesenteric glands, are constantly being conveyed into the general system. Toxins produced by colonies in the spleen or in other viscera will reach the circulation at once.

(2) That during the course of the disease, bacilli, both specific and bacillus coli, as well as toxins, are carried from the intestine still further to increase the number in Peyer's patches, mesenteric glands, and spleen, and to increase the toxæmia.

(3) That death comes in typhoid fever in two ways, leaving out of consideration accidents such as epistaxis, etc., either by the excessive accumulation of toxins in the body or by the excessive local action of the toxins on particular tissues. Roughly, it is said that eighty per cent. of the mortality of typhoid is due to toxæmia ; that is, the constant augmentation of poison in the body, either directly by overcoming the vital centres, or less directly by producing exhaustion through prolonged interference with the functions of nutrition and repair, proves fatal.

The remaining twenty per cent. of the fatality includes, of course, the rare accidents and complications, but is chiefly made up of the cases that result fatally owing to the excessive local action of the toxins on particular tissues. By far the greater part of this is due to hæmorrhage and perforation, two accidents incidental to necrosis. Necrosis occurs with so great frequency in Peyer's patches because of the facility with which bacteria, specific and others, and also toxins, are carried from the intestine to the glands. The colony originally in possession increases rapidly, elaborating at the same time toxins. Moreover, throughout the disease there is a constant reinforcement, owing to carriage of bacteria and toxins from the intestine. At first the gland is swollen, owing to the attempt of the tissues to destroy the intruders ; but finally, in the case of the glands that ultimately become necrotic, the tissues are unable to resist the prolonged action of the ever-increasing toxins and death of the part occurs. Let us now notice the defensive measures against the condition described.

There are the channels through which toxic substances leave the body. In the order of their importance they are :

(1) The bile. By way of the biliary secretion much of the toxin escapes from the body into the intestine and from there is carried out. So much of the toxin elaborated in ordinary condition of health escapes with the bile that Bouchard<sup>8</sup> estimates the toxicity of bile as nine times greater than the toxicity of urine.

(2) Next to the bile as a channel for the elimination of toxins, comes the urine.

(3) The serous secretion from the intestine carries with it whatever poisonous substances may be in the circulation and the body is relieved of so much toxin, just as it would be if bleeding instead of purging the patient had been resorted to.

(4) In addition to these three channels, toxin of course escapes by the breath and by the skin.

A further defence is found in the resistance and aggressive action of the tissues themselves. Indeed, in cases that recover, the bacilli in the body must be destroyed by the tissues, excepting of course those that escape by the urine. Here it may be noticed that the aggressive and defensive action of the tissues is in inverse ratio to the extent of the toxæmia.

The plan of treatment which I, in 1893, brought forward as the "eliminative and antiseptic treatment of typhoid" consists in the administration of frequent doses of purgatives throughout the entire illness. It is also considered of primary importance that purgation be secured as soon as possible after the patient comes under notice.

The purgative medicines chosen are those that act on the upper and smaller intestine. Perhaps the most satisfactory is the combination of calomel and salines. The calomel may be given in several doses, say of a half or one-grain, and followed in several hours by a saline, magnesium sulphate, or sal Rochelle in half-ounce doses. However, other purgatives may be given—cascara, Seidlitz powders, Carlsbad salts, compound cathartic pill, etc. The quantity of the dose and the frequency of the repetition must be determined by the necessities of each case.

With the employment of purgation is associated the use of antiseptics. My experience is with salol chiefly, and my practice is to give it in ten-grain doses every three or four hours. I have pointed out before, in the articles above referred to, that antiseptics may be given in much larger doses and with greater freedom from the occurrence of symptoms due to the antiseptic, if associated with the frequent administration of purgatives. To compensate for the withdrawal of so much fluid from the body by so frequent purgations, as well as to dilute and facilitate the elimination of poison through the kidneys, the ingestion of large quantities of water is enjoined. Coming now to the purpose of this treatment, it is obvious concerning the antiseptics and the giving of large quantities of water.

The purpose of giving purgatives in the way I have described is:

(1) To interrupt the process of infection; that is, by sweeping out the intestine to clear away bacilli, specific and non-specific, and also toxins

which would otherwise go to increase the number of bacilli in the body and to increase the existing toxæmia.

(2) To counteract at frequent periods the continuous augmentation of toxins in the body by carrying away the toxic bile poured into the intestine, which if not carried away is again taken up and returned to the system.

(3) To further deplete the volume of toxins in the body by causing a free secretion into the intestine, bringing with it toxins in solution in the body fluids.

(4) The constant clearing of the intestine must lessen the extent of the local lesion, because it cut off the base of supply from which bacilli and toxins are carried to Peyer's patches to reinforce the bacilli and toxins already in possession. It is apparent, too, that the earlier this is resorted to, the better for the tissues in Peyer's patches. Thus, while on the one hand there is a continual production of toxins in the body, on the other by the frequently repeated administration of purgatives we endeavor to eliminate these toxins in sufficient quantity to keep the total volume of poison in the body below a harmful point, until the period of immunity is reached. In like manner, keeping the intestine clear limits the local lesion in the intestinal glands.

A frequent mistake in carrying out this treatment is in supposing spontaneous action of the bowels to contraindicate the use of purgatives. Such is not the case, for it is well known that the diarrhœa is most frequently owing to catarrh of the colon and to toxæmia. Thus, while the bowels may be acting many times a day, yet little in the way of elimination of toxins is accomplished, the toxic bile in the upper intestine and the bacterial collections in the ilium remaining undisturbed. Indeed, in this instance, as in the mycotic and irritant diarrhœa of children, the flux is best controlled by giving a purgative.

Returning to the details of treatment, I have before pointed out that it is of the greatest importance to secure elimination by the bowels as speedily as possible, in order to cut short at the earliest possible period the process of infection.

Because the case appears to be a mild one is no reason for withholding treatment, for the case that appears mild may in ten days' time, by the process of gradual accumulation which I have described, show symptoms of the most profound toxæmia. In many cases, too, in which the symptoms are not pronounced, the local lesion may be so severe as to prove fatal.

It has been objected that so frequent purgations must do harm by carrying out useful bacteria from the intestine <sup>1</sup> There is no ground for



such a supposition, for experiments to determine that point show that a perfectly sterile intestine in no way interferes with health.

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## A REVIEW OF THE SURGERY OF THE PERITONEUM.\*

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I WILL restrict the subject of this address to a brief review of certain prominent circumstances in abdominal surgery, especially in so far as they concern the peritoneum.

### THE RITUAL OF AN ABDOMINAL OPERATION.

Students in their examination papers still, very properly, speak with awe of the peritoneum, and insist that an abdominal operation should be done "under strict antiseptic precautions." Thanks to the mighty revolutionary work of Lister, the great principle which underlies this axiom has been vividly demonstrated and well learnt, and it is probable that, after many vicissitudes, we are approaching the time when the best practical means of realizing that principle will have been arrived at.

It is no matter of surprise that progress in the perfecting of the details of a great plan of treatment should have been at times erratic and ill-controlled. Since the days of the carbolic spray enthusiasts have rushed into strange and blundering extremes in their attempts to give practical expression to the dictum of "strict antiseptic precautions." These words have been with many a kind of mystic writing upon the wall, and activity in the interpretation of the message has been little short of confusion. In this practical country we have been fortunately spared the extravagances which have brought certain Continental operating theatres into ridicule. Those who come after us will read with interest of the operating theatre built like a diving tank, of the glass table for the patient, of the exquisite ceremonial of washing on the part of the operator, of the rites attending the ostentatious cleansing of the patient, of the surgeon in his robes of white macintosh and his india-rubber fishing boots, and of the onlookers beyond the pale who are excluded, with infinite solicitude, from the sacred circle as septic outlaws.

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This exhibition may be scientific, but it is no part of surgery. It is more allied to a fervent idolatrous ritual brought down to the level of a popular performance. Those who have been led into these uncomfortable extravagances are, no doubt, honestly assured that they are carrying out the "strictest antiseptic precautions," but in blindly effecting this end they appear to forget what is the prime purpose of the art of surgery. Can this extreme demonstration be necessary? Is it not piling Pelion on Ossa and slaying the already slain? The surgical ritualists appeal to the infallible tests of the bacteriological laboratory, and bring forth, as conclusive evidence, an array of cultivations and of inoculated tubes. Most English surgeons, on the other hand, are content to appeal to the test of the patient, and to bring forth records of results. The work in the operating theatre comes up for criticism a week or more after it is done. A surgeon may remove a limb at the hip joint in two minutes, and the performance may appear at the time to be very wonderful and brilliant. It may, however, as well have been dull if the patient dies at the end of a few distressful days. An operator in fishing boots, nurses with their hands and arms wrapped up in special towels, and a hose playing about the floor of the theatre may form an impressive sight, but to what degree does it bear upon the interests of the patient? An operating theatre is no more suited to be an arena for legerdemain than it is intended to supply an object lesson in the art of disinfection. What is done in the theatre may be, at the time, right or wrong; it can be judged by but one solitary and exacting test—the future of the patient. If this test be insisted upon, I venture to state that the general results obtained by operative treatment in the chief hospitals in this country compare very favorably with those obtained elsewhere, in spite of the fact that the method of most English surgeons is unassociated with the elaborate ritual now alluded to.

There is, indeed, the amplest evidence to show that these extravagant and almost grotesque preparations for an operation are unnecessary; for that evidence demonstrates that such formulæ give, in no one class of operation, a better result than do the simpler methods with which we are familiar. More than that, it is scarcely to be believed that the long-continued exposure and washing of the patient after he has been placed upon the operation table is always quite harmless. When the feverish struggle of Continental surgeons to introduce mere novelties into surgical practice is at an end we may hope once more to resume the development of surgery as a handicraft. At present the actual handling of knives and forceps is overwhelmed by the dexterous disposal of the wash hand basin and the soap dish. In contradistinction to the vagaries of the new surgery I would point out that a simple method, such as the following, appears sufficient to secure the much-exalted antiseptic precautions, or at least to produce

admirable surgical results: The operating room is clean and free from dust. It may be in a hospital, or it may be simply a wholesome bedroom in a private house. There is nothing peculiar in its construction. The table is of wood. It is not bacteriologically clean, but it is handy to the surgeon and comfortable to the patient—two points worthy of some consideration. Some time before the patient enters the theatre the skin of the abdomen is shaved, is well washed with soap and water, and then with ether (or an ethereal solution of corrosive sublimate), and is finally covered by a thick compress soaked in a 1 in 20 carbolic solution, which is kept in position for at least five hours before the operation. The surgeon is clean, but he does not parade his cleanness. The mackintoshes and blankets which envelop the patient are, in a domestic sense, clean. The towels which cover the body in the vicinity of the operation area are taken direct from the sterilizer. The instruments are sterilized by boiling, and are placed in a tray containing 1 in 20 carbolic acid solution.

Before the operation is commenced, this solution is infinitely diluted with boiling water, so as to render it free from any irritant power. The only sponges I use are made of Gamgee tissue cut into 6-inch squares. They are allowed to soak for twenty-four hours in a 1 to 20 carbolic solution. Before the operation the carbolic acid is washed out of them by sterilized water, and each square is passed through a well-cleaned sponge roller. Very rarely indeed is a Turkey sponge needed, as for all purposes the tissue sponges are, I think, as efficient, while they are certainly safer and more easily manipulated. An 8-inch pad, on a sponge holder, placed in Douglas' pouch will save an infinity of trouble in cases attended by extravasation. Any onlookers who wish can approach the operation table, provided they touch neither patient, sponge, nor instrument.

As to whether these simple and commonplace precautions are sufficient, I may take as a test the operation of removing the vermiform appendix during the quiescent period. This operation is performed upon patients of both sexes and at all ages. It may be most simple or prove to be exceedingly difficult, may involve two hours in its performance, and involve considerable suturing. I have carried out this measure in over 150 cases, with one death. I doubt if even this one case would have been saved had I adopted the skin washing and india-rubber boot ritual. In the securing of primary healing after such operations as amputation and excision of the breast, I would venture to state that the results obtained by the simple method just described are not surpassed by any accredited to the school of advanced ceremonial.

What dressings are used after operation is a matter of little or no moment. The wound is dried and well dusted with iodoform. The iodoform is kept in place by a pad of wool and a binder. The selection of a

dressing for a wound was at one time a matter of infinite importance and of anxious concern. It has now become a question of not the least consequence. Many wounds require no dressing at all. They are dried, are dusted with iodoform, and are left exposed to the air under the protection of a cradle. The fact that the iodoform is swarming with micro-organisms may disturb the bacterially-minded surgeon, but it disturbs neither the wound nor the patient.

#### PERITONITIS AND THE TREATMENT OF THE PERITONEUM.

Very remarkable are the changes which have taken place in our estimate of peritonitis. It was but in 1887 that Spillmann and Ganzinotty described no less than twenty-six different forms of peritonitis in their well-known monograph. Now the varieties of peritonitis can be counted upon the fingers of one hand. The evidence is practically complete which demonstrates that all forms of peritonitis are septic, and are due to infecting micro-organisms. The existence of a rheumatic form of peritonitis has been by no means placed beyond doubt, and it is safe to assert that its individuality is very questionable. The peritonitis ascribed to the pneumococcus has not yet emerged from the confusion of a bacteriological squabble. Idiopathic peritonitis, which was at one time regarded as a definite and common disorder, has now, indeed, ceased to exist. The constitutional symptoms of peritonitis are in the main those of septicæmia, and it is from blood poisoning, and not from inflammatory disturbances, that the subject of peritonitis dies. He dies poisoned. When the peritonitis is developed away from what may be termed the "small intestine area" it is apt to be localized. This is illustrated by peritonitis in the iliac fossæ, in the pelvis, and in the subphrenic regions. In all these districts the surgical treatment of peritonitis has been most successful. Peritonitis in the "small intestine area" is, on the other hand, rapidly diffused, and is as rapidly attended by septicæmic symptoms. In the treatment of localized peritonitis, surgery can claim to have made great advances, but in the treatment of diffused peritoneal inflammation, with marked constitutional symptoms, there is little progress to record. The abdomen may be opened and washed out and drained, and the distended bowel may be relieved of its putrescent contents by incision, but the results at the best are not brilliant, and it is evident that the treatment of this terrible complication must still incline towards that desirable prevention which is better than cure.

Excellent have been the results obtained in the treatment of tuberculous peritonitis of almost all grades. The examination of some 300 recorded cases treated by abdominal section shows that a prospect of cure may be expected in over 60 per cent. of the instances, and that in 33 per cent. of those who recover the cure may be expected to be complete.

Simple incision, with free evacuation of the infected effusion, is the most successful of the many measures employed. The highest percentage of cures has been attained when the abdomen has been neither flushed out nor drained, but when the exudation has been merely evacuated, and the parietal wound closed. This fact is as remarkable as it is unexplained, and it is evident that the time has not yet come when general principles can govern the treatment of surgical tuberculosis.

With regard to the general management of the peritoneum in operation cases, it would be a matter of sad interest to learn how much harm has been wrought by that unfortunate term "the toilet of the peritoneum." The much-abused serous membrane has quite a remarkable capacity for defending itself, up to a certain extent, against the invasion of micro-organisms. This power is lost if the membrane be irritated, or if its fine surface be damaged. Experiments upon animals appear to have demonstrated this fact very clearly. In the course of an abdominal operation, extravasation of one sort and another must, now and then, take place into the peritoneal cavity, and very often the surgeon has to blame his roughness or his defective tamponading for the extent of the effusion. It is well to be reminded that it is better to anticipate an extravasation, by cautious plugging and other means, than to deal with it successfully afterwards. Whether the effusion be harmful or harmless, the surgeon possessed of the term the "toilet of the peritoneum" is apt to be a little indifferent as to its amount. He proceeds blindly to remove it—although it may be quite sterile—by reckless flushings and by infinite sponging, rubbing, and scouring of this most delicate and susceptible of membranes. He removes it at all costs, and the cost unfortunately falls upon the sensitive peritoneum, and peritonitis is the not infrequent result. I do not say that an extravasation should be left in the abdomen, but I would prefer to leave a few ounces of sterile cyst fluid in that cavity than damage the peritoneum beyond all hope by persisting attempts to remove every trace of it by sponging.

If the extravasation be really noxious, and also extensive, it is best removed, not by scouring out the abdomen, but by flooding it with sterile water, with as little handling of the intestines as is possible. In actual practice even this washing out of the serous cavity is but very rarely required. Drainage of the peritoneal cavity also is not often needed, and in the selection of vehicles for drainage I venture to think that the very best is the gauze tampon, and the very worst the glass drainage tube. The gauze drain, if properly introduced, is most efficient, is capable of almost infinite application, and has proved one of the most valuable of the additions made to the details of an abdominal operation. The future of not a few operations hangs, in my belief, upon the gauze tampon, and but for it there are certain procedures which would be scarcely justifiable.

## MALIGNANT DISEASE OF THE PERITONEUM.

The term "cancerous peritonitis" has, in spite of its simple foolishness, not yet vanished from literature, and text-books still speak gravely of primary cancer of the peritoneum. The most usual statement handed down from one writer to the other is to the effect that "colloid cancer is most common in the omentum." It is needless to say that primary cancer of the peritoneum does not exist, inasmuch as the membrane provides no tissue from which a true carcinoma can develop. Those who speak of cancerous peritonitis may as well discourse on "sarcomatous scarlatina."

The peritoneum is, however, liable to an evil form of sarcomatous growth, and this is most common in the omentum. The subjects of this hopeless form of malignant disease are mostly adults of about middle life, and in my experience the trouble is more common in males than in females. I have met with it, however, several times in young subjects, and have known it mistaken more than once for tuberculous peritonitis.

The subjects of this affection generally exhibit the three cardinal features of malignant disease, namely, loss of strength, loss of weight, and loss of color. They usually at first experience a want of energy, and feel listless and depressed. After this sense of vague ill-health come some abdominal uneasiness, some colic or sickness, or flatulent dyspepsia, with a sense of weight and sinking in the abdomen. The belly is examined, and a lump discovered. The tumor, when in the omentum, is one of the most characteristic of abdominal swellings. It moves about; it is always flat on the surface, which faces the anterior parietes. That surface may feel hobnailed or quite smooth. The margin, which is usually distinct and thin, is commonly crenated. The lower margin is, of course, the one best felt; on very slight percussion the swelling is dull, on deeper percussion it may be resonant. The mass feels like a cake, of no great thickness, moulded to the curve of the abdominal wall. If pressed down it seems to float up again. While the faecal mass may present large bosses on its parietal aspect the sarcomatous cake is relatively smooth. There is nearly always some ascites with the malignant growth, and often two lumps can be felt which may be shown to be connected. The sarcomatous mass is not tender: the faecal mass, owing probably to ulceration of the bowel, usually is tender. A large malignant growth on the anterior wall of the stomach, which has been much displaced downwards, and which has a free pyloric opening, may be readily mistaken for this peritoneal sarcoma. I have known the growth confused with movable kidney, with splenic swelling, and very often with a faecal tumor. The diagnosis of "a movable left kidney" in a middle-aged man is very suggestive of a peritoneal sarcoma.

There is no doubt but that this growth is pathologically identical with

the still commoner retroperitoneal sarcoma. The latter always appears to start from the posterior parietes, occurs in patients of the age alluded to, and carries with it the same prognosis. I have examined many by exploratory incision, and have usually observed after the operation that diminution in the size of the growth to which various surgeons have drawn attention.

The retroperitoneal sarcoma makes itself evident in many remarkable ways. There may be a gradual decline in health at the time that the growth is noticed, or there may not. Nothing but indefinite abdominal uneasiness may precede the discovery of the lump. Very often there is distinct disturbance of the colon, for it is in the tissues behind the ascending and descending colon that the growth is the most common. As it extends it pushes the colon forwards. I have known this insidious disease make itself first evident by producing an attack of subacute intestinal obstruction. The nerve apparatus of the bowel is in most cases interfered with. There are colic, disordered action, and strange pains. Above all, there is a definite deep pain referred to the kidney region or the loin or the back, which begins to stand out from among the less constant symptoms. This pain is neuralgic; it has the characters of a nerve pain, and is apt to become intense. An abiding pain in "the back of the belly" in an adult is a symptom which should always excite suspicion. Some of the subjects of retroperitoneal sarcoma whom I have seen have been treated as dyspeptics; others have been at first assumed to have renal calculus, stricture of the colon, or gallstones. The growth in its early stages is very indefinite in its outline. It becomes evident enough in time, and often leads to such œdema and even redness to the integuments as to give rise to a suspicion of deep-seated suppuration.

Before concluding this part of the subject, I might say that since in certain wards at the London Hospital we have treated all cases of ascites needing tapping by a little exploratory incision in place of the unsatisfactory and no safer puncture not a few errors in diagnosis have been corrected.

#### PERITYPHLITIS.

I have no intention of entering at length into the details of this much-discussed form of peritonitis, and will only consider a few points which I venture to think may claim attention.

(1) Mere terms have before now had some influence in the formation of a belief, and the introduction of the well-rounded expression "appendicular colic" has evidently given rise to the impression that such a disorder or condition actually exists.

There is, so far as I am aware, not one fraction of evidence worth considering upon which to base the existence of this malady. By colic is



understood certain painful symptoms depending upon violent and disorderly contraction of the muscular wall of the intestine. It is assumed by those who have been captivated by the term "appendicular colic" that fæcal particles or foreign substances enter the appendix and cause intense muscular contractions in this organ, which contractions have for their purpose the expulsion of the intruding body. In opposition to this assumption, it may be pointed out, in the first place, that fæcal particles are remarkably well tolerated in the appendix, as an examination of healthy organs after death will amply demonstrate. In the next place, the intensity of colic must depend upon the power of the irritated muscle and the supply of sensory nerves to the disturbed part. It so happens that the muscular tissue in the appendix is of the feeblest character; the so-called muscular coats indeed are mainly composed of fibrous tissue. In some appendices it might be questioned if a definite layer of muscle exists. In any case it is but a mere stratum of attenuated fibres, and it is not to be conceived that the most vicious contraction of this shred of tissue could be appreciated by the individual.

Moreover, the nerve supply of the actual organ is relatively poor. It is well known that extensive ulcerations and large fæcal concretions may exist in the appendix without the patient being conscious of them, and certainly without the production of symptoms which could be ascribed to colic. It is impossible to avoid the conviction that "appendicular colic" must be relegated to the vast domain of medical imagery.

(2) It is needless to say that the very great majority of examples of perityphlitis depend upon trouble in the appendix, but I am convinced that now and then the peritonitis is started by mischief in the cæcum itself, the appendix being sound. I do not allude to cases of epithelioma and actinomycosis of the cæcum, nor even to tuberculous disease of that organ, but to examples of non-malignant, non-parasitic ulceration of the bowel. I am quite aware that when the cæcum is found perforated at the bottom of a perityphlitic abscess the perforation has usually come from without and the appendix is the offending organ. I am also aware that an attack of perityphlitis may be brought about by changes in the appendix of so slight a kind as to escape notice in a casual examination. In spite of these admissions I have no doubt whatever of the existence of true peritonitis due to primary ulceration of the cæcum, and in my article on this subject in Professor Allbutt's forthcoming "System of Medicine" I hope the evidence I have adduced as to this point will be at least worthy of attention.

(3) The etiology of perityphlitis has not been rendered more lucid by the exuberant analytical discourses which some authors have expended upon this attractive subject. One American writer, in his account of the

clinical phases of this affection, tabulates no fewer than thirteen varieties. I would not venture to add to this confusion except to the extent of hazarding the suggestion that the etiology of perityphlitis is comparatively simple. A catarrh leading to ulceration would appear to be the commonest factor, and it is this condition which precedes that stricture of the appendix which is so frequently discovered. The calcareous material found in the fæcal plug, fæcal concretion, or enterolith of the appendix is derived from the copious catarrhal discharge, and I take it that the origin of the appendix "calculus" is exactly identical with that of the rhinolith met with in the nasal passages as an occasional result of chronic coryza.

Most patients who have had attacks of perityphlitis are advised to avoid articles of diet containing seeds, there being a popular impression to the effect that the appendix has some selective power for seeds, that it can extract them with cunning art from the fæcal mass in the cæcum, and, moreover, that it is a veritable trap for these particular foreign bodies. Those who are acquainted with the size of the lumen of a normal appendix cannot be other than amused at the idea of a cherry stone or a grape stone finding its way casually into this diverticulum.

Foreign bodies, seeds, and fruit stones play practically no part in the etiology of perityphlitis. It is true that in a few reported cases foreign bodies have been found in the little organ, but these have been mostly small shot, pins, fragments of nutshell, and bristles. In no case of perityphlitis with which I have had to deal have I ever found a genuine foreign body in the appendix. The appendix has, however, a remarkable power of mimicry in the production of its concretions, and its imitations of certain seeds and fruit stones is often very wonderful. The smallest concretions are usually mistaken for fig seeds and tomato pips until cut into. The concretions next in size lead to the imitation of grape stones and orange pips. The imitated grape stones are often most deceptive in both shape and color. The largest concretions may now and then resemble date stones with some exactness, but a slight examination will usually reveal the deception. The most remarkable imitations are afforded by cherry stones and grape skins. I have met with concretions so exactly like cherry stones in every external particular that only a division of the false seed has made manifest the constructive details. Collections of tough greenish-purple mucus may readily convince the observer that he has met with a portion of a grape skin rolled up into a cylinder to fit the tube of the appendix.

(4) In the matter of statistics we have as yet by no means reached finality. Dr. Porter<sup>1</sup> is answerable for the following figures: The collected cases are 448 in number. In 151 instances the appendix was

<sup>1</sup> *Amer. Journ. Med. Sc.*, 1893.

removed during the attack, with a mortality of 19.7 per cent. In 14 examples the removal was effected during the quiescent period, with the astounding death rate of 14 per cent. ; 188 cases treated by simple incision and drainage yielded a mortality of 18.19 per cent. In 95 examples treated medically, the death rate was 13.68 per cent. One of the most important points suggested by these statistics is the general mortality of perityphlitis. A common death rate given by the authors is about 14 per cent. This percentage is, I think, mainly derived from hospital cases (in-patients), and is probably not inexact for this class of case. But it is to be remembered that the cases admitted into hospital wards are practically those only which are severe. The slight cases would not demand, and would probably not be granted, admission. As a result of my inquiries, which include cases of all kinds, from the extremely acute outbreak to the attack which lasts forty-eight hours or less, I am of opinion that the general death rate of perityphlitis is to be estimated at about 5 per cent.

If an abscess form, then the mortality may run up to 30 or 40 per cent. In the great majority of instances the subject of a perityphlitic abscess is, by reason of that abscess, cured of his trouble should he survive. The abscess may close and break out again, and this circumstance may be more than once repeated. A troublesome sinus may be left. The patient may succumb to the results of continued suppuration, but so far as a definite attack of perityphlitis is concerned—as distinguished from mere abscess troubles—he is in most instances exempt. The risk of removing the appendix during the quiescent period—as first proposed by me in 1888—is in my experience less than 1 per cent., and I believe, therefore, that the danger of that operation is less than that of an ordinary attack. I believe that the majority of the attacks of perityphlitis are single, but it is scarcely possible to express in reliable figures the risk to which a patient is exposed of having other attacks after the first outbreak.

(5) As regards the question of surgical treatment I have had no reason to alter the opinion expressed some years ago that in dealing with cases during an attack an operation is seldom called for before the fifth day. Terms too strong cannot be used to condemn the practice of immediate operation: by that I mean the exposing of the appendix as soon as the diagnosis has been made. There is no sound basis for this procedure in either the pathology or the clinical prospects of the affection. It is not to be disputed that a fatal attack may commence mildly, and that it is not possible to foretell the degree of an attack by its mode of onset. The course of perityphlitis is, however, not so erratic as some maintain, and careful observation of each movement of the disease is not an unreliable basis for treatment. It is true that some intense attacks end in death in forty-eight hours, but, if the whole range of the disease be reviewed, it is

safe to say, with precision of language, that these terrific phases of the malady are exceedingly rare on the one hand, and are not difficult to recognize on the other.

In such extreme examples an operation cannot be done too soon. The assurance that simple incision is attended by a death rate of 18.18 per cent. is not an encouragement to operate as a matter of routine. I need not add that evidence or strong suspicion of the presence of pus indicates immediate interference, and a like course is clear should the swelling continue to increase with no abatement of the fever and other symptoms.

There are few inflammatory affections in which leeches act in a more remarkable manner than they do in perityphlitis. If five or six be applied early, as soon as the local manifestations are present, the effect is in many cases most satisfactory. In not a few instances in which operation has appeared imminent, it has been rendered unnecessary by leeching.

The bacterium coli commune—the most usual active organism in the production of perityphlitis—has peculiar pyogenic powers. Pus may, on the one hand, be produced in an incredibly short time, while, on the other hand, the inflammatory process may hold an indefinite position for many days, the swelling neither subsiding nor giving evidences of suppuration; and then when even so long a time as two weeks have elapsed the definite phenomena of abscess may come to the front. In these hesitating swellings leeches often act admirably. At least they give immediate relief, and the punctures do not compromise any future operation.

When an abscess is evident or suspected the locality of the incision must be determined by the area of dulness and of resistance. Should the wound be made so far to the inner side as to miss the collection and open the peritoneal cavity that incision should be closed, and a fresh incision made at a point where the evacuation of the pus within the enclosed area can be effected. The incision should be free; the abscess cavity is gently examined as to its position and extent, and information obtained as to the situation of diverticula. These diverticula can be cautiously opened up with the finger. No elaborate search should be made for the appendix. Such search means risk to the frail abscess wall, and to that often feeble barrier of adhesions which isolates the pus from the general peritoneal cavity. Continued trouble may follow from a retained concretion, and as such a substance is usually easily to be felt it should be sought for and removed. Should the diseased appendix actually present itself, it can be ligatured and taken away. The high mortality accredited to this operation depends, I cannot help thinking, upon a blind resolve to excise the vermiform process at all hazards. The operation is concerned with the evacuation of an abscess, and those cases do best in which the least is done,

provided that a free evacuation of the pus has been secured. The cavity does not need to be squeezed ; it does not call for irrigation nor for sponging out, and least of all for scraping. As for drainage, nothing answers better than the iodoform gauze drain properly cut and carefully introduced.

One of the strangest features in the literature of this disease is presented by the numerous methods described for opening the abscess and for knowing the appendix. These are generally discussed with much apparent subtlety under the fascinating title of the "technique of the operation." We have Smith's method and Brown's method and Robinson's method, to say nothing of sundry combination or co-operative procedures such as Brown's incision in Smith's line, followed by Robinson's mode of suturing. If we can learn anything from the past history of surgery, this savors of a retrograde movement. The treatment of a diseased appendix involves no new surgical principle and calls for no labored inventions. The treatment of the abscess is based upon those great general principles which underlie the treatment of all abscesses, and the removal of the little organ demands no departure from those accepted procedures which belong to the common lore of surgery.—*British Medical Journal*.

## PIONEERS OF ANÆSTHESIA.

### I. WILLIAM THOMAS GREEN MORTON.

WILLIAM THOMAS GREEN MORTON, to whom more than to any other man it is due that surgery has been robbed of the greater part of its terrors, and that, in the words of Oliver Wendell Holmes, "the fierce extremity of suffering has been steeped in the waters of forgetfulness, and the deepest furrow in the knotted brow of agony has been smoothed forever," was born on August 19, 1819, at a farm in the township of Charlton, Massachusetts, U.S.A. The embarrassed circumstances of his father made it necessary for him to leave school and begin to earn his own living at the age of sixteen. This he managed to do in one way or another till he was twenty-one, when a small legacy enabled him to enter as a student of dentistry at the Baltimore College of Dental Surgery, a chartered institution in affiliation with the Washington University of Medicine of Baltimore. In due course he established himself as a dentist in Boston, where he soon acquired a large practice, his professional income about 1846 being some \$20,000 (£4,000). His ambition, however, was to be a physician, and to this end he made time in the midst of his work to pursue the necessary course of study. On March 20th, 1844, he entered his name as a student of medicine under Dr. Charles Thomas Jackson, of Boston, a well-known practitioner who had won considerable distinction as a chemist. In November, 1844, he matriculated in the Harvard Medical School. He attended all the lectures there, but it does not appear that he graduated at Harvard. In 1852, however, the honorary degree of M.D. was conferred upon him by the Washington University of Medicine of Baltimore, in the Dental School of which he had been a student.

Almost from the out set of his career as a dentist Morton's attention had been directed to the means of deadening, or, at least, blunting, the sensibility to pain in operations on the teeth. He made experiments with various opiates and other agents, even trying mesmerism, but without success. In 1844 he thought for a moment that he had found the "sweet oblivious antidote" he was seeking for. In July of that year a lady came to him to have a tooth stopped. As she was extremely sensitive to pain,

Morton applied chloric ether, which had been used by other dentists for the same purpose, to the hollow to lessen its sensibility. He found to his surprise that after this not only was the cavity in the tooth insensitive, but the surrounding parts were also benumbed. Referring to this matter, he says :

“The idea instantly occurred to me that if I could devise some means for bringing the whole system under the influence of ether, it would be a most valuable means of relief in more intense or more diffused pain.”

He made a number of experiments with chloric ether on animals of various kinds, but the results were not encouraging.

In December, 1844, Morton assisted Horace Wells, whose pupil and partner he had been, in a public exhibition of “painless tooth-pulling” under the influence of nitrous oxide, the pain-subduing properties of which had been clearly indicated by Humphry Davy in 1799. The exhibition was a failure, which covered not only Wells but his assistant with ridicule. Morton did not, however, allow this misadventure to discourage him from further efforts. Nitrous oxide having, as he believed, proved a deception, he looked about for something else. Dr. Jackson, whose pupil he had been, seems to have suggested that he should try sulphuric ether. The inhalation of this substance in chest diseases and other conditions had a recognized place in therapeutics, and it was known to chemists that exposure to the vapor in a concentrated form would cause unconsciousness. No one, however, seems to have thought of using an agent believed to be so dangerous in order to produce insensibility to pain. Morton lost no time in acting on the hint which he had got from Jackson. He experimented on himself, inhaling ether alone and mixtures of ether with opium and morphine, from retorts wrapped in hot towels, and paying the penalty of his scientific ardor in many racking headaches. In the spring of 1846 he succeeded in bringing a fowl under the influence of ether so far that he was able to cut off its comb without any demonstration of suffering on its part ; similar experiments on other animals were still more satisfactory. There still remained the crucial experiment on the human subject. This Morton, with the courage of the true scientific explorer, performed on himself, on September 30, 1846. The account of this historic event is best given in his own words :

“Taking my tube and flask, I shut myself in my room, seated myself in the operating chair, and commenced inhaling. I found the ether so strong that it practically suffocated me, but produced no decided effect. I then saturated my handkerchief and inhaled it from that. I looked at my watch, and soon lost consciousness. As I recovered I felt a numbness in my limbs and a sensation like nightmare, and would have given the world for someone to come and arouse me. I thought for a moment

I should die in that state, and that the world would only pity or ridicule my folly. At length I felt a slight tingling of the blood in the end of my third finger, and made an effort to press it with my thumb, but without success. At a second effort I touched it, but there seemed to be no sensation. I gradually raised my arm and pinched my thigh, but I could see that the sensation was imperfect. I attempted to rise from my chair, but fell back. I immediately looked at my watch, and found that I had been insensible between seven and eight minutes."

As may easily be conceived, he felt a thrill of triumph at having at last wrested from Nature the priceless secret which she had hidden so long and so jealously from suffering mortals. We are enabled by Mr. F. L. Snell (*Century*, August, 1894) to give the record of the final victory in Morton's own words, as reported by a lady—a fact which may account for a certain want of precision in details :

"I had become much excited (he says), and had determined that I would not leave the office until I had seen something more of the power of this new agent. Twilight came on, but in my present state I felt it to be impossible to go home to my family. As the evening wore away, my anxiety increased. The hour had long passed when it was usual for patients to call. I had just resolved to inhale the ether again and have a tooth extracted under its influence, when a feeble ring was heard at the door. Making a motion to one of my assistants who started to answer the bell, I hastened myself to the door, where I found a man with his face bound up, who seemed to be suffering extremely. 'Doctor,' said he, 'I have a dreadful tooth, but it is so sore I cannot summon courage to have it pulled. Can't you mesmerize me?' I need not say that my heart bounded at this question, and that I found it difficult to control my feelings ; but putting a great constraint on myself, I expressed my sympathy for the man, and invited him to walk into the office. There were no instruments in sight to terrify him, and the ether was close at hand, every arrangement having been previously made in the hope that a similar case might occur. I examined the tooth, and in the most encouraging manner told the poor sufferer that I had something better than mesmerism, by means of which I could take out his tooth without giving him pain. He gladly consented, and, saturating my handkerchief with ether, I gave it to him to inhale. He became unconscious almost immediately. It was dark. Dr. Hayden held the lamp. My assistants were trembling with excitement, apprehending the usual prolonged scream from the patient, while I extracted a firmly rooted bicuspid tooth. I was so much agitated that I came near throwing the instrument out of the window. But now came a terrible reaction. The wrenching of the tooth had failed to rouse him in the slightest degree. Instead of the quick start of relief with which a patient



usually leaves the operating chair the moment the instruments are withdrawn, he remained still and motionless as if already in the embrace of death. The terrible thought flashed through my mind that he might be dead—that in my zeal to test my new theory I might have gone too far and sacrificed a human life. With the rapidity of lightning my mind ran through the whole process of my investigations up to the present hour. I trembled under the sense of my responsibility to my Maker and to my fellow-men. The question, Can I restore him to consciousness? startled me into action. I seized a glass of water and dashed it into the man's face. The result proved most happy. He recovered in a minute, and knew nothing of what had occurred. Seeing us all standing around, he appeared bewildered. I instantly, in as calm a tone as I could command, asked, 'Are you ready to have your tooth extracted?' 'Yes,' he answered, in a hesitating voice. 'It is all over,' I said, pointing to a decayed tooth on the floor. 'No!' he shouted, leaping from the chair.

"The name of the man who thus for the first time underwent an operation under anæsthesia induced by ether was Eben Frost."

The next step was to make the discovery known to the world. This was done in the Massachusetts General Hospital, where, on October 16, 1846, Morton, in the presence of a large number of medical men, administered ether to a man named Gilbert Abbott, who was to be operated on for a vascular tumor under the jaw on the left side. Dr. John J. Warren, the senior surgeon of the hospital, who had given Morton permission to try the effect of ether in the case, was the operator. The experiment was completely successful. Morton's widow (who is still alive) thus described the anxiety which she felt on that memorable day:

"In those few hours (she said to Mr. Snell) I learned to realize what is meant by the agony of suspense. I have heard it often predicted that he would kill somebody by his experiments. My mind recoiled from such a thought with horror, and yet was forced to dwell upon it. I knew not what minute a messenger might arrive with the information that my husband had been arrested for manslaughter. When he returned, there was that in his face which told me, before he opened his lips, that he had triumphed."

In spite of this triumphant demonstration of the pain-annulling power of the new agent, surgeons were naturally unwilling to sanction its general use in operations until they knew what it was. On November 6 Morton addressed a letter to Dr. Warren, to be communicated to the surgical staff of the hospital, in which he offered to disclose its composition, and also to allow it to be used as freely as was reasonable. On November 7 the first amputation under ether was performed by Dr. Hayward, who removed the leg of a young woman named Alice Mohan; on the same day Dr.

Warren resected a portion of the lower jaw in another patient. In both cases the procedure was absolutely painless. Soon dislocations were reduced, and all kinds of surgical operations were performed under ether with complete success; a knowledge of its anæsthetic properties quickly spread over the civilized world, and a new era in surgery had begun.

Then came the inevitable dispute as to priority. Horace Wells and C. T. Jackson each claimed the discovery for his own. Wells, as has been said, had been working at the subject both in conjunction with Morton and independently, and in December, 1844, he had a tooth extracted under the influence of laughing gas without feeling any pain. Further experiments, however, were unsuccessful. To Jackson may be allowed the credit of having suggested the use of ether to Morton, in conjunction with whom he took out a patent for the discovery. The patent, which is dated November 12, 1846, sets forth that "we, Charles T. Jackson and William T. G. Morton, . . . have invented or discovered a new and useful improvement in surgical operations on animals, whereby we are enabled to accomplish many, if not all, operations such as are usually attended with more or less pain and suffering without any or very little pain to, or muscular action of, persons who undergo the same." But if Jackson suggested the use of ether, to Morton alone belongs the credit of having proved its effect by actual experiment, and of having transmuted a vague hint into a discovery which is one of the great landmarks of human progress.

Like most benefactors of the human race, Morton reaped little reward for his work. He was indeed presented by the Trustees of the Massachusetts General Hospital, in 1848, with a silver box containing a thousand dollars, with an inscription concluding with the words, "He became poor in a cause which has made the world his debtor." He also received a divided Monthyon Prize from the French Academy of Sciences, and orders were conferred upon him by the Governments of Russia and Norway. His appeals to the legislature of his native country for remuneration for the use of his discovery in the army and navy were, however, unsuccessful. In two sessions Bills favorable to his claims were passed, and on one occasion the President of the United States is said to have actually taken up the pen to sign a grant, but, pausing to consult a member of the Cabinet who was with him, laid it down without appending his name to the document. On the whole, the result of Morton's discovery to himself was that his life was embittered by ignoble controversies; he lost money, health, and happiness, and after twenty years of weary struggle he died, a broken and disappointed man, on July 15, 1868.

Morton was not a man of cultivated mind, nor had he the intellectual temper or the training of the scientific discoverer. He had, however, the

boldness and the dogged perseverance of the explorer, and these qualities enabled him to do what men, made cautious by greater knowledge, would have feared to undertake. If he was helped in one way or another by Wells and Jackson, it remains true that Morton was the only man without whom anæsthesia might have remained unknown. His name is, with those of Motley, Emerson, Hawthorne, Lowell, Franklin, and Agassiz, among the fifty-three "most distinguished citizens" whose names are inscribed upon the base of the dome of the new chamber of the House of Representatives in the Massachusetts State House at Boston. Over his grave in Mount Auburn Cemetery, near Boston, a monument was not long ago erected "by citizens of Boston," bearing the following inscription from the pen of the late Dr. Jacob Bigelow, which fitly sums up the work Morton did for mankind:

WILLIAM T. G. MORTON,

Inventor and Revealer of Anæsthetic Inhalation,  
By Whom Pain in Surgery was Averted and Annulled,  
Before Whom, in all time, Surgery was Agony,  
Since Whom Science has Control of Pain.

## II. HORACE WELLS.

Horace Wells was born at Hartford, Connecticut, on January 15, 1815. He became a dentist, and had W. T. G. Morton first as his pupil and afterwards as his partner in that profession. Both of them were interested in the search of some means to render operations on the teeth painless. After a time Wells returned to Hartford, where, on December 11, 1844, he was present at an exhibition of the effects of nitrous oxide gas given by a popular scientific lecturer named Colton. One of the audience on that occasion, while under the influence of the gas, bruised his shin severely by stumbling over a bench without feeling any pain at the time. This incident made such an impression on Wells that he at once proceeded to test the anæsthetic effect of laughing gas on himself. Being troubled with a raging tooth, he inhaled the gas and had it extracted by another dentist named Riggs. The experiment was successful, and Wells, on recovering consciousness, exclaimed, "A new era in tooth-pulling! It did not hurt me as much as the prick of a pin. It is the greatest discovery ever made." After some further successful trials, Wells went to Boston, where, assisted by Morton, he gave, in the presence of a number of medical practitioners and students, an exhibition of "painless tooth-pulling" under the influence of nitrous oxide gas. The demonstration, however, was given to an accompaniment of dismal groans from the patient, and those who witnessed it pronounced the thing to be humbug

and Wells an impostor. The cause of failure was, according to Wells, that the gas-bag was removed too soon. In his own words, "the excitement produced by this adventure brought on a protracted illness, which compelled him to relinquish professional business entirely." He was ill for eighteen months. On his recovery, in 1846, he went to France, where he made his discovery known to the Academy of Sciences. After Morton's first administration of ether he made. As appears from the following letter, dated October 19, 1846, a proposal to Wells to help him in working the patent :

"I have discovered a preparation by inhaling which a person is thrown into a sound sleep; the time in which a person remains asleep can be regulated at pleasure. While in this sleep the severest surgical or dental operations may be performed, the patient not experiencing the slightest pain. I have patented it, and am now sending agents to dispose of the right to use it. I have used this compound without a single failure in over 160 cases in extracting teeth. My object in writing is to know if you would not like to visit New York and the other cities and dispose of rights."

Wells accordingly went to Boston to see the application of the new anæsthetic, but was not favorably impressed. He pronounced it "dangerous" and "risky," and returned to Hartford determined to have nothing to do with the business. In 1847 he published "A History of the Discovery of the Application of Nitrous Oxide Gas, Ether, and Other Vapors to Surgical Operations." Soon afterward's he became insane, and he died in New York on January 24, 1848.

To Wells undoubtedly belongs the credit which he claims for himself of having established the principle of surgical anæsthesia. The idea that nitrous oxide gas would produce insensibility to pain seems to have occurred to him independently, and he was certainly the first to use it for the purpose. The story of his short life is a sadder one even than Morton's, for it was left to others to bring his work to practical fulfilment, and of the rewards of discovery he had but the thorns without the crown.

### III. SIR JAMES YOUNG SIMPSON.

James Young Simpson, one of the most conspicuous figures in the history of medicine, was born at Bathgate, in Scotland, in 1811. He was the son of a baker and the grandson of a quarryman, and in boyhood he himself was apprenticed to his father's trade. From this position he delivered himself by his own efforts, stimulated by an elder brother. He entered the University of Edinburgh, where he won a classical bursary, which made it possible for him to become a student of medicine. He took

his M.D. degree in 1832, and his inaugural thesis made such an impression on Professor Thompson, who then occupied the chair of pathology, that he made him his assistant. Simpson sometimes lectured in the place of the professor, delighting the students by the novelty of his doctrines and the brilliancy of his exposition. Very early in his professional career Simpson applied for the post of Medical Officer of Innerkip, a little village on the Clyde, and he used to say that his failure to obtain the appointment was one of the bitterest disappointments of his life. He made up his mind to stay in Edinburgh, and in 1837 he became lecturer on midwifery in the extra-academic School of Medicine. In 1840 the chair of midwifery in the University of Edinburgh fell vacant, and Simpson was appointed professor after a severe struggle. How considerable a reputation he had already earned for himself is shown by the fact that the testimonials which he presented filled an octavo volume of more than two hundred pages, and included the names of all the leading obstetricians in this country and on the continent. Placed thus at the age of twenty-nine in one of the most important chairs of a great medical school, Simpson soon showed himself equal to the position. His lecture-room was thronged by eager students, and as years went on old pupils in practice would come again when they had an opportunity to sit at the feet of the obstetrical Gamaliel. His fame quickly spread, and patients came to him from every part of the world. The hotels and lodging-houses of Edinburgh were crowded with his patients. Since the time of the great Dutch physician, of whom it is recorded that a letter from China addressed simply "Dr. Boerhaave, Europe," was duly delivered, probably no medical man has been so widely known as Simpson. Honors were showered upon him. He was elected a corresponding member or associate of many foreign-scientific societies. In 1849 he was President of the Royal College of Physicians, of Edinburgh; he was appointed Physician Accoucheur to the Queen in Scotland; he was made a baronet in 1866. In the same year the University of Oxford conferred on him the honorary degree of D.C.L. In 1869 the freedom of the city of Edinburgh was presented to him. He was for many years the most prominent figure in the social life of the modern Athens, and around his hospitable board "lions" of the most diverse breeds roared as 'twere so many sucking doves.

In the midst of his professional work, which would have overwhelmed an ordinary man, he found time for experiments and for writing, not only on medical but on antiquarian and other subjects. Many of his papers were written at night while waiting till his services were required in the lying-in room. The versatility of his mind was not less remarkable than its strength and keenness. His intellectual curiosity was insatiable, his memory prodigious, and his knowledge almost universal. As was well

said of him, he applied his obstetric skill to conversation, and had a happy knack of "delivering" the most casual acquaintance of whatever special information there might be in him.

Simpson's contributions to the literature of the department of medicine which he had chosen for his own are of great value. They include papers on diseases of the placenta, the use of the uterine sound, the treatment of displacements by intrauterine pessaries, etc. His monograph on hermaphroditism is still the *locus classicus* on the subject. In another monograph, entitled "Homœopathy: Its Tenets and Tendencies," he, in Mr. Gladstone's famous phrase, "smashed, shattered, and pulverized" the Hahnemannian heresy. In surgery he suggested acupressure as a means of stopping hæmorrhage, and he made many experiments to determine the best kind of sutures. He was one of the first to call attention to the evils of "hospitalism," and he suggested that a "separate system" should be adopted for patients, instead of aggregating them in crowds in disease-tainted wards. He proposed a scheme for stamping out smallpox by isolation.

When anæsthesia came before the world, Simpson at once gave his mind to the subject. He was the first (in January, 1847) to apply ether to the mitigation of the pain of childbed. Not being altogether satisfied with that agent, however, he set to work to discover some other anæsthetic free from what he considered its drawbacks. He tried a number of different substances on himself, and more than once came near falling a martyr to his zeal for knowledge. He spent many hundreds of pounds and a great amount of valuable time in these experiments. At last, acting on a hint from David Waldie, a Liverpool pharmacist, he tried chloroform, with such success that on November 10, 1847, he read before the Medico-Chirurgical Society, of Edinburgh, a paper, which was immediately afterwards published under the title, "Notice of a New Anæsthetic Agent as a Substitute for Sulphuric Ether." Chloroform soon came into general use in this country in place of ether, and, as Sir B. W. Richardson points out, "the word itself became so common in the vernacular that the people began to recognize it as synonymous with, and more expressive than, anæsthesia." It may have been this fact that led Simpson in the "Encyclopædia Britannica" to deal with the subject of anæsthesia under the heading "Chloroform"; but a less charitable interpretation was placed on his conduct in this matter by many.

There can be no doubt, however, that to Simpson belongs not only the honor of introducing chloroform, but the merit of popularizing anæsthesia both with the profession and with the public. His energetic advocacy bore down all the opposition that ignorance, superstition, prejudice, and scientific jealousy mustered against it. For his work in connection with anæ-

thesia he was elected a Foreign Associate by the French Academy of Medicine in 1853, and in 1856 the Monthyon Prize of 2,000 francs "for the most important benefit to humanity" was awarded him by the French Academy of Science.

Simpson's principal recreation was archæology. He was recognized by experts as one of the leading antiquaries in Scotland. Every moment that he could snatch from other work was given to this pursuit; when called into the country he never lost an opportunity of visiting any Roman camp or other object of interest that might be in the neighborhood. Among his numerous papers on antiquarian subjects may be mentioned those on "Ancient Roman Medicine Stamps," "Was the Roman Army provided with Medical Officers?" "The Introduction of Syphilis into Scotland," "British Archaic Sculptures," and particularly his "Notices of Leprosy and Leper Hospitals in England and Scotland," a rich mine of information which subsequent writers have found a convenient source of supply of cheap learning.

All Simpson's writings are marked by originality of thought, ingenuity of reasoning, and clearness of expression. He was formidable in controversy, and evidently loved the fray. He made enemies, of course, but he was a man of generous nature, and not long before his death he wrote to all whose feelings he thought he might have wounded in controversy asking their forgiveness. He was a man of the greatest kindness of heart, and probably no physician ever saw so many patients without fee. Indeed, in his practice he was always singularly indifferent about money. His vast knowledge and experience of life, combined with his keen sense of humor, made him a delightful companion. His personal magnetism was very great, and he could awe a class of turbulent students or conciliate a dissatisfied patient with a glance.

In his person he was short and thick-set, but a massive, lion-like head, set on broad shoulders, gave such dignity to his appearance that he could stand beside that "mould of form," John Wilson, without being dwarfed into insignificance.

Simpson lived a life of ceaseless intellectual activity and social bustle for thirty years without suffering much in health. He broke down somewhat suddenly at last, and died in May, 1870. His name will live not only as the introducer of chloroform, but as the reformer of obstetric medicine, which he found a despised art and left an honored science.—  
*The Practitioner.*

# Progress of Medicine.

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## SURGERY

IN CHARGE OF

L. M. SWEETNAM. M.D. Tor.,

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AND

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Professor of Anatomy in the University of Toronto; Surgeon to the Hospital for Sick Children, etc.

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### LUMBAR PUNCTURE AS AN AID TO DIAGNOSIS IN CEREBRO-SPINAL MENINGITIS.

In the *Deutsche Medicinische Wochenschrift*, No. 34, 1896, is an article by Dr. W. Holdheim, of the State Hospital in Berlin, on the bacteriological diagnosis of epidemic cerebro-spinal meningitis by means of lumbar puncture. The method is particularly useful in determining the differential diagnosis, not only in the specific disease referred to, but also in tubercular meningitis, and possibly other affections. Dr. Holdheim gives the history of four cases where this method of determining the diagnosis was employed. In all the cases the diagnosis appeared to have been doubtful, and it was correctly established by means of lumbar puncture. The meningococcus intracellularis of Weichselbaum was detected. Fifteen cubic centimetres of the cerebro-spinal fluid was drawn off. From the sediment which forms in the fluid an ordinary cover-glass preparation is made and colored by Loeffler's method. One finds in all preparations leucocytes in rich number containing numbers of diplococci, in many instances as four or five enclosed in the leucocyte. One is struck at first glance with their similarity to Neisser's gonococcus. A pure culture of this meningococcus was also obtained in all four cases; three glycerine-agar tubes were prepared by taking up the fluid after puncture on a sterilized platinum wire and depositing it on the culture medium. Already, after twenty-four hours, there appeared on the surface a fine film. In certain places a knob-like formation occurred, producing a whitish-gray efflores-



cence ; under the microscope this exhibited the characteristic diplococci. A striking peculiarity of these cocci is the relatively strong light-refracting capsule which they possess ; they appear to lie within a brilliant capsule. Frequently the cocci are seen in four, six, or eight pairs lying together, and in old cultures they may even be seen forming long chains. Very strikingly and clearly one may see the median dividing line in the tetra-formed groups of cocci pairs, as described by Jager. A decoloration by Gram's method may generally be brought about, as in the case of the gonococci, but sometimes this fails, the micro-parasites preserving their color.

In these four cases was obtained, during life, a diagnosis of epidemic cerebro-spinal meningitis by lumbar puncture. In three of the cases the diagnosis was verified by a post-mortem examination ; the fourth case recovered. In two of the cases a preparation was made from the purulent material obtained from the surface of the brain after death, and the intracellular diplococci were found in great numbers. Experiments on animals were carried out, but with a negative result. It is likely that by means of lumbar puncture one can thus establish the differential diagnosis between tubercular meningitis and epidemic cerebro-spinal meningitis.

# GENITO-URINARY AND \*RECTAL SURGERY

IN CHARGE OF

EDMUND E. KING, M.D. Tor., L.R.C.P. Lond.,

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## THE REACTION OF BLENORRHAGIC PUS AND OF THE URETHRAL MUCOUS MEMBRANE AND THE EFFECT OF SUCH REACTION ON THE LIFE OF THE GONOCOCCUS.

Dr. P. Colombini, of the University of Siena: The first mention that we find of the reaction of blenorrhagic pus is in 1885. In that year Prof. Martineau said in his appendix to "Leçons clinique sur la Blenorrhagie chez la femme": "The acid reaction of the blenorrhagic liquid is so constant that it is found in both acute and chronic forms, and in every stage of the disease. . . ."

In 1885 Silva, in his work, "Sulla Blenorrhagia," said: "Since I have turned my attention to this subject, I have always found the reaction of the pus containing gonococci alkaline. . . . This fact, too, explains why vaginal blenorrhagia is easily cured, the normal vaginal liquid being of acid reaction; and also why the blenorrhagic complications of cystitis and pyelonephritis are rare, since the acid urine would oppose an almost insurmountable barrier to the propagation of the gonococcus, which lives and develops in an alkaline medium."

Again, Castellan, in 1886 (*Bulletin générale de thérapeutique*), declared that he had determined the acidity of the blenorrhagic pus, taking that which was extracted by moderate pressure on the urethral meatus before the patient had urinated in the morning. He related twelve cases in which he found the pus always acid.

Dr. Colombini then refers to several other experimenters, who differ in their results and opinions. He himself has examined the blenorrhagic pus in 235 cases, and in twelve found the reaction neutral, while in the 223 other cases the reaction of the secretion was constantly alkaline. Moreover, the mucuous membrane of the urethra is normally alkaline in reaction, and becomes so again almost immediately after it has been bathed by acid urine during micturition.

In summing up, Dr. Colombini says : " We have seen that the reaction of the blenorrhagic pus in which the gonococcus lives is alkaline ; we have also seen that the reaction of the urethral mucous lining in which the gonococcus lives, develops, multiplies, is constantly alkaline. We have also seen in our researches that the normal acid urine is not a medium favorable to the life of the gonococcus. Such fundamental facts would manifestly lead us to admit that the alkaline reaction of the medium is the condition particularly favorable to the life of the gonococcus itself. But my further experiments have shown me that the normal acidity of the urine, mingled with agar, does not at all prevent the development of the gonococcus, and that in albuminous urine, whether strongly acid or slightly alkaline, the gonococcus finds a very good medium for its life.

On the other hand, Finger, Schlagenhauer, Vaughan, and Brooks have experimentally found that the gonococcus develops well in acid media, and little or not at all in alkaline media.

Given the accuracy of these researches and findings, we must deduct that the reaction of the blenorrhagic secretion and of the urethral mucous lining has no importance whatever in relation to the progress or cure of blenorrhagia, the gonococci living and multiplying equally in the urethra, with reaction always alkaline, and in artificial nutritive media, strongly acid in reaction.—*Geornale Internazionale delle Scienze Mediche*, July 15, 1896.

W. H. S.

# HYGIENE AND PUBLIC HEALTH

IN CHARGE OF

WILLIAM OLDRIGHT, M.A., M.D. Tor.,

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AND

E. HERBERT ADAMS, M.D., D.D.S.

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## CONCENTRATED MILK.

A writer in the *British Medical Journal* has called attention to the value of concentrated milk in certain forms of diarrhoea and in wasting disease, and especially in cases in which the patient is unable to take other nourishment, and cannot take a sufficient amount of milk in its ordinary diluted form to meet the demands of the body. Concentrated milk is prepared by evaporating the milk in a porcelain dish over some suitable heating apparatus, care being taken to see that the liquid does not boil and to stir it continually. By this means cream is prevented from rising, and the evaporation is not delayed by the formation of a scum over the surface. With proper apparatus and attention milk may be reduced to one-half its volume in one hour.—*New York Medical Times.*

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## SCHOOL HYGIENE.

The committee on *School Hygiene*, of Illinois, reported sundry bad conditions of the schoolhouses throughout the State, and urged the necessity of teachers paying more attention to the advice of the medical profession with regard to the personal hygiene of the pupils, urging that :

“It should be a live principle with all teachers that the acquisition of dead knowledge should never be gained at the cost of vital forces. That the progress of a few talented pupils should not be accelerated to the disadvantage of the less favored great majority, and that accurate observation and a logical method of thinking are the main factors of the human mind, by means of which the children will be able to reconstruct whatever they have once thoroughly understood.”

## DRINKING WATER.

The necessity for health of a pure supply of drinking water was long ago recognized. For example, the Romans preferred the cost of nine aqueducts connecting the city with the surrounding hills, and furnishing three hundred gallons per head daily, to drinking from the Tiber which flowed through their midst ; and there is reason to believe that at a much earlier date the Chinese and Egyptians took the trouble to bore artesian wells of great depth in search of an efficient supply.

The purity of water depends, of course, not only upon its source, but upon its freedom from subsequent contamination as well. One of the first and most important duties of the public officers of cities, towns, or villages is the careful oversight of the water supply, and in these days immense sums are constantly being spent in connection with this matter. For example, the city of London is now considering the question of abandoning the Thames as a source of supply, and of bringing water for its enormous population from hills many miles away. In like manner, all over the world care is being taken to procure a source as pure as possible, and by means of a sometimes complicated series of filters to still further reduce the risks of impurity before it reaches the pipes for distribution. But after it has entered these it is by no means certain that it will reach the consumer uncontaminated. In some places it is doled out on what is termed the *intermittent* system ; that is, each house is furnished with one or more cisterns, which are filled during the short fraction of the day in which the water is allowed to run. While this is economical in several respects from the point of view of the water company, it is accompanied by so many dangers to health that as a system it is on the decline. Thus, the water must be stored on the premises, where it is apt to absorb deleterious gases, as in water-closets, etc.; is apt to be stored in improper receptacles, and to be polluted by insects, mice, etc., besides which it becomes comparatively flat and insipid. Cisterns are safe only when frequently cleansed, when made of stone, slate, or galvanized iron, when exposed to the light and air, and covered, and when enarely disconnected directly with water-closets or drains.

While the *constant* system requires continual care of pipes and taps to prevent great waste, and may therefore be expensive, it has the great advantage that no house storage is required except in the water-closet cisterns and a small cistern for the kitchen boiler. Dangers in connection with the constant system exist where water-closets are flushed by a pipe and tap direct from the house main without the intervention of a cistern, for, when the tap is left unscrewed and the water is turned off at the main, foul liquids or air may be sucked up into the pipes and gain entrance to

the water-mains. The suction is the result of leakage from the pipes (a common occurrence), which causes a partial vacuum within them. Several epidemics of typhoid fever have occurred in this manner. There is danger in the same way, when water mains and sewers are laid in one trench, that leakage from the sewers may reach the interior of the water pipes when the company's officials turn off the water for some purpose, frequently a daily occurrence.

But the dangers from these services are minute compared to those connected with the use of such shallow wells as are common in many districts, many of which are apparently unprotected at the mouth, and have walls of a porous nature. Seeing that the presence of excrementitious matter may by no means affect the palatability of water, and that a well drains an area surrounding it equal to from fifteen to one hundred and sixty times the depth of the well (depending upon the nature of the soil), it would be safe to assert that a great many persons are consuming daily such suspended or dissolved matters as would greatly disgust them did they know it. Certain it is that all shallow well water, however clear and sparkling, in the neighborhood of human habitations, is suspicious, as are many in more sparsely peopled districts, and that especially in the presence of epidemic diarrhoea and enteric fever, before being drunk, it should always be subjected to some process of artificial sterilization. In fact, there can be no doubt that the annual mortality figures would be considerably lessened were all waters used only in the cooked condition.—*Atlanta Medical and Surgical Journal*.

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#### THE PREVENTION OF CHOLERA.

The beneficial effects of careful sanitary inspection and precautions against cholera are well brought out in the recent report of the medical officer of the British Local Government Board. The history of the cholera epidemics of 1848 and 1853, which reached England by the northern route, through Russia, North Germany, and the North Sea ports, was in each case that of a severe outbreak in the year following its arrival. Thus in 1848 1,105 persons died of cholera, and the next year 53,293; in 1853 there were 4,419 cholera deaths, and in 1854 no fewer than 20,097. In 1892 cholera arrived in Germany by the same route, but the British Government sent out a number of special medical officers who carefully investigated the sanitary condition of the country, paying special attention to the seaports, and with sufficient powers for the suppression of nuisances. Owing to the precautions taken no case occurred in England in 1892, but there were 135 deaths in 1893, a small number when we consider the greatly increased source of infection in these times of close

international communication. It was feared that 1894 would see a considerable outbreak, but on the contrary, owing to the extraordinary care taken, not one death took place in that year. From the financial point of view Dr. Thorne-Thorne has been able to prove that the value of the life saved more than outweighs the expense incurred.

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#### OUR DECREASING BIRTH-RATE.

Figures lately compiled and published by Dr. J. S. Billings, the best American authority on vital statistics, show that the birth-rate in America is on the decline, and this fact has not failed to attract the attention of the press—lay, medical, and scientific.

In 1880 the birth-rate per 1,000 in the United States was 30.95. In 1890 it was 26.68; a decrease of 4.27 per 1,000 of population in ten years. The decrease in the different States appears to have been nearly uniform. In Maine it was 3 per 1,000; in New York, 1.65; in Pennsylvania, 3.30; in Indiana, 4.70; in Kansas, 5.67; in California, 3.72; in Louisiana, 5.50; in Texas, 9.47; in Kentucky, 4.90; in Georgia, 6.50; in Virginia, 7.76; and in other States in about the same proportion. The decrease was greatest in Massachusetts—11.67.

One cause of the decrease is said to be the drifting of the population toward the cities. Another, and probably more important, factor is the desire of the *fin-de-siècle* woman to enjoy to the full the artificial and acquired "functions" of society, instead of the natural and instinctive functions of womanhood. Child-bearing, with all the self-sacrifices which this truly physiological condition imposes, is indeed not compatible with cotillions, euchre parties, and receptions. Therefore it is said that "woman's vanity threatens the race."

The declining birth-rate in France is well known, and it has excited some uneasiness among that patriotic people. Recourse has been had to legislation; societies have been formed to consider and devise ways and means of holding up the birth-rate; premiums have been offered on large families, etc.; but the babies are not forthcoming.

It is said that a diminishing birth-rate has presaged the decline and fall of nations, notably Greece and Rome. Is a similar destiny in reserve for France and America?

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#### RESULTS OF THE BACTERIOLOGICAL EXAMINATION OF ONE THOUSAND CASES OF SUSPECTED DIPHTHERIA.

Drs. Hewlett and Nolan publish a review of results of the bacteriological examination of specimens from one thousand consecutive cases of suspected diphtheria, forwarded by medical officers of health and practitioners

from all parts of the kingdom to the institute for diagnosis. In five hundred and eighty-seven cases the diphtheria bacillus was found, in four hundred and nine cases it was not found, and in four instances there was doubt as to its presence. Two specimens were from cases of conjunctivitis : in one the diphtheria bacillus was found ; in the other, which was associated with faucial diphtheria, only the streptococcus pyogenes. In one instance specimens were taken from the fauces and from the vagina of the same case, and bacilli were found in each. In another, a pure culture of the diphtheria bacillus was obtained from a severe case in which the infection of the throat probably originated from a diphtheritic wound of the finger incurred during laboratory work. Examinations were also made to determine the time of disappearance of the bacilli from the throat. This was found by them, as it had been by former observers, to be exceedingly variable. The bacilli were commonly found for two or three weeks ; in one instance they remained for seven weeks, in another for nine weeks, and in another for twenty-three weeks. In the latter case they remained virulent for guinea-pigs. In conclusion, the authors insist upon the desirability of a bacteriological examination in all cases in which the throat symptoms are at all doubtful, as many of their cases which were not regarded clinically as diphtheria proved to be such. They also emphasize the necessity of repeated examinations after convalescence, with isolation, until the absence of the infective agent has been shown.—

*British Medical Journal.*



## Editorials.

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### THE JUBILEE OF ANÆSTHESIA.

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FIFTY years ago, on October 16, ether was first administered during a surgical operation, by Dr. Morton, a dentist, in the Massachusetts General Hospital, Boston. The fiftieth anniversary of this important event has been duly celebrated in various parts of the world, but especially in Great Britain and North America. *The Practitioner* devotes its October issue to the subject of anæsthesia, and gives many interesting facts connected with its discovery and discoverers. Dr. Morton, the young dentist, after experimenting with ether for some time, was anxious for an opportunity of using it for surgical purposes. After a time Dr. J. Collins Warren, the senior surgeon of the hospital, decided to give him the chance. On the morning of October 16, a large number of doctors met in the theatre to witness the experiment. Morton was late, and the doctors thought he was afraid to put in an appearance. After a time Dr. Warren said: "As Dr. Morton has not yet arrived, I presume he is otherwise engaged." This remark caused derisive laughter. When Dr. Warren was about to begin his operation, Dr. Morton entered the theatre. Dr. Warren said to him, coldly: "Well, sir, your patient is ready." Morton then administered the ether, and when the patient became unconscious said quietly to Warren: "Your patient is ready, sir." *The Practitioner* goes on to say: "The surgeon's knife did not awake the patient from the deep sleep into which he was cast, and the spectators looked on with wonder deepening into stupefaction. When the operation was over Dr. Warren said, in a solemn tone: "Gentlemen, this is no humbug."

On December 19, 1846, ether was administered in the house of Dr. Boot, 24 Gower street, London, England, by Mr. Robinson, a dentist, who extracted a tooth while the patient was unconscious. On December 22, Robert Liston amputated a limb under ether, in University College Hospital, and *The Practitioner* says so intense was the emotion of the great surgeon on the occasion that when he turned to address the specta-

tors after the operation he could hardly speak. It also says that the glory of the discovery of anæsthesia is shared by three men. The world is indebted to Horace Wells for nitrous oxide gas, to Morton for ether, to Simpson for chloroform. Very interesting sketches of the lives of these three men also appear in this October number, which we publish in this issue of THE CANADIAN PRACTITIONER.

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BRITISH MEDICAL ASSOCIATION—MONTREAL, AUGUST  
31ST, 1897.

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ACTIVE steps are now being taken in Montreal, in connection with the forthcoming meeting. All the necessary local committees have been appointed, and are busily at work. The honorary local secretaries are : Dr. J. G. Adami, correspondence with England ; D. J. Anderson Springle, Canadian and American correspondence ; Dr. E. P. Benoit, French and French-Canadian correspondence.

Offices have been taken at 2204 St. Catherine street, Montreal, to where all correspondence should be addressed. It may here be pointed out that none but members of the association, or specially invited guests, are allowed to be present at the meetings and to take part in the discussions.

All properly qualified British subjects can become candidates for membership. Applications for membership of any branch must be accompanied by certificates of recommendation from three who are already members of the association, two of whom must certify from personal knowledge of the applicant. The secretaries of the various branches will provide the necessary forms of application. It is recommended that those wishing to be present at the meeting next year should send in their applications to the Montreal, Halifax, Winnipeg, or British Columbia branches almost immediately, so that they may be elected at the December meeting and receive the journal (*British American Journal*) of the association from the beginning of the year. The subscription for membership, including the regular delivery of the journal, is \$5.50 per annum.

There is a unanimous desire on the part of the members of the Montreal branch of the association that the coming meeting shall be regarded, not as a local event, but as a welcome to the association from the whole Dominion. To this end, not only the presidents of the various branches of the association, but also the presidents of the Dominion and Provincial Medical Associations have been placed upon the Executive Committee.

Further signs of this desire to make this in no sense a local affair will be forthcoming shortly.

With reference to the presence of American practitioners at the meeting of the Montreal branch, the branch finds itself in a position of some little delicacy. Members would very willingly invite practitioners across the border to become members of the association, but, unfortunately, there is a recent by-law to the effect that none but British subjects can gain membership. The hope to have the by-law amended is destroyed by the occurrence next year of the International Medical Congress at Moscow. To amend the by-law would throw the association open to the charge of attempting to promote a rival international meeting. It is to be understood that in the present condition of politics it would be a grave mistake for the association to throw itself open to this charge. It has, however, been the custom in previous years to invite a series of guests to the meetings, and, acting on this precedent, the leading American authorities in the various branches of medicine will undoubtedly be asked to attend at Montreal.

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#### “THE DOCTOR HIMSELF.”

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**I**S there any difference, physiologically or pathologically, between pure air and impure air? Is air, mixed largely with exhalations from the lungs and skin, good healthy air to breathe? When we tell people it is not, are we talking up some theoretical fad or stating a fact of practical importance? We are impelled to ask these questions because we have gone into rooms pretty well crowded with learned doctors earnestly discussing the causes, and sometimes the treatment, of disease with doors and windows closed, and no means of exchanging the air laden with what are supposed to be the impurities given off from their learned bodies for fresh atmospheric supplies. It is true that we generally treat our patients better than ourselves, and yet we have seen surgeons standing over some critical surgical case in an operating room or theatre with no superfluous air space, and all doors and windows shut. We have also seen them taking recreation in a closed room, blue with tobacco smoke, and no means of changing the air. We know, and those for whom we are writing know, that such practices are injurious, but they are so common that we feel impelled to draw the attention of our professional brethren to the folly of them. We are certain that we would feel much fresher, better, less fatigued, and would enjoy life better, and do better work, were we careful to have a purer supply of air in the rooms in which we happen to be.

Another subject of surprise, and a very unsavory one, is the beastly outdoor conveniences (?) which, in some places, the doctor allows his family to use. He listens in his student days to descriptions of dry earth and dry ash methods for use where the water carriage system cannot be used. But in practice his *vis inertiae* dooms his family to the use of one of those relics of barbarism of which the doctor ought to be ashamed.

We hope that after a while the doctor will take better care of himself and his.

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#### THE KINGSTON MEDICAL QUARTERLY.

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WE have received a copy of *The Kingston Medical Quarterly*, a new medical journal, which, in a modest way, asks for a kindly reception from other medical publications. THE CANADIAN PRACTITIONER desires to give it a cordial greeting, and wishes it success. It looks for the support of the profession of Eastern Ontario, and, we think, ought to get it. One of the leading editorials refers to the curriculum of the Ontario Medical Council. The views expressed are similar to those already enunciated by Principal Grant, of Queen's University. It will be remembered that a proposal was made to the council at its last session to change the rule requiring a fifth year of study, and in lieu thereof to lengthen the sessions from six to eight months each.

*The Quarterly*, which will probably, in a general way, represent the Medical Faculty of Queen's, is opposed to any change at present, and contends that the council would show a lack of stability by abandoning the fifth year before the new regulations have had a fair trial. The article goes on to state that it would embarrass many of the students who are in poor circumstances, financially. These young men, it is said, make some money during the vacations by taking certain situations which are open during the summer months. It is thought that if the sessions were increased to eight months such students would not be able to get employment for the remaining four months.

Another argument advanced against the proposed change is that it might have a bad effect on that portion of the public who hold the opinion that the medical profession is now, or is endeavoring to become, a close corporation whose chief aim [it is, or will be, to throw as many obstacles as possible in the way of those who wish to engage in the study of medicine. It is said that the proposed legislation might tend to keep out of the profession poor men and to preserve this field of labor for the rich.

As we have before indicated, we agree with those who prefer the four years' course with sessions of eight months, with the conviction that such

a course would make better practitioners ; and we simply refer to the article in *The Kingston Monthly* to show that the friends of Queen's University, as a rule, still object to any change in the council's curriculum until the new regulations have been fairly tested.

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### IMMORALITY IN CANADA.

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IN the *Medical Record* (Nov. 7, 1896), we find the following editorial :  
 " We have been distressed and shocked beyond measure to learn that large and increasing numbers of women in Canada are giving themselves up to the vilest form of immoral practices. The report that comes to us, indeed, is such that, were it credible, we should be led to despair of the future of the country, for, compared to Canada, or at least to Toronto, Sodom and Gomorrah were as pure as Salvation Army shelters. It appears that cycling, which with us is adding so much to the health and the beauty and the charm of our women, is in Canada, or at least in Toronto, merely a means of gratifying unholy and bestial desire. We hesitate to believe such a report, but we have it on the authority of the editor of the *Dominion Medical Monthly*, and he is on the spot and speaks as one with absolute knowledge of the facts.

" After referring to the advantages claimed for the bicycle, which he refutes by the statement that the average woman gets about all the exercise she wants in looking after her home, our esteemed contemporary says that ' the consensus of opinion is increasing overwhelmingly day by day that bicycle riding produces in the female a distinct orgasm . . . and even if an orgasm is not produced the continued erethism is decidedly more injurious and tends to the production of nervous diseases and the general breaking down of the system. The only contention that can be made is that the orgasm or erethism is not produced. This we know to be absolutely untrue.' The writer adds more of the same kind, and pictures the mothers, wives, and daughters of his neighbors as scorching through the country, stooping low over the handle bars, and ' subjected to continued erethism as well as an occasional orgasm.'

" There is but one of two conclusions to be drawn from this statement. Either the wheelwomen of Toronto are the vilest of their sex, or they are the victims of a contemptible slander. Unless our contemporary has a mass of facts sufficient to establish beyond doubt the sweeping generalization contained in the article from which we have quoted, he has smirched the fair name of his countrywomen in a reckless fashion that calls for the strongest condemnation. The question of the healthfulness of cycling, for men as well as for women, is one that still admits of discussion ; but

the man who can assert or even suggest that the thousands, perhaps millions, of women throughout the world who ride the wheel are giving themselves over to self-abuse puts himself beyond the reach of argument."

The filthy rubbish to which the *Record* refers is in itself essentially nasty, while the direct charges against the women and girls of Toronto are simply infamous. To the *Record* we desire to say that its conclusion that our women are "victims of a contemptible slander" is correct. The impure and immoral women of Toronto do not, as a rule, indulge in cycling. They might misuse the wheel in gratifying their baser passions, but other methods suit them better. The great majority of the profession in Toronto believe that cycling, under ordinary judicious limitations, is in all respects a healthful exercise for women, and quite as free from evil as any form of recreation can possibly be. In many instances our physicians have reached this conclusion after careful study of the subject, and after overcoming rather strong prejudices they had against the wheel in former years. We are surprised and ashamed to find that Toronto contains a physician who is capable of writing such an article as that which appeared in the *Dominion Medical Monthly*.

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### THE MEDICAL DEPARTMENT IN THE MILITIA.

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The following very unpleasant paragraph—which, however, is only too true—appeared recently in the *British Medical Journal*: "The reorganization of the Canadian Militia Medical Service demands the early and earnest attention of the Dominion Government. It is quite clear that, should the splendid fighting material available for Canadian defence have to be suddenly mobilized, the medical service would be utterly unfit to play its part, and a lamentable and culpable loss of life would result therefrom. The regimental medical officers, in their present untrained and unequipped condition, would not be able to afford even first aid to the wounded, while the total absence of organized bearer companies and field hospitals would leave multitudes of brave men to perish miserably. What can the Dominion's 'military advisers' be thinking about?"

The Government has never given aid to the Medical Department in any shape whatever. The hospital corps of the different city regiments have never received a cent of money, nor a word of encouragement at any annual inspection up to 1896. This year the hospital corps of the city regiments are inspected by the D. O. C., and in all probability the result will be reported to Headquarters. When we think of the large expenditure necessary to properly conduct a city regiment beyond the annual drill pay, and in this amount given by the Government no allowance what-

ever is made for clothing, equipment, or drill pay for an ambulance corps. It is a surprise that the city regiments have each so well-equipped a corps, the expense of which falls wholly upon the regimental funds. This is manifestly unfair. The Government has not established a medical corps, and until such is done an ambulance corps in connection with each regiment is an absolute necessity. The company officers are deprived of money and clothing to outfit the corps, and the companies are to that extent robbed. If the Government would recognize the ambulance corps, and make allowance for clothing and equipment, the surgeons would take a great deal more interest in having a thoroughly efficient corps. As it is, the ambulance is treated and looked upon as the fifth wheel to a wagon. If the Militia Department does not wish to recognize the ambulance corps of the regiments, then let it establish a medical corps, and have it officered and equipped, so that it could be utilized in case of necessity. We will have more to say on this subject in a subsequent issue, and in the meantime would be pleased to have the medical officers of the different battalions express their views to us.

# Meetings of Medical Societies.

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## TORONTO MEDICAL SOCIETY.

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THE Toronto Medical Society held its regular meeting October 22, 1896, the president, Dr. W. J. Wilson, in the chair.

The members present were : Wilson, Brown, McMahan, Eadie, McPhedran, Graham, Machell, Carveth, C. J. Hastings, S. M. Hay, J. McCallum, W. B. Thistle, R. J. Wilson, A. Watson, Peters, Webster, Weir, Anderson, Russell, Greig.

Dr. McMahan and Dr. Eadie reported twenty-eight cases of diphtheria treated by antitoxin serum. (See page 794.)

Dr. McPhedran expressed his gratification at hearing such a favorable report. He had used antitoxin invariably during the past two years with satisfactory results. In only one case was the result unsatisfactory. In this case the sequelæ were very distressing. A lady contracted the disease from her child, which, though very ill, recovered. In her case, after the antitoxin was given, infection in the various joints followed, especially in the elbows, knees, and ankles. The convalescence was tedious. In other cases—one laryngeal, others severe faucial—recovery was extremely rapid, the membrane disappearing very quickly. In one case the child was in a semi-comatose condition. Within twenty-four hours after the injection brightness of intellect was manifest, the swelling in the glands had decreased, the temperature lowered, and the general condition much improved. The speaker then referred to adverse reports of the treatment. A bacteriological examination should be made in all cases. He had seen a young man who seemed to be suffering from a typical attack. His immediate removal from the house was advised. This could not be done at once. Culture made showed infection by the streptococcus only. In another case, with symptoms worse than the previous case, where the glands were swollen, the temperature high, and the pulse rapid, bacteriological examination again showed the streptococcus.

Dr. Crawford Scadding suggested that anti-streptococcic serum might be used in these cases.



Dr. Carveth said under the old plan of treatment reinfection scarcely ever followed. Was the antitoxin treatment followed by like good results?

Dr. H. B. Anderson asked what proportion of the cases reported were those of mixed infection. Reports showed that these were the most fatal cases; first, those infected by the streptococcus and the Klebs-Loeffler; second, those where the staphylococcus and diphtheritic bacillus were present. In such cases would the antitoxin counteract the mixed toxins? It was considered that only in the milder cases was the serum indicated. But now, larger doses were recommended for the relief of cases where there was mixed infection. He asked for an explanation of the action of the large doses in such cases.

This, Dr. McKenzie said, was difficult to explain, but clinical as well as laboratory experience proved that antitoxins were useful in counteracting mixed infections.

Dr. Machell called attention to the use of the serum in laryngeal cases, and contrasted the results obtained now with those where intubation was used.

Dr. C. J. Hastings objected to the use of the antitoxin as a prophylactic measure. Reports had shown that in a number of cases this procedure was fraught with danger to life. He thought the medical men should not run the chance of killing the patient until nature had a chance.

Dr. Greig asked as to the merits of the different brands of antitoxins.

Dr. Eadie, in referring to cases of sudden death reported, said that the weight of experimental evidence went to show that they were due to injection of air into the vein.

Mr. J. J. McKenzie said he could only speak on the subject from the bacteriological standpoint, not the clinical. There was no question as to the good results of the use of antitoxin in animals infected with diphtheria. He thought one of the chief factors in failure was due to under-dosage. He pointed out that another disadvantage in the clinical experimentation was the unknown amount of poison in the system, so that the same scientific exactness in regard to dosage could not be carried out. However, to be safe, large doses should be given. He thought it was not well to give below 1,000 units in any case. Speaking of the dangers of its use, he thought they had been largely over-estimated. Where they did occur, they were due, no doubt, to some fault in the vehicle—the serum. In cases of sudden death the cause might be due to the injection of air into the vein or to idiosyncrasy. He pointed out that what was to be desired now, and something that was likely to be accomplished shortly, was the separation of the antitoxin from the serum. This Brieger reported that he had been able to do by precipitation from the serum of zinc salts, a

double salt of antitoxin and zinc being obtained. Then, after filtrating, the zinc was separated by passing in carbonic acid gas. The question of mixed infections was important. To meet this condition, larger doses should be administered. Mr. McKenzie then described some of his experimental work.

Dr. Price-Brown referred to the report of a Detroit hospital where 100 cases were treated with four per cent. mortality. The dosage given was ten c.c. Ernst had reported unfavorably. There might be something wrong with his method of treatment.

Mr. McKenzie rose again to refer to some statistics which confuted the argument that the statistics given were one-sided, owing to the fact that the serum had only been used in mild cases. In Berlin the average of death for eight years prior to 1893 was 1,443; in 1893, 1,106; in 1894, 1,416; in 1895, 987. In German cities of over 15,000, during the eight years preceding 1894, the total death rate was 10,146; in 1895, 7,611. In Paris, from 1880 to 1893, there were 1,532 deaths yearly; in 1893, 1,262; during 1894, 993; during 1895, 411.

Mr. McKenzie said he was unable, as yet, to state the comparative values of the various samples on the market. He proposed experimenting to enquire if the serums were up to the label strength.

Dr. G. A. Peters gave his unqualified approval of the antitoxin both as a curative and also as a preventive. He considered that a physician was not doing his duty if he did not give immunizing doses to exposed persons. Incidentally, Dr. Peters remarked that he thought the province was behind the times in not having an establishment for the manufacture of antitoxin and the carrying out of experimental investigations.

Dr. McMahon showed the large hypodermic syringe with which he made the injections. He emphasized the necessity of thorough sterilization of the hands, the instrument, and site of injection. He referred to one report where ninety cases were treated without a death. In one of his cases the membrane had reappeared.

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A meeting of the Toronto Medical Society was held on the 12th instant. A paper on

#### THE TREATMENT OF SYPHILIS

was read by Dr. A. R. Robinson, of New York. He held that energetic, continuous treatment was necessary throughout the whole of the contagious stage, followed by interrupted treatment through life. The great point in treatment was to render the disease benign, so as to leave the system in as normal condition as possible, and yet to have produced immunity. The great danger in the disease was from the injurious effect

of the toxins upon the tissues, which rendered them vulnerable to certain irritations which produced the so-called tertiary lesions. The less intoxication the less injury to the tissues. The disease had been improperly divided into three stages, but there was no clear dividing line: the process was a continuous one. The phenomena of the early stages were outlined by the presentation of the clinical features of the disease. Absence of external lesions was no proof of the absence of lesions of the internal organs. Treatment should be directed toward the removal of danger of contagion, the prevention of deformity, and the saving of tissue.

The histological features of the chancre were then described. A tissue once the seat of a lesion was irreparably damaged. Diminution of the amount of virus produced and its elimination were to be aimed at. Two drugs were useful for this purpose—mercury and the iodide of potash. The mercury was directly antagonistic to the life of the organism, the iodide of potash assisted in the elimination. The latter was not germicidal in its action. The mercury should be given in such doses as to affect the gums. Buccal hygiene should be strongly insisted upon. Inunctions were the best form of treatment, except in the fat, and in those with tender skins. The patient should be warned not to use any part of the system unduly, so as to produce irritation or congestion of the part, lest such part of the body might become the seat of a tertiary lesion. For instance, a student should not read too much.

Excision of the initial sore would not abort the disease, because ere this had formed the inguinal glands were affected. Its removal would lessen the amount of local intoxication. Some cases would die in spite of treatment where the soil was favorable. Other cases, where the soil was good, sometimes got better without treatment. A great point in treatment was to keep the patient's system in good condition. Treatment should be commenced at the inception of the disease. The only sign needed was enlargement of the inguinal glands. If secondary lesions were prevented from appearing, after this active treatment might stop. The various treatments of syphilis passed under review, and were criticized by the essayist. Treatment to prevent gummatous formation should be by the combination of mercury and the iodide. Baths, such as those at Hot Springs, were commended, as they increased cell metabolism. They very materially assisted the other treatment; sometimes the baths alone were curative.

Dr. Wm. Oidright: Where there are sufficient data to enable us to determine at what period does cessation of the action of the organism occur, what period may we look for arrest of the disease without treatment? If we meet with a patient in the later years and find the patient has had syphilitic lesions, and not sure he has undergone a thorough course of treatment,

what is the latest period we would be justified in treating, what is the latest period we would look for manifestations?

Second, how long are the toxins in being eliminated after the micro-organisms have ceased to exist?

Third, has the reader of the paper met with those conditions of lardaceous disease simply from the syphilitic micro-organism without the long existence of purulent organisms?

Dr. Edmund E. King: I have listened with a great deal of interest to what Dr. Robinson has said. I feel that the intoxication idea of syphilis has a very able exponent. After these remarks, stating that intoxication is the most active agent in the disease, I do not reconcile the fact that he is in opposition to the excision of the sore. While it might be impossible to abort syphilis by excision of the initial lesion when advanced, yet there must be a period when excision of that lesion could abort the disease.

The sore develops in a stated period, and from that period another stated period exists before the inguinal glands or nearest glands are affected; so if it be possible to see the chancre and excise it, it appears to me we should at that period abort the disease. I do not suppose we meet with these cases but exceedingly rarely; yet, theoretically, abortion should be possible. If we do not meet with the sore before the glands are affected, we see it as soon as they are affected or shortly after; if we excise that lesion, we are preventing a large amount of toxic matter from entering the system. If it is a fact that the size of the sore has a bearing upon the future disease in the patient, it seems to me that the sooner that area is eliminated the sooner there will be a lessening of the amount of toxins absorbed. As long as there is an active lesion, toxins are being formed, and carried into the system. If the chancre be excised widely and freely, you are placing the patient in a much better position in regard to treatment; of course there are certain positions in which it is impossible to excise the sore. In such cases it is possible to destroy the sore by the actual cautery. I have looked into the matter with some degree of interest, and have records from cases in which I know that the excision has been followed by good results. I question the statement, if man is once affected and cured he is immune from a second attack. If it is possible to be cured of syphilis, it is possible to catch it again. If it is a self-limiting disease, there comes a period when it can be reinoculated.

Dr. F. Oakley: In case of a late lesion, such as general paralysis occurring, perhaps, twenty years after syphilis has been acquired, does Dr. Robinson mean to say that if we see such a case in the beginning treatment is useless? That is not the position of authorities. For instance, in locomotor ataxia it is thought anti-syphilitics are beneficial.

Dr. J. E. Graham : I have listened with a great deal of pleasure to the paper by Dr. Robinson. I feel especial pleasure in listening to Dr. Robinson, because he is a Canadian and a fellow-graduate. He is one of our honorary members, who has been an exceedingly useful one. I am sure he has never given anything of greater value than the paper given to-night. He has given us the modern ideas of syphilitic disease as well as its treatment. We have been too much governed by tradition in syphilis as well as in many other things in medicine. We have been trying to recognize primary, secondary, and tertiary stages. If the secondary stage was not present, we would have doubts that the case was syphilis. We have been expecting to have certain distinct lesions and sequence of lesions. The sequence takes place in the great majority of cases. We know there are many cases in which the sequence has been irregular. The doctrine taught us to-night will make us easily understand this irregularity, understand why some cases terminate fatally within a year, and why, in other cases, the lesions may be very slight.

In speaking of the possibility of reinfection, I would like to mention two cases which came under my own observation, in which, unless I made a mistake in the diagnosis, syphilis existed twice ; the patients became reinoculated. I do not see why, particularly taking the ground Dr. Robinson has taken, there should be always immunity in syphilis. In variola, for instance, immunity does not follow. I knew a gentleman who had variola twice, the second time more severely than the first. I do not see why the same sometimes should not occur with syphilis.

Dr. Graham, continuing, asked the essayist his opinion of treatment by mercurial inunctions while the iodide of potassium was being given internally. Such treatment had been condemned, because it was said that the iodate of mercury was formed in the system, which was very injurious. He had seen the reports of some cases treated in this way where serious results followed. The speaker further requested the reader of the paper to give his opinion of the intermittent treatment, the administration of mercury in the form of blue pill for ten days, then the iodide for ten days, and ten days without treatment. This treatment had warm advocates. The mercury after acted on the system ; then elimination was favored by the use of KI.

Dr. Graham agreed in pushing the mercury, as the essayist had recommended, and emphasized the necessity for buccal cleanliness at this time. There were persons, however, who could not observe this rule; they take so large an amount of mercury before the gums are touched. A good point to remember was this : It was known that syphilitic poison has a deteriorating action on the blood—lessening the amount of hæmoglobin.

The mercury increases it. Rule.—Give mercury as long as the increment is kept up. When it is noticed to diminish, stop the mercury.

He would like the essayist's opinion on the use of intravenous injections of the bichloride.

There was no doubt about the importance of commencing treating the disease from its commencement.

Dr. John Hunter told of a case of secondary syphilis occurring in a young man engaged to a young lady who had been turned out of doors by a stepmother. Marriage seemed imperative. The doctor recommended the young lady to undergo treatment, and that careful hygienic precautions should be observed. If any symptoms arose an immediate report was to be made. The lady was put on treatment before marriage, the liquor hydrarg. perchlor. being administered. She never acquired the disease, and has had four healthy children. The husband recovered. Was it necessary, the speaker asked, to antedate the syphilis in this case? If so, why not protect everybody from it?

A second case had come under his notice. The patient, a very intelligent man, had acquired syphilis at twenty. Was treated at Guy's Hospital for three years, off and on. He then married and raised a healthy family, the youngest daughter being eighteen. During "the boom" he became financially ruined. With that impaired health came on. The syphilitic lesions reappeared on the abdomen and other parts of the body. Brain lesions set in. There was, first, paresis of certain muscles, then psychological disturbance. In three or four months the man died. Dr. Hunter asked the essayist how this reappearance of the lesions in this case were to be accounted for.

Dr. R. A. Reeve inquired of the essayist in what respect he considered congenital syphilis differed from the ordinary acquired, as far as the evolution of certain symptoms were concerned. He asked this in view of the statement of the paper that the so-called late symptoms were attributable to the syphilitic virus in the system. There was one condition of the eye occurring in congenital syphilis six months, one year, two years, or even fifteen years after birth, the so-called interstitial inflammation of the cornea. The fact was noticed that when the second eye was involved (as a rule), though the patient was under mercury, and in as good a hygienic condition as possible, not infrequently the inflammation involving the second eye was materially worse than that involving the first eye. As this occurred within a year after birth, and was a symmetrical lesion—affecting both eyes—and, in a sense, out of the category of tertiary lesions, the speaker asked in what sense the evolution of this symptom varied from the essayist's rule, and also whether he considered, if that characteristic of the disease appeared at fifteen or twenty, as it often did, the infective

period still persisted. Dr. Reeve referred to the use of hypodermic injections of pilocarpine in conjunction with the mercurial and iodide treatment in iritic adhesions. His confrère, Dr. Burnham, had drawn attention to this form of treatment in a paper read before the society, in which usual anti-syphilitic treatment had failed. The speaker pointed out that pilocarpine could not be used indiscriminately. He called attention to the plan of systematic diaphoresis by vapor baths bi-weekly during the so-called secondary stage, while giving mercury. This would act like pilocarpine and was much safer. He did not agree that the immunity obtained by treatment was similar to that obtained by the mother through inoculation from the foetus.

Dr. Reeve thought that emphasis should be laid on the dosage of mercury and the iodide. It was too often prescribed in a lackadaisical way, and in such doses that anybody could take year in and year out without harm.

Dr. T. F. McMahon referred to a method of detecting whether the disease was present or not. It was held by some that sixty grains of pot. iodid. should produce iodism if syphilis was not present. If it did not, the individual was free from the disease. He asked how certain cases of outbreak of syphilis at an advanced age were accounted for, barring the untruthfulness of the patient. If these cases were genuine, he would like to know if the essayist considered that these manifestations showed increased vulnerability of certain tissues, or were they due to the specific organisms being present and making an outbreak at that time?

Dr. C. J. Hastings cited reports of treatment by intravenous injections. One case of Jacksonian epilepsy, where there were two epileptic seizures daily, after the second injection was relieved for a considerable time. One man had reported four or five hundred cases with gratifying results. The effects were almost immediate. The syringe used was made of glass, so as to be rendered entirely aseptic. The technique of the operation was described. One-sixth of a grain of the cyanide of mercury was used.

Dr. A. McPhedran said that the reader of the paper held a very optimistic view of the prognosis of syphilis. His opinion would give great hope to those afflicted with the disease; many practitioners in years past looked upon the disease as incurable. Quite a number of leading men to-day think it is incurable. He (the speaker) would like to go as far as Dr. Robinson, but would find a good deal of difficulty in doing so. Supposing all the mercury given in the contagious stage was not curative, but simply inhibitory, it did not destroy the germ, just inhibited its growth to a greater or less extent. In some persons the inhibitory action would take place rapidly, and they would show no signs of the existence of the

disease for a long time. In other persons the lesions would appear during the administration of mercury, and with a virulence that would not be held down by mercury. The proper dosage was that which would produce physiological effect. The rule of giving it while it produced improvement in the blood had been stated. Even then, perhaps, enough was not being given to do the most good. In some cases he had seen the virulence of the disease very little affected. The remedy could be looked upon as simply inhibitory, in some cases very slight. Some cases would resist the mercury and would show lesions in spite of treatment; therefore, some cases were incurable. The essayist had stated that a patient in the secondary stage might have serious internal lesions, though no external were visible. This must be taken as a matter of opinion, as probably impossible to demonstrate. Dr. McPhedran thought the two remedies, mercury and iodide of potash, had in the past been used very much at haphazard. Mercury was the drug during efflorescing phenomena, the KI being given for the grosser lesions. He thought the iodide was preferable in intracranial syphilis. It was generally considered by many neurologists that these late lesions were toxin lesions and not germ lesions. It was difficult to explain why the toxins should be there if the germ was gone.

Dr. Robinson replied. He said that he had stated that many cases were incurable. He quoted the experience of Hutchinson and others, which agreed with this. Others got well without any treatment. Great importance was attached to the condition of the ground. It must be paid attention to. That there were lesions of the internal organs many examples showed: disease of the eye in the early secondary stage without cutaneous lesions; women showed lesions of the vagina without another lesion; others have them in the mouth. If this was true of organs we could see it must be true of those we could not see. A case might be mild and there be no cutaneous disease; in another there might be nephritis. Microscopical examination of tissue showed changes before lesions have occurred on the skin. Physiological changes occur in the cutaneous tissue before microscopical changes are seen. They must take place if the toxins are there, causing fever, lassitude, etc.

Regarding the use of the remedies: KI had no effect directly on the life action of the organism, he repeated; it only aided by some action on the glands the elimination of the poison. It would cause absorption of the gummatous material, but would not stop the formation of lesions that would become gummatous. The only value of KI in a diagnostic way was where certain tumors were present, of the rectum, for instance, and the question was whether they were syphilitic or sarcomatous, carcinomatous, etc., KI might settle the question.



He had no objection to intravenous injections ; he thought it was preferable in many cases. But the patient would not come to one's office every day for weeks and months. It would cost too much and took too much time. The very same result could be attained in other ways. As to the question of the causation of general paralysis and other lesions, some men held it was caused by syphilis. An analysis of Isaac's cases, lately published in *Lassar's Journal*, showed that there was no reason for supposing these lesions were the result of syphilis. He (the speaker) referred to the value of baths. The duration of the contagious stage was not settled. He considered three years was long enough to treat anyone who did not show signs, that is, if treatment had commenced with the appearance of the primary sore. He believed persons got immunity. He did not believe the organisms existed any longer when immunity was established. The immunity was got from intoxication.

Regarding excision of the primary sore, he said that in his paper he had pointed out that if the chancre was diminished in size by any means the amount of toxins was diminished ; but that would not abort the disease, as the inguinal glands were affected before the primary sore forms. He believed in every case reported as aborted there had been a mistaken diagnosis. He did not think a positive diagnosis could be made until the inguinal glands were noticed as being affected. It was to be remembered, too, that the inguinal were glands that could be palpated, but there were others which could not be felt. It was difficult to destroy the chancre when it was large ; and even if one could excise it, a large indurating sore formed very rapidly after excision.

## Book Reviews.

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AN AMERICAN TEXT-BOOK OF APPLIED THERAPEUTICS. For the Use of Practitioners and Students. Edited by J. C. Wilson, M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College, etc., assisted by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic, etc. Philadelphia: W. B. Saunders, 925 Walnut street. Price, cloth, \$7; sheep, \$8; half Russian, \$9.

This admirable text-book on applied therapeutics is the result of the combined work of a large number of well-known American contributors, and is essentially clinical and practical in its character. In the long list of co-workers we find the following: J. C. Da Costa, John B. Chapin, John Guiteras, Charles K. Mills, John K. Mitchell, Frederick K. Packard, Theophilus Parvin, E. O. Shakespeare, Wharton Sinkler, Louis Starr, Henry W. Stelwagon, James Tyson, of Philadelphia; I. E. Atkinson, Wm. Osler, J. N. Mackenzie, of Baltimore; James Stewart, of Montreal; Ferchheimer, Whittaker, of Cincinnati; Sanger Brown, Danforth, of Chicago, etc. The arrangement is in accordance with modern ideas as to pathology, and the subjects treated are intoxications, infections, diseases caused by internal animal parasites, diseases of undetermined origin, diseases of the digestive, respiratory, circulatory, renal, nervous, and cutaneous systems, and disorders of pregnancy. The book is an exceedingly good one, and is likely to be very highly appreciated by general practitioners.

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A MANUAL OF CLINICAL DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL METHODS. For Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D., Late Assistant Resident Physician, Johns Hopkins Hospital, Baltimore. In one very handsome octavo volume of 504 pages, with 132 engravings and 10 full-page colored plates. Cloth, \$3 50. Lea Brothers & Co., Philadelphia and New York. 1896.

What proportion of our physicians in general practice conduct careful examinations of the urine, sputum, blood, gastric juice, etc.? The author of this valuable work thinks that, at least, many do not. He is certainly correct; but the profession, generally, and senior students in medicine, are becoming alive to the importance of laboratory methods of diagnosis. A few of our colleges have recognized the fact that a systematic study of clinical chemistry and microscopy is absolutely essential in the scientific training of medical students.

Dr. Simon has done much work in the laboratories of Europe, and also in Johns Hopkins, and has an intimate knowledge of the most recent methods of investigation. He describes the examination of the blood, the secretions of the mouth, the gastric juice, fæces, nasal secretion, sputum, urine, transudates, exudates, cystic contents, semen, vaginal discharges, and milk. In every case a description of normal material precedes the pathological considerations, which latter, in turn, are followed by an account of the methods used in examination. We consider it an exceedingly valuable book, and hope the profession will at once show for it the appreciation it richly deserves.

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A PRACTICAL TREATISE ON MEDICAL DIAGNOSIS. For the use of students and practitioners. By John H. Musser, M.D., Assistant Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. New (2nd) edition, thoroughly revised. In one octavo volume of 925 pages, with 177 engravings and eleven full-page colored plates. Cloth, \$5; leather, \$6. Lea Brothers & Co., publishers, Philadelphia and New York. 1896.

One of the greatest trials of the medical man is the knowledge that new books are continually coming from the press, of which, perhaps, one in fifty is worth buying, and that it will most likely have to be bought in order to determine its quality. When a volume issues with the name of Musser as a guarantee the matter is different.

The book before us is a practical treatise on medical diagnosis for students and physicians, by John H. Musser. There is no subject upon which good work could be more useful, and none in which a better excuse for a new treatise exists. Advance in technique and methods is so constant that one should always find something new. We cannot here give the space which Musser's work deserves, but merely say that it is good and worth having. The printers, illustrators, and binders' parts have been well done, as always when Lea Brothers are the publishers, and the subject-matter is very good. Detail has been entered into to a sufficient extent when the object of the work is considered, and at the same time the practitioner is not discouraged with a lot of technique, such as but few can put into practice. We have no hesitation, then, in recommending Musser's book to those for whom it was intended.

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THE AMERICAN ACADEMY OF RAILWAY SURGEONS. Report of the second annual meeting held at Chicago, September 25th to 27th, 1895. Edited by R. Harvey Reed, M.D., Columbus, Ohio.

This little book contains a report of the proceedings of the above association, in a very compact form. Besides the general business and the president's address, the subject of surgery is treated, as far as concerns railway surgeons, under the following heads: Amputations, fractures, brain and spinal injuries, treatment of septic wounds and their prevention, sanitation, and medico-legal. Nearly twenty cuts are given, mostly photos of the officers of the Academy, but some illustrative of the subjects under discussion. All the papers were open to discussion, and many interesting points are recorded, which one might well read with profit.

Dr. C. M. Daniels, Buffalo, in the use of cocaine in minor amputations

recommends the use of *mix* – xv of a 2 per cent. solution, which he injects into the finger after a bandage is on, or around a small tumor which needs removal. We would suggest that as good results with less danger will be obtained by using only a fractional amount of cocaine with a little morphia in a normal salt solution after Schlech's method, using a greater amount of fluid than that suggested, and so produce artificial œdema.

In discussing skin-grafting, several methods are mentioned besides Thiersch's, as the one by Dr. Reineking, in which he transplants the whole thickness of the skin upon a surface which need not be a granulating one. Dr. Kibler uses the horny epithelial tissues from the palm of the hand or sole of the foot, placing small pieces the size of a split bean on the raw surface and covering with oiled silk and adhesive plaster.

The report of several cases of the use of gold foil in fractures of the cranium, and resulting cerebral hernia, by Dr. W. L. Estes, is interesting. The foil supplies the place of the bone which has been removed, and, being non-irritant, is left in position permanently.

Dr. J. W. Perkins read a very instructive paper on the mechanism and diagnosis of traumatic cerebral lesions, going very fully into the subject.

The advantages of continuous submersion in the treatment of infected wounds of the extremities are summarized by Dr. F. J. Hodges, as follows: It is harmless, it almost instantly limits infectious gangrene, septicæmia and sapræmia, and relieves the pain of phlegmonous inflammation or cellulitis.

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**DEFORMITIES: A TREATISE ON ORTHOPÆDIC SURGERY.** By A. H. Tubby, M.S. Lond.; F.R.C.S. Eng., Assistant Surgeon, and in charge of the Orthopædic Department, Westminster Hospital; Surgeon to the National Orthopædic Hospital; Surgeon to Evelina Hospital for Sick Children; late Senior Demonstrator in Physiology, Guy's Hospital. London and New York: Macmillan & Co.; Toronto: The Copp, Clark Co. Demy 8vo., pp. 598.

This excellent work is, according to the author's preface, the outcome of some years' experience in this department in several London hospitals. Much that is contained in the book has to do with the author's experience in his own cases. While this is true, yet the author has availed himself of the writings of the most noted workers in this department of surgery. Since osseous deformities constitute so large a part of surgery, it is not surprising that to be at all complete a large volume is required. The book of nearly 600 pages is published by Macmillan & Co in excellent style. A very attractive feature is the richness in illustration. There are, in all, fifteen plates and 302 cuts in the work. In a subject which has so much to do with the mechanical illustrations are of the greatest utility.

Beginning with diseases and deformities of the spine, the author deals at length with the cause and nature of angular curvature. The importance of complete fixation and rest is urged in the treatment of Pott's disease. This is best secured by rest in bed, movement of the part being prevented by sand-bags, bed frames, or by the wooden Phelps' boxes in the case of little children. After a period of rest in bed fixation of the diseased part is secured by a plaster

of Paris jacket, or one constructed from paraplastic material. Cervical caries is best treated by the paraplastic jacket with headpiece attached, or by encasing the head and neck in an extension of the jacket; or simply by means of a paraplastic collar, or by the Thomas leather collar.

Lateral curvature is the subject of the next chapter. The manner of production of lateral curvature of the spine is well shown in the accompanying cuts of faulty school seats and piano stools. Other cases may begin in early life, owing to the constant maintenance of a deflected spine while in the nurse's arms; or to inequality in the length of the two legs, or to flattening of the chest on one side consequent upon pleuritic effusion. Cure or improvement is effected by means of gymnastic exercises, suspensions, etc., the correction of the habitually faulty position, and the use of certain mechanical supports or braces to prevent return to the faulty position.

Continuing, the author devotes a chapter to deformities of the chest, neck, and upper extremities. This includes ring-neck, and the various forms of club-hand, webbed fingers, etc. Illustrations showing club-hand from absence of the radius, and of the peculiar contraction of the palmar fascia, first described by Dupuyetron, are contained in this chapter.

The remaining sections contain articles on rachitic deformities and on deformities of the lower extremities. This would include congenital displacements, *genu varus valgus* on recurvation, and the various forms of club-foot.

In all departments the work is most complete. The reader, after perusal of the chapter on any of the subjects treated by the author, has the satisfaction of having had the subject dealt with broadly, yet definitely. We feel sure that these qualities will render the book popular with the orthopædic surgeon, as well as with the general practitioner.

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THE MEDICAL NEWS VISITING LIST FOR 1897. Philadelphia: Lea Brothers & Co.

This neat little pocket visiting list fills the bill very nicely. It is very complete and published in four styles: Weekly, dated, for 30 patients; Monthly, undated, for 120 patients per month; Perpetual, undated, for 30 patients per week per year, and Perpetual, undated, for 60 patients per week per year (without text). The first three styles contain 32 pages of text and 160 pages of blanks. The 60-patient style consists of 256 pages of blanks. Wallet-size, flexible leather cover, pocket, and pencil. Price in any style, \$1.25. Besides the list there is a complete table of urinary analysis, eruptive fever table, incompatibility, table of dosage, and an illustrated table of ligation of arteries.

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THE July issue of the *Post-Graduate* was an entirely new departure. It was exclusively devoted to neurological reports from the clinic of Prof. Chas. L. Dana, reported by Drs. Dana, Geo. R. Elliott, Jos. Collins, Wm. P. Wilkin, and Jos. Fraenkel. This is an expensive change, and will undoubtedly make itself appreciated. There are fifteen articles in all, illustrated with seventeen full-page cuts. The whole is well worth a perusal, as the cases illustrating the

various subjects have been taken from recent clinics, and are full of new matter.

Dr. Dana's treatment of tic douloureux consists of three stages: (a) daily hypodermics of strychnia gr.  $\frac{1}{30}$ , increasing in two or three weeks to gr.  $\frac{1}{8}$ — $\frac{1}{4}$ , and after keeping at that dose for a week gradually decreasing, and stopping in six weeks; (b) then start with potas. iodide gr. v., *ter in die*, increased to gr. xx., and tincture of iron *mv.*, increased to *mxxx.*, well diluted; (c) rest in bed for four weeks at least is a part of the treatment which must not be neglected, and judging from the results given in the cases cited one may expect a cure, or at least great relief in any case, no matter how prolonged it may have been.

Hypnotism is advised in any of the various functional nervous diseases, as neurasthenia, hysteria, or even insomnia, a lasting cure being made in many cases after the patient has been hypnotized several times.

The notes on laboratory methods, by Dr. Geo. R. Elliott, contain very full directions with regard to the preserving and staining of nervous tissues for general and microscopical study. Amongst others, formalin in 2 per cent. to 5 per cent. aqueous solutions is mentioned, it hardening the tissue in a week. It destroys the coloring matter of the blood, but not the corpuscles themselves, leaving a white specimen with but little shrinkage. Several methods are also given how to stain different tissues.

Dr. Dana gives full directions as to the method of examining the insane, and the plan there laid down is very complete.

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Books and Pamphlets received :

THE TREATMENT OF CANCER OF THE RECTUM. By Lewis H. Adler, Jr., M.D., Professor of Diseases of the Rectum, Philadelphia Polyclinic and Post-Graduate College; Surgeon to the Charity Hospital and to the Out-Patient Department of the Episcopal Hospital. Reprinted from *University Medical Magazine*.

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FURTHER OBSERVATIONS ON THE TREATMENT OF SPASMODIC TORTICOLLIS. By Maurice H. Richardson, M.D., Visiting Surgeon to the Massachusetts General Hospital, and George L. Walton, M.D., Physician to the Neurological Department, Massachusetts General Hospital. Reprinted from *The American Journal of Medical Sciences*, July, 1896.

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OVER THE HOOKAH: THE TALES OF A TALKATIVE DOCTOR. By G. Frank Lydston, M.D., Professor of Genito-Urinary Surgery in the Chicago College of Physicians and Surgeons; Professor of Criminal Anthropology in the Kent College of Law, etc. Sold by subscription only. Sent prepaid on receipt of subscription price. Price in cloth, gilt top, \$4. Price in morocco, full gilt, \$5. Over 600 pages octavo. Profusely illustrated from the author's designs by C. Everett Johnson. Chicago: The Fred Klein Publishing Co.

## Medical Items.

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DR. CHARLES CARTER has left French River, and is at present located in Toronto, in charge of the Home for Incurables.

DR. WILLIAM CUTHBERTSON (Tor. '83), who has been practising in Chicago for the last twelve years, has been appointed Professor of Surgery in the West Chicago Post-Graduate College and Polyclinic.

WE have to announce with much pleasure that Dr. Lewellys Franklin Barker (Tor., '90), at the last meeting of the Board of Trustees of Johns Hopkins University, was appointed Associate Professor of Anatomy in charge of the department of histology under Professor Mall. He will still retain his connection with the pathological laboratory during the summer months.

DR. HIBBERT HILL. (Tor., '94) has been adopted by our American cousins, as the following, cut from the *Brooklyn Eagle*, shows: "Health Commissioner Emery, this morning, appointed Hibbert Hill, M.B., assistant biologist, at an annual salary of \$1,500. The commissioner has rented a small house at Rockville Centre, where, in accordance with his intention as expressed when the water scare was prevalent, he will establish a depot for the examination of the water supply at its source."

FOR the notes referring to the next meeting of the British Medical Association, which appear in our editorial columns, we are indebted to one of the honorary local secretaries, Dr. J. G. Adami, of Montreal.

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CLINICAL RECORDS. — An American paper is responsible for the following: "What can I do for you, miss?" inquired the clerk in a drug-store. The blushing young woman glanced about her in embarrassment, and then replied: "I want some castor oil." "All right; in just a moment." The clerk moved around behind the counter for a moment, and then he went to the soda-fountain. "Do you like soda?" he asked. "Oh, yes, indeed." "What flavoring do you prefer?" "Pine-apple, please." The clerk drew a glass of the fizz, and the young lady drank it. Then the clerk sat down on a stool and commenced to chat with her. She was apparently annoyed, but replied courteously to all his remarks. Finally she said, "If you'll give me the castor oil, I'll go." "Why, you took it in that glass of soda." "Took it in the soda! I didn't want to take it. It was for my little brother." And the clerk wondered why she was indignant.—*Bristol Medico-Chirurgical Record*.

THE American Association of Obstetricians and Gynæcologists, at its ninth annual meeting held at Richmond, Va., elected the following-named officers for the ensuing year: President, James F. W. Ross, M.D., Toronto; vice-presidents, George Ben Johnston, M.D., Richmond, and John C. Sexton, M.D., Rushville, Ind.; secretary, William Warren Potter, M.D., Buffalo; treasurer, Xavier O. Werder, M.D., Pittsburg. Executive council: Charles A. L. Reed, M.D., Cincinnati; Lewis S. McMurtry, M.D., Louisville; A. Vander Veer, M.D., Albany; J. Henry Carstens, M.D., Detroit; and William E. B. Davis, M.D., Birmingham. The next annual meeting was appointed to be held at the Cataract House, Niagara Falls, N.Y., Tuesday, Wednesday, Thursday, and Friday, August 17, 18, 19, and 20, 1897.

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DAMAGES FROM DEFECTIVE SANITATION.—A verdict for £3,500 as damages for defective sanitation is a severe warning to those whose duty it is to look after the health of the public. This is a judgment that has just been pronounced at the Birmingham Assizes in an action brought against the King's Norton District Council by the executors of Mr. Thomas Smith, brother of the Lord Mayor of Birmingham, with relation to that gentleman's death, which was due to blood-poisoning, the alleged consequence of a defective sewer ventilator carried up the chimney of his house. In the course of the evidence it came out that, on being requested to do so, the local authority had stopped the connection with the sewer; but it was the plaintiff's case that this work had been done in an imperfect manner, and that in consequence of this carelessness blood-poisoning had been caused, and death had ensued. As the action was defended it would be expected that the local authority had something to say for themselves, at all events as to the amount sued for, which was no less than £10,000; and, as a matter of fact, we find that, although it seems to have been admitted that death really resulted from defective sanitation, the defence was put forth that the house in question was in an insanitary condition from causes over which the local authority had no control. However this might be, the jury decided that the district council must be held responsible for the consequences of the action of their sanitary officers, and they accordingly found for the plaintiffs, although with modified damages. District and parish councils throughout the country should take a note of their responsibility.

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#### OBITUARY.

HENRY MANLEY, M.R.C.S. ENG.—Dr. Manley died at his residence, Owen Sound, October 19, aged seventy-seven. He was a native of Devonshire, England, and became a member of the Royal College of Surgeons, England, in 1841. He came to Canada in 1847, and first settled in Toronto. The following year he went to Owen Sound, where he remained up to the time of his death. He was for many years surgeon to the gaol in Owen Sound. During the latter years of his life he did but little practice, but, being active in his habits, he was well and favorably known by the citizens of Owen Sound, where he had lived forty-eight years.



CHARLES E. LAWRENCE.—Dr. C. E. Lawrence died at his home at Murieta, Riverside county, California, on October 23, aged 37. He formerly lived at Richmond Hill, Ontario, and received his medical education in the Toronto School of Medicine, graduating in Victoria University in 1885. For some time his health was poor, incipient phthisis being suspected, and he deemed it advisable to go to California. For some years after his arrival the air of this country appeared to agree with him, and it was hoped that he had quite recovered. At the time of writing we do not know any particulars as to his last illness. He was highly respected as a man and as a physician while in Canada, and was very much liked by his intimate personal friends.

DARBY BERGIN, M.D., SURGEON-GENERAL OF CANADA.—Canada has lost one of her most distinguished citizens through the death of Dr. Darby Bergin, which occurred at his home in Cornwall, October 22, 1896. On the evening of September 18 he had a paralytic stroke, from which he never rallied. He had been in poor health for something like three years, but had been able to do his parliamentary and professional work fairly well until he was seized with paralysis. He was born in Toronto in 1826, received his preliminary education at Upper Canada College and his professional education at McGill University, where he passed the final examination in 1846, when he was nineteen years and seven months old. He soon commenced practice in Cornwall, and before many years became generally recognized as the most successful practitioner in Eastern Ontario. At the time of the Trent difficulty in 1861 he became captain of a volunteer company, and was gazetted Lieutenant-Colonel of the 59th Stormont and Glengarry Battalion in 1869. He retained his connection with this battalion until his recent promotion to the position of Surgeon-General of Canada. He was first elected to Parliament for the town of Cornwall in 1872, was defeated in 1873, and elected again in 1878, and continued a member of Parliament up to the time of his death. In earlier years he had been a member of the Town Council and a trustee of the High School Board. He was for many years a member of the Ontario Medical Council, being president in 1881 and in 1885. He was well known as one of the ablest and most energetic members of that body. He ever endeavored to maintain a high standard for the profession, and favored a course in arts as preliminary to a course in medicine. He was highly respected by all classes in Cornwall and vicinity. As a politician he took a foremost place in the ranks of the Conservative party. As a physician he was well known in all parts of Canada. In private life he was highly esteemed by all his acquaintances, and much loved by those who knew him intimately. He was endowed with a good constitution, and did an enormous amount of work during his lifetime. Soon after he passed the age of sixty he showed signs of old age, and during the last five years of his life his friends noticed that he had lost much of his former vigor. He attended faithfully, however, to his duties, parliamentary and otherwise, up to the time of his seizure. He was buried in the family lot in the old Roman Catholic cemetery at Flanagan's Point, the funeral being the largest known in Eastern Canada since the burial of John Sandfield Macdonald. Dr. Bergin was never married.