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The Canadian Journal of Medicine and Surgery

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Vol. XXVI.

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No. 1

Original Contributions.

THE SURGICAL TREATMENT OF STONE, TUBERCULOSIS AND TUMORS OF THE KIDNEYS*

BY DR. ARTHUR DEAN BEVAN, CHICAGO.

Mr. President and Members of the Toronto Academy of
Medicine:

I desire to express my appreciation of this opportunity to meet the members of the Toronto profession. I consider it a great honor to be invited to present to you a paper on some surgical topic. We in the United States have the highest regard and greatest respect for the medical profession of Canada. We have watched the splendid development of your medical schools and hospitals and your sound medical legislation with great interest, and congratulate you upon the good work of your medical institutions, and upon the achievements of your medical men. The medical professions of Canada and the United States are very closely associated, and have many things in common. They are certainly as closely associated as those of Germany and Austria, and should have, as those countries do have, their special societies open to men from both countries.

This desirable state of affairs is being gradually brought about. As an example let me say that in our American Surgical Association we are gradually securing about as many Canadian members in proportion to the population as members from the United States. I hope to see the time when without any diminution in the proper pride and patriotism which each one of us has for his own country, we shall all be members of a greater Ameri-

*Read before the Academy of Medicine, December 1, 1908.

can Medical Association, which shall extend from our Panama Canal to your Hudson Bay.

I have chosen for the topic of my address the subject: "The Surgical Treatment of Stone, Tuberculosis and Tumors of the Kidney." I have associated these three conditions together in a paper, because I have found that in actual practice these conditions have frequently so many symptoms in common that the surgeon sees a large group of cases in which he is compelled to answer the question, Is this stone, tuberculosis or tumor of the kidney? Any one of these lesions may present kidney colic, hematuria and an enlargement of the kidney and more or less pronounced bladder symptoms. I shall attempt to present to you briefly the diagnosis and surgical treatment of each of these three kidney lesions, based on an analysis of 94 cases operated upon in my surgical clinic at Rush College, University of Chicago.

Let me first remind you that the surgery of the kidney is a very new chapter in the subject of surgery. Those of us who began the study of medicine twenty-five years ago have had the opportunity of watching its development almost from the beginning. When we were medical students, we saw no kidney operations. The old English physician who began his lectures on diseases of the kidney with the statement that here was a field safe from the surgeon's knife, was still with us.

The development of the surgery of the kidney within twenty-five years has been marvelous. Movable kidneys are now fixed by proper operation. Stones in the kidneys are definitely located by the X-ray, and safely removed by incision. Tuberculosis is by means of microscope and cystoscope accurately diagnosed, and the patient's life saved by a timely nephrectomy. Tumors of the kidney are recognized and removed. Acute hematogenous infections of the kidney which threaten life are recognized, and met by a nephrectomy. Hydronephrosis and pyonephrosis are handled either by drainage or plastic operations or, where the other kidney is sound and sufficient, by removal of the diseased organ. Even chronic Bright's disease has not escaped the surgeon's attacks, and one of our brilliant gynecologists proposed on the basis of his observations of the effect upon the kidney of decapsulation in the operation of kidney fixation, the operation of decapsulation as a means of treating successfully Bright's disease. As might have been logically surmised, however, this has failed to meet the hopes of the enthusiasts who proposed and carried it out. The surgical treatment of many of the diseases of the kidney is most gratifying. To-day the kidney is not safe from, but the patient is often saved by, the surgeon's knife.

Let me present to you first the subject of kidney stone.

Not until 1880 was a stone removed by incision through the

tissue of a fairly normal kidney; this was done by Henry Morris, of England. From 1880 until 1897 or 1898, a number of operators followed Morris' lead and, in 1898, Morris could report thirty-four nephrolithotomies with fortunately but one death. The work done from 1880-1898 was brilliant, in a way, but was unsatisfactory because of the uncertainties of diagnosis. During this period a large proportion of the operations were exploratory, and many of the operations undertaken for stone proved to be for tuberculosis, neoplasm and other pathological conditions.

In the last ten years, that is the period from 1898 to 1908, there has been a great development in the surgery of the kidney, thanks to the introduction of the X-ray and means of collecting the urines separately, and other refined means of diagnosis, cryoscopy, etc. Of these, the X-ray has been by far the most important.

These newer means of diagnosis have resulted in an enormous increase in the number of cases discovered and operated upon and, with better technique, there has been an increasing percentage of recoveries and of complete and permanent cures.

The ordinary picture of kidney-stone is that of kidney colic of greater or less frequency, with pain in kidney region, and radiating from this region; blood usually microscopic, sometimes, however, in large amount in urine, and pus, with not infrequent bladder symptoms due to a resulting or accompanying cystitis.

The differential diagnosis must be made between stone and tuberculosis and neoplasms of the kidney, kidney infections and displacements, and such rarer conditions as essential kidney hemorrhage and polycystic degeneration of the kidney, and various lesions of other organs, as gall-stone disease, appendicitis and ileus. Sometimes it is by no means easy to make the differential diagnosis without an exhaustive study. I have seen appendicitis produce the typical picture of kidney colic, accompanied even by a considerable amount of blood in the urine. I have four times removed the appendix in the interval on the strength of the diagnosis made by well-qualified men, who had taken care of the patients during the attacks, and found later that the trouble was not appendicitis but kidney stone.

A careful analysis of the gross clinical picture is of the greatest importance in making a diagnosis.

1. History. A careful history of the onset, character and duration of attacks may often be of great value in making a probable diagnosis.

2. Pain in some degree occurs in practically all calculus cases, giving rise to symptoms. Pain is, however, a frequent accompaniment of non-calculous diseases of the kidney. That nephrolithiasis may exist without pain is shown by the report by

Clark of twenty-four autopsies on calculus cases, thirteen of whom have had no pain.

The size of the stone has no definite relation to the character or amount of pain. Large calculi occupying the pelvis of the kidney may give little or no pain. On the other hand small rough stones that make their way into the ureter may cause the most agonizing pain.

3. Hematuria. The amount of blood in the urine may vary from a few corpuscles, found by microscopic examination of the centrifuged specimen obtained during or after an attack, to large and even fatal hemorrhages.

Hematuria, especially occurring in microscopic amounts during or after an attack of renal colic, is a finding of considerable importance in establishing a diagnosis.

4. Other urine findings, such as renal sand, crystals, small calculi, fragments of calculi, renal or ureteral epithelium, leucocytes often seen in clumps, macroscopic pus, are findings of importance. Cunningham found pus 39 times in 48 cases reported.

5. Vesical tenesmus or rectal tenesmus is frequently felt when a stone is moving in the lower portion of the ureter, cystitis frequently accompanies the pyelitis and ureteritis set up by a stone in the pelvis of the kidney or in the ureter, and gives rise to frequency of micturition. Occasionally, a stone in the lower portion of the ureter can be palpated per rectum, or per vaginam in the female.

Next to the gross clinical picture must be considered: (a) Cystoscopy and ureteral catheterization. Cystoscopy may be of great value in calculus cases. A stone impacted in the ureteral orifice may be seen protruding or causing prolapse, widening, or edema of the ureteral orifice, and a ureteral bougie passed into the ureter may give definite evidence of obstruction.

Examination of the ureteral orifice will often show from which side the blood or pus is coming, and catheterization of the ureters enables one to obtain the separated urines and examine them for blood, pus, bacteria, epithelium, etc., as well as to determine the functional capacity of the two kidneys.

(b) Functional tests. The following should be mentioned: The indigocarmine test made by injecting 5 to 10 c.c. of sterile indigocarmine solution into the gluteal muscles, introducing the cystoscope twenty minutes after the injection, and observing the rhythmical puffs of deep blue colored urine as it escapes from the ureter. By some observers the time required for the blue color to appear in the urine and the intensity of the color are regarded as being of value in determining functional capacity.

The phloridzin test, described by Casper and Richter, depends

upon the fact that when phloridzin is injected subcutaneously, glycosuria appears in 15 to 30 minutes in a healthy condition of the kidneys and continues from one to three hours. The test is made by injecting subcutaneously 1 c.c. of a sterile 1 per cent. solution of phloridzin and testing the urine for sugar at intervals of five minutes by Fehling's or Haine's solution.

(c) Cryoscopy, described by Koranyi, and recommended and much employed by Kummel, Teakin and others, consists in the determination of the molecular concentration of the blood serum and urine by measuring the freezing-points of the blood and urine. It depends upon the fact that in health the blood maintains a definite degree of molecular concentration, and has a practically constant freezing point, 0.55 to 0.57 deg. The excreting power of the kidneys is the most important factor in maintaining the constant molecular concentration of the blood. In conditions in which the renal parenchyma is damaged and the power of excretion lessened, the molecular concentration of the blood increases, on account of the accumulation of salts in the blood, and the freezing point is lowered to 0.60 deg., or lower. Cryoscopy of the blood seems to give us definite and valuable information as to the total renal functional power. It does not give us any information as to the relative capacity of the two kidneys. Cryoscopy of the urine seems to be of little practical value, not more than a determination of the specific gravity.

ROENTGEN EXAMINATION.

The introduction of the Roentgen rays as a means of diagnosis marks the most important advance made in the surgery of renal and ureteral calculi in modern times. The present improved technique has rendered this means of diagnosis sufficiently accurate to entitle it to rank with other commonly employed means of diagnosis of generally recognized value, such as the examination of sputum and urine for tubercle bacilli, feces for blood and parasites, etc.

The accuracy of the method depends upon the skill and experience of the operator making the examination and the interpretation of the plate, the efficiency of the apparatus at hand, and the technique employed. The following reports show the percentage of correct diagnosis as reported by the several observers in their own work:

	Cases.	Correct.
Kummel and Rumpel, 1903	18	100 per cent.
Smith and Bevan, 1904	27	96 "
Leonard, 1907	356	97 "
Brewer, 1908	57	78 "

Since the clinical symptoms give but little information as to the exact location of calculi in the genito-urinary tract, it is desirable to first secure, if possible, a plate showing the region of both kidneys, both ureters, and part of the bladder. For this purpose the patient lies on his back, with head and knees elevated, so as to straighten the spine and bring it in contact with the plate. The tube is enclosed in a heavy lead glass tube shield, and supported upon a stand 26 to 30 inches high, with telescoping sides, permitting a greater elevation, if necessary. The top of the stand carries a circular piece of heavy sheet-lead, with an opening in the centre for diaphragms of various sizes. This heavy lead disk cuts off the stray rays from the walls of the tube and the diaphragm opening limits the rays that are to be used to a cone of approximately parallel rays. A satisfactory plate should have the following characteristics:

1. It should show the lateral processes of the vertebrae to the tip.
2. It should show the structure of the last two ribs.
3. It should show the border of the psoas muscle.

After a satisfactory view has been obtained, if there are any evidences of stone in any particular location, other plates of that portion should be made, using the compression diaphragm apparatus. This method, first introduced by Albers-Schönberg, has the advantage of giving clearer and more definite pictures of a limited area, owing to the fact that the diaphragm renders the rays more nearly parallel, the lead cylinder and shield cut off many stray rays, and the compression can be made so as to considerably diminish the amount of tissue to be penetrated by the rays.

The cases of ureteral calculus present some peculiar difficulties that make the diagnosis more difficult than the diagnosis of calculi in the pelvis or parenchyma of the kidney.

In the course of the lower portion of the ureter, shadows are frequently seen that have, in several instances, been mistaken for ureteral calculi, and operations have been performed under the mistaken diagnosis so made, with the result that nothing was found in the ureter but some other condition was present which sufficed to explain the occurrence of the shadows in the Röntgen plates. Among the extra-ureteral conditions giving rise to misleading shadows in the plates, may be mentioned:

1. Phleboliths or calcified areas in the walls of the veins in the pelvis.
2. Foreign bodies in the bowel, vagina, or bladder.
3. Calcified appendices epiploicae.
4. Calcified tuberculous lymph-nodes or tuberculous nodules in the epididymis or seminal vesicles that have become partly calcified.

5. Calcified or osseous areas in the pelvic ligaments. In examining 100 plates of adult pelvis taken for various conditions, it was found that in 25 per cent. of the plates small round shadows, varying in size from a BB shot to a pea, occur in the vicinity of the spine of the ischium, frequently bilateral and often multiple. They do not occur in the plates of the pelvis of children. The peculiar location of these bodies and their frequent occurrence in both male and female pelvis, renders their explanation as ossified areas in the pelvic ligaments most probable.

When a definite diagnosis of stone is made and the size and position of the calculus are known I am in favor of surgical removal, except in cases where there is a strong contra-indication on account of age or organic disease, or where the stone is so small that it may be passed by the ureter, bladder, and urethra.

I have had an opportunity of watching a number of cases handled expectantly, and have seen so many serious consequences, such as attacks of anuria and infection and colic, occur, and injury to the kidney tissue result, that I am satisfied that the dangers of operation are not as great as the dangers carried by the continuance of the condition; and the operation has the great additional advantage of curing the patient, which the expectant treatment seldom does.

To be sure, I have seen a number of cases recover without operation. I recall one in particular—a big, strong fellow, who had a stone a little larger than a coffee bean. We obtained, after a number of exposures, several very good plates confirming the diagnosis. When I first took charge of the patient I recommended temporarily expectant treatment. The colics recurred, however, and the stone did not pass, so I advised surgical removal. He could not bring himself to an operation, and for several years suffered from very severe and frequent colics, and had several attacks of serious temporary anuria. He suffered more in any one of a dozen attacks than he would from an operation, and certainly ran more risk from his anuria attacks than he would have from surgical interference, but he finally passed his stone and rejoiced that he had escaped an operation. It is upon such weak evidence as this that many of the pleas of non-interference are based. Against this man, who was practically invalidated for several years and suffered very greatly, I could place a dozen men who were operated on during this same period, who had less pain from the operation than from an attack of colic, and left the hospital within two weeks perfectly cured.

There are some conditions which demand immediate action, as calculous anuria, infection, etc., where there can be no question about the propriety of surgical intervention. I would plead for the adoption of surgical removal of kidney-stone, not only in

these, but in all cases in which the diagnosis is made, and the earlier the better, with the exceptions already noted, namely, the cases of extreme age and other organic disease making operation extremely dangerous; and the cases with very small stones, which should be given a reasonable time with the hope that they may be passed.

One very strong argument in favor of removing kidney-stones, where they are not producing urgent symptoms, is that of preventing the occurrence of urgent symptoms by removing the stone which, if left, might cause them; and, again, it is perfectly clear that in almost all cases the kidney containing a stone suffers continually from its presence, a more or less chronic change takes place, with impairment of the secreting value of the organ, often leading to total destruction of the kidney tissue. After a definite diagnosis of kidney-stone is made with the X-ray, other conditions warranting, it should be removed.

Where the X-ray shows that there is a single small stone, as there is in the majority of cases, and the clinical evidence does not suggest destructive processes in the kidney, I do not employ the cystoscope or ureteral catheter, or make a cryoscopic examination, but proceed at once to the operation. Where the X-ray shows a large stone or mass of stones, and the clinical history and the pus and blood in the urine suggest the possibility of the necessity of a nephrectomy, an exhaustive study of kidney sufficiency must be made, and the absence or presence and condition of the other kidney determined. This can best be done by collecting the urines separately by ureteral catheters and by a cryoscopic examination of the blood.

I am not one of those who believe in the entire harmlessness of ureteral catheterization. I regard it as a possible cause of danger, and as a means of diagnosis which should be employed only where definitely required, and not as a routine procedure. It is, however, frequently indispensable. The cryoscopic examination of the urine I regard as of little value. I believe, however, that under certain conditions the cryoscopic examination of the blood is of distinct value, as already stated. In a case where there is considerable blood in the urine, a normal blood freezing-point, i.e., 0.55 to 0.57 deg., means kidney sufficiency, and almost certainly the involvement of but one kidney in the diseased process.

Given, therefore, a stone case where the X-ray has located the disease and where the ureteral catheter has demonstrated the presence of another kidney, and with a normal freezing-point of the blood, a nephrectomy can safely be made, if the conditions of the affected kidney, as determined by the operation, demand it. In operating on kidney-stone cases the great frequency of

stone occurring in both kidneys, probably in 20 per cent. of cases, should constantly be borne in mind. If stone is demonstrated by X-ray in both kidneys it probably would be safer to operate on both sides at the same sitting.

THE TECHNIQUE OF OPERATION.

The removal of a single stone of moderate size from the pelvis of a kidney not greatly injured by the long-continued presence of the stone, and by infection, is, as a rule, a comparatively simple operation.

For several years I have been doing these cases under nitrous oxide anesthesia.

The patient is put on the sound side with a good-sized pad under the flank so as to increase the space between the last rib and the crest of the ileum on the side to be operated on. A special assistant is detailed to hold the limb of the operated side at right angles to the body. I prefer the pad and an assistant to any of the special tables and supports which have been introduced for kidney work.

If the anesthesia is a very prolonged one, and sufficient relaxation cannot be obtained from gas, the sequence of gas and ether is employed. The oblique kidney cut, extending from the last rib where it is crossed by the erector spinae obliquely downward and outward a finger's breadth above the crest of the ileum, is employed. The length of the incision will depend upon the size of the patient and the difficulties of the case. The fat capsule is exposed and carefully separated from the kidney so that the kidney may be lifted well up into the wound and freely palpated.

If the single stone is found in the pelvis, the kidney is so held as to expose the posterior surface of the pelvis, and this is freed from fat and areolar tissue with blunt dissecting forceps. The pelvis is behind the renal vessels, so that these cannot be injured if the posterior wall of the pelvis is opened, except in the event of some unusual distribution of the vessels; it is in order to avoid this, the posterior wall of the pelvis should be cleared of fat and areolar tissue, so that one can see that no vessel is injured in incising the pelvis. An incision is now made through the wall down to the stone and the stone extracted. The incision should then be closed with a single layer of fine catgut sutures introduced like Lembert sutures, the kidney dropped back into position and a cigarette drain carried to the point of closure. The external wound is closed with moderate-sized catgut through the deep muscles, through and through silkworm gut and horse-hair through the skin. The cigarette drain is removed in three or four days; in more than one-half of the cases there will be no leakage of urine. The stitches are removed on the eighth day,

as a rule, and the patient allowed to leave the hospital in from ten to fourteen days.

This operation through the pelvis is known as pyelotomy, and it is the operation of choice in moderate sized, single stones in the pelvis in non-suppurative cases.

For a long time it was taught that urinary fistulae were much more apt to result in cases in which the stone was removed through an incision in the pelvis than where it was removed through an incision in the kidney substance. My work of the last five years has distinctly disproved this view and my results have been confirmed by a number of other operators.

To-day, I think we can confidently select pyelotomy in preference to nephrotomy as being the safer, less bloody, and more satisfactory procedure.

Where, on the other hand, we have a large branched stone, coral-shaped stones, multiple stones, and stones accompanied by distinct and gross evidence of infection, then nephrotomy should be preferred to pyelotomy.

In nephrolithotomy the kidney should be well freed and brought out of the wound; a well-instructed assistant should compress the renal vessels with his fingers, so as to control hemorrhage. Especially constructed clamps may be employed for this purpose. I have always preferred an assistant.

An incision like the post-mortem cut is made about a half inch posterior to the convex border of the kidney and directed toward the pelvis. This may be from two to five inches or more in length. If the assistant making pressure on the renal vessels does his part thoroughly, little blood will be lost.

The stone, or stones, are now removed with great care not to break them or leave any stone or stone fragment behind. The incision in the kidney is then, when there is no gross evidence of pus, completely closed by catgut sutures, deeply placed and carefully tied so as not to cut through the tissue, which is quite friable. These sutures control the hemorrhage surprisingly well, and it is seldom necessary to ligate a vessel separately. The kidney is now dropped back into its normal position, a cigarette drain introduced and the wound closed as before.

When there is gross evidence of pus in the kidney, it is important to determine before operation the presence and condition of the other kidney and the kidney sufficiency of the individual, so that if at operation the conditions found argue in favor of nephrectomy, this may be undertaken with a full knowledge of the existing facts.

In case a stone is removed from a kidney with gross evidence of pus and impaired kidney tissue, if the impairment is not great, the kidney can be drained after the removal of the stones in the

hope that a cure may result with the saving of a kidney of more or less value. On the other hand, where the kidney shows great changes, and it is evident that the kidney is of little value to the individual, and if left may be a menace, and if kidney sufficiency exists as shown by examination before operation, then a nephrectomy should be done.

In the last few years I have been removing more of these old stone kidneys at the primary operation, avoiding often a later difficult and dangerous secondary nephrectomy. It has been especially in this matter that my own work has shown improvement. In the surgery of kidney-stone it is not sufficient merely to remove the stone. We must cure our patient and, where possible, it is far better to do this with a single operation. I have found nephrectomy secondary to nephrolithotomy and nephrotomy for drainage often most difficult and hazardous; the kidney remnant being often bound down in dense connective tissue, making removal, except by morcellation and within the capsule, impossible; and even then I have injured the colon and duodenum and had serious and fatal hemorrhage in these cases.

TUBERCULOSIS OF THE KIDNEY.

During the last fifteen years much light has been thrown upon the subject of kidney tuberculosis. Up to that time kidney tuberculosis was regarded as a rare lesion; as one which was difficult to diagnose, and as one which was not modified by treatment and which terminated in a fatal issue. To-day it is known that kidney tuberculosis is a common disease and means have been found which makes it possible to diagnose the condition early and surgical treatment has been shown to be capable of saving the majority of patients.

Tuberculosis of the kidney is frequent. In a series of more than 5,000 post mortems 3 per cent. were found to have tuberculous lesions of the kidney, and of a large series of post mortems of individuals dying of tuberculosis 10 per cent. were found to have tuberculosis of the kidneys.

ETIOLOGY.

Tuberculosis of the kidney is the result of hematogenous infection. It is probably almost always deuteropathic and seldom if ever protopathic. This is true even in the cases where the clinical evidence and after history warrant the diagnosis of primary kidney tuberculosis. In other words primary kidney tuberculosis is seldom, if ever, protopathic in the sense that it is actually the first, the primary lesion, but it is always deuteropathic in the sense that it is secondary to some small unrecognized primary lesion elsewhere, usually in a lymph gland.

Kidney tuberculosis is in 90 per cent. or more of the cases at first unilateral and limited to the kidney tissue of a single kidney. The clinical evidence on this point is now very definite and convincing. There is an apparent but not a real difference between the clinical evidence and the autopsy findings on this point. Post mortem examinations show a majority of cases with bilateral involvement and at the same time other gross and important tuberculous lesions.

The refined, modern means of diagnosis and the exploratory operations and the nephrectomies undertaken for tuberculosis of the kidney show that 90 per cent. or more of the cases are unilateral. The conclusion is evident that tuberculosis of the kidney is as a rule at first unilateral, that later the disease extends and involves other organs and the other kidney, so that in the fatal cases both kidneys are usually involved. The tubercle bacilli are brought to the kidney by the blood stream, and according to the location and character of the resulting lesions three different types are found. First is the cavernous type, the type where either in the upper or lower pole several good-sized foci develop between the capsule and the cavity of the kidney, at first not involving either the fibrous capsule or the mucous membrane lining the calyces or pelvis. These lesions break down and form tuberculous cavities varying in size from a pea to an English walnut. Later these cavities break into the calyces and pelvis and invade these structures or at times break through the fibrous capsule and produce perinephritic processes.

The second type, the disseminate tuberculosis, is one in which throughout the kidney there appears a multitude of lesions of small size. This type resembles the acute hematogenous pyogenic infection of a single kidney. The third appears as an ulcerating lesion of the tip of the pyramids.

All three of these forms may appear in the same case or varying combinations of the three may occur. Tuberculosis of the kidney sooner or later extends to the ureter and bladder. In this connection a word on the general subject of the so-called genito-urinary tuberculosis might be of service.

We now know that there should be a distinct line drawn between genital and urinary tuberculosis. Urinary tuberculosis begins always in the kidney and then later descends into the ureter and invades the bladder. In the male, genital tuberculosis begins usually in the epididymis, occasionally in the prostate, follows the flow of the excretions and later invades the vas deferens and seminal vesicles, prostate and bladder.

In the female, genital tuberculosis begins in the tubes and invades peritoneum and uterus and ovary, but does not extend to the bladder. Both experimental and clinical evidence seems to

show conclusively that the extension of the tuberculous process in urinary and genital tuberculosis is with the stream or excretion; that is, from the kidney to the bladder, and from the epididymis to the prostate and bladder. It is probable that the reverse does not occur, i.e., ascending infections from epididymis to bladder, and then from bladder to kidney, as was formerly generally believed. Where these extensive pictures occur they are to be interpreted as evidences of several coincidental infections or as cases of widespread general infection.

In the few early cases where both the urinary and genital organs are involved, as for instance a single kidney and one epididymis, these are to be regarded as two independent foci, just as the occurrence of bone and joint tuberculosis in one ankle and in one hip. In fact, there is a very close parallel between tuberculosis of bones and joints and tuberculosis of the urinary and genital organs. Both are hematogenous infections, both deuteropathic and secondary usually to an obscure lymphatic lesion. We are now well acquainted with hip tuberculosis, and recognize it as a unilateral lesion, and regard bilateral hip disease as a rarity. Why should we doubt when we are told that kidney tuberculosis is also a unilateral disease? Why should it be bilateral?

Statistics vary as to the relative frequency of the disease in men and women. The evidence would seem to point to the fact that clinically it is recognized more frequently in women than in men, but that by post mortem it is found more frequently in the male. Statistics vary also as to the frequency of involvement of the two kidneys, right and left.

Some evidence seems to point to a greater frequency on the right side, this being in keeping with infections of the kidneys in general, and the explanation that the right kidney is more often movable and possibly more subject to injury and interference with its blood supply because of this greater movability is submitted. The difference is probably not sufficient to be important, however. Kuster found in 352 cases of unilateral kidney tuberculosis 189 in the right and 163 in the left kidney.

Gonorrhoea and other pyogenic infections of the urinary organs are important etiologic factors; this fact seems clearly established; the probable explanation is that these acute infections injure the structures, lower the vitality and favor the localization of the tubercle bacilli.

I have in several cases found the combination of stone and tuberculosis in the same kidney. There are two types of this picture, one with primary stone and tuberculosis. Here it is probable that the stone favors the localization of the tuberculous process and second secondary stone and tuberculosis; here it is probable that the tuberculosis precedes and that the secondary stone is the result of a mixed infection present.

What is the natural history of kidney tuberculosis uninterfered with by treatment? A tuberculous process developing in a kidney might go on to spontaneous cure as occurs in other organs and tissues of the body, the foci becoming encapsulated by a firm wall of connective tissue; the focus eventually being replaced by scar tissue or undergoing calcification. Although this is possible it would seem as though this was an extremely rare termination. The autopsy and clinical evidence seem to point to the fact that the process extends and involves eventually the entire kidney. This may occur and the lesion run a silent course with complete destruction of the kidney tissue and a spontaneous cure result, the kidney being changed to a mass of caseous material surrounded by a dense fibrous capsule; or the place of the kidney tissue may be largely taken by a mass of chronically inflamed fatty tissue. In such a case the patient is in much the same position as a patient who has a tuberculous kidney removed by operation; the diseased kidney being completely destroyed, and so encapsulated as to be rendered comparatively innocuous. Such spontaneous cures are rare, and form a small per cent of the total cases. The usual course is the extension of the process to the pelvis, ureter and bladder, or to the perinephritic tissues. The gradual weakening of the patient, with sooner or later widespread tuberculosis, with, in the majority of the cases, involvement of both kidneys and death.

SYMPTOMS.

Kidney tuberculosis is symptomless until the process has extended to the calyces, or pelvis, or to the perinephritic tissues.

The earliest and most important symptoms are frequency of urination and turbid urine; a cystitis, which is not clearly gonorrhoeal or due to instrumentation, should suggest the possibility of tuberculosis of the kidney and urinary tract, and lead to the exhaustive examination of the urine for tubercle bacilli.

Pain and tenderness in the kidney region may occur or may be absent. These symptoms vary from a mere sense of pain or discomfort in the kidney or above Poupert's ligament to the outspoken picture of kidney colic, simulating kidney colic from stone, and due to the plugging of the ureter with blood or tuberculosis debris. Hematuria occurs in about 25 per cent. of the cases, and may be severe, even fatal, or on the other extreme may be barely macroscopic, or even microscopic in amount.

Pyuria is one of the most constant symptoms of kidney tuberculosis; mixed infection usually due to colon bacilli is common. The urine is usually acid in kidney tuberculosis, but may in mixed infections be alkaline. Increase in the size of the kidney occurs in many cases, especially when there is present a perine-

phritic process. There may, however, be an actual decrease in the size of the organ.

Early diagnosis is of extreme importance in kidney tuberculosis. To-day the broad diagnosis of genito-urinary tuberculosis will not suffice. The diagnosis must determine the original focus, whether one or both kidneys are involved, whether the bladder is involved, and to what extent, and whether there is involvement of other organs, as the lungs, etc., in the tuberculous process.

The differential diagnosis must be made between cystitis, due to other causes and pyelitis due to other infections, and such kidney lesions as kidney stone, neoplasms, polycystic degeneration of the kidneys, essential hematuria and acute and chronic pyelonephritis and pyonephrosis and hydronephrosis, or other etiology. In the majority of cases the patient presents the symptoms, and is treated for a chronic catarrh of the bladder.

Here the diagnosis must be made by the finding of tubercle bacilli in the urine. The finding of tubercle bacilli in the urine is largely a matter of care, patience and proper technique. They can almost always be found in a tuberculous process of the kidney which is giving sufficient symptoms to drive the patient to consult a physician.

A twenty-four hour specimen of urine should be allowed to settle, the sediment should be obtained and centrifuged and properly stained and examined. In order to exclude smegma bacilli the specimen should be obtained with catheter and de-stained with acid alcohol. A single negative examination should not be accepted. If necessary half a dozen specimens should be examined. If tubercle bacilli are found a cystoscopic examination of the bladder should be made, and the question of bladder and ureter involvement determined. The process when it has involved the ureter gives often a characteristic picture in the cystoscopic examination, redness and swelling of the mouth of the ureter on the affected side with scchymoses, tubercles and ulceration.

After definitely determining the existence of a tuberculous lesion of the kidney in this way, it becomes necessary to determine the existence and the condition of a second kidney; this can best be done by catheterizing the ureters, collecting and examining separately the right and left urines. In addition to this, where surgical treatment is considered, a cryoscopic examination of the blood is made to determine the question of kidney sufficiency. If it is normal, 55-57, or even up to 59, a nephrectomy may be safely undertaken.

Calculous pyelitis often gives the same general clinical picture as tuberculosis of the kidney. The differentiation can be

made, as already stated, by an X-ray examination. The negative evidence of X-ray plates of the kidney region, which possess proper definition, can be relied upon, and in this way calculous disease may be excluded.

Neoplasms of the kidney, especially the common form of neoplasm in the adult, i.e.: Hypernephroma, gives the symptom complex of pain and tenderness, hematuria and palpable enlargement, but lacks the turbid urine, frequency of urination and cystoscopic picture of tuberculosis. Pyelitis and pyonephrosis from pus infections must be differentiated by the examination of the urine for tubercle bacilli. In polycystic disease with hematuria both kidneys are usually palpably enlarged and no tubercle bacilli are found.

In the now small proportion of cases in which tubercle bacilli are not found in the urine, but where the clinical picture strongly suggests tuberculosis, animal inoculation may be employed or the tuberculin test resorted to.

TREATMENT.

One reads the average text-book of medicine in vain for a satisfactory description of kidney tuberculosis. The subject is usually discussed in a short paragraph in the general chapter on tuberculosis, and is not mentioned at all in the chapters on diseases of the kidney. This fact may in part explain the woeful ignorance of the general practitioner on this subject. He has not had the subject properly presented to him. This fault should be corrected. Means must be found to instruct the family physicians, that tuberculosis of the kidney is a common disease, that by proper methods the diagnosis can be made early, and what is of the greatest importance, that the majority of the cases early diagnosed can be cured.

It is very important to have this done, because the family physician sees and treats these cases in their early stage, and frequently throughout their course, and as a rule without recognizing the condition.

Three methods of treatment have been advocated:

1st. The general hygienic treatment, which is employed in lung tuberculosis.

2nd. The specific treatment with tuberculin.

3rd. The surgical treatment.

Before discussing the treatment let me again remind you of the fact, that spontaneous cure of kidney tuberculosis is probably rare, and that the cases in which a cure has apparently occurred are, as a rule, cases of unilateral kidney tuberculosis with complete destruction of the kidney and occlusion of the ureter with resulting cessation of symptoms.

1st. General hygienic treatment is of great importance, as in all cases of tuberculosis. Fresh air, proper nutrition and rest are of much value, and should always be insisted upon. Cures occur under such treatment, but as already stated, they are rare, and, as a rule, are brought about only after the total destruction of the single kidney involved. In the light of our present knowledge we are not warranted in depending upon hygienic treatment alone.

2nd. The specific treatment with tuberculin is at present on trial, especially as advocated by Wright in very small doses, and controlled by determining the opsonic index. Wright and some of his followers are enthusiastic in their claims of this treatment in urinary tuberculosis.

It goes without saying, that the entire medical world will welcome with open arms and adopt with enthusiasm this treatment as soon as its value is demonstrated. Has its value been demonstrated? I am afraid not. In surgical tuberculosis in general, as gland, bone and joint and skin tuberculosis, has it supplanted other methods of treatment? Unfortunately, no. A few cases of urinary tuberculosis have apparently recovered under this treatment, but side by side with these can be placed a much larger number of cases which have apparently recovered without any or with simple hygienic treatment. Unfortunately, for the present, I think the unbiased observer must conclude that the specific method of treatment is still experimental, and is not to be relied upon to the exclusion of other methods.

3rd. The surgical treatment.

We owe our present knowledge of tuberculosis of the kidney not to the internist, who does not have the opportunity of seeing the diseased kidney, nor to the pathologist, who sees the tuberculous kidney in the dead, but to the general surgeons and the surgical specialists, who have had the opportunity of examining the tuberculous kidney and ureter and bladder in the living, and who have been able to follow these cases and watch the results of the various operations, which have been undertaken for the cure of the disease.

It is to these men we must go for the literature on kidney tuberculosis: Albnau, Tuffier, Israel, Kummel, Gaire, Kapsammer, Willy Meyer, Walker, Morris and others.

Among these we find a fairly unanimous agreement that kidney tuberculosis is a hematogenous infection, that it is early unilateral, that when it is early diagnosed it can be cured by the removal of the focus of disease, i.e., by a nephrectomy.

The nephrotomies and drainage, which were in the early development of this work undertaken, effected few if any cures, and as a result nephrotomy for kidney tuberculosis has been abandoned, except as a preliminary operation in cases of mixed infec-

tion. Where the condition of the patient does not permit of an immediate nephrectomy, resection of the portion of the kidney grossly involved has also been abandoned because the operation gave few cures, and because a careful study of the pathological anatomy shows that there are so many foci, as a rule, that resection offers little hope of cure.

Primary nephrectomy for early unilateral kidney tuberculosis can be done with less than 10 per cent. of mortality. In Kummel's last series, 69 cases, the mortality was but 27, and with the prospect of curing about 80 per cent. of the cases. An interesting and important fact in connection with these operations is that the limited bladder tuberculosis, which is so constant in these cases is, as a rule, gradually fully recovered from after the removal of the primary focus, i.e., the kidney.

In the light of our present knowledge then we must conclude that in unilateral renal tuberculosis, early nephrectomy is the best treatment. This should be combined with the well recognized hygienic treatment of tuberculosis.

In bilateral renal tuberculosis the treatment should be the hygienic treatment plus possibly the specific treatment with tuberculin until, at least, its value has been proven or disproven, and where especially indicated such palliative surgical measures as nephrotomy and drainage.

It is our duty to make known to every medical man these well established facts in regard to kidney tuberculosis.

NEOPLASMS OF THE KIDNEY.

The classification of kidney tumors is by no means generally agreed upon. Many tumors which were some years ago classified as sarcomas and carcinomas are now recognized as hypernephromas. As an example Morris several years ago in analyzing 122 cases of tumors of the kidney found:

Sarcomas	63
Carcinomas	41
Adenomas	10
Papillomas	3
Myomas	2
Lipomas	2
Dermoid cysts	1

122

And as you note he does not report a single case of hypernephromas.

On the other hand Albrecht recently reporting the malignant

tumors from Hochenegg Clinic during the last ten years found 32 cases, and of these 28 were hypernephromas, 3 sarcomas and one a carcinoma of the pelvis of the kidney.

Neuhauser has recently reported on 103 cases of renal neoplasms from the Israel Clinic and found 69 of these were hypernephromas. The reason for these great differences in statistics is found in the fact, that the Grawitz tumor or hypernephroma was not recognized until 1883, and for many years was regarded as a rarity. We have gradually learned, however, that most of the malignant tumors of the adult reported formerly as carcinomas or sarcomas are found on careful histologic study to be hypernephromas.

My own experience with kidney tumors agrees perfectly with that of the Hochenegg Clinic. Of nineteen cases operated on in my clinic, exclusive of cases of polycystic degeneration of the kidneys, fourteen have been hypernephromas in adults, four mixed sarcomas in children and one a single large cyst in an infant. In other words every case of malignant tumor of the kidney in the adult in my clinic has been hypernephroma, and the tumors in children have been (with one exception the simple cyst) the rapidly growing mixed sarcomas peculiar to infancy. Fifteen years ago I had the opportunity of studying under Birch Hirschfeld, and became somewhat familiar with the class of kidney tumors for which he coined the name hypernephroma, and have been ever since on the look-out for them.

I am personally quite convinced from my own study and clinical experience that the common malignant tumor of the kidney in the adult is the hypernephroma, and that true carcinomas outside of the cases of carcinoma beginning in the renal pelvis are extremely rare. I think sarcomas of the kidney in the adult are also extremely rare. On the other hand the large rapidly growing tumors of the kidney in the infant or young child are best classified as mixed sarcomas. In children the diagnosis of kidney tumor is, as a rule, not made until the tumor is palpable. The only treatment to consider is an early nephrectomy. My own experience has been that the cases have not been diagnosed sufficiently early to secure a permanent cure by nephrectomy, as all the cases I have operated on or seen in the hands of my colleagues have succumbed either to the operation or to a rapid recurrence.

In the adult, the common malignant kidney tumor, the hypernephroma, runs rather a slow course. The primary lesion may never be diagnosed until metastases occur, which on histologic examination shows the characteristic hypernephroma tissue. The common symptom is that of hemorrhage. Israel found this in 80 per cent. of his cases. Hematuria has been present at some time in almost all of my cases. The presence of a kidney swelling is

sooner or later to be made out in all but the exceptional cases. Pain and discomfort are present in a considerable proportion of the cases, in my series in about 40 per cent.

In some cases violent renal colic attacks occur, due to plugging up of the ureter with a blood clot, and in several cases severe pain in bladder and urethra, due to blood clots in the bladder and efforts to pass them per urethram. In a few cases fragments of tumor tissue are passed in the urine and the diagnosis made from a histological examination of these fragments. In one of my cases the patient passed blood in the stools, and a careful examination showed pieces of tumor tissue, which on examination proved to be hypernephroma. In this case the post-mortem showed that the tumor had involved and grown into the descending colon.

One symptom of malignant disease is noteworthy, rather from its absence or late appearance than from its presence, and this is cachexia. Victims of hypernephroma remain for a surprisingly long time free from cachexia, and present the appearance of fair health, unless reduced by frequent hemorrhages.

A very interesting symptom which has occurred twice in my series has been rapidly developing varicocele, one on the left and one on the right side. In the case where it occurred on the right side it was the first symptom noted, and led to a careful examination of the right kidney, and the discovery of a tumor. These varicoceles are peculiar in that they do not disappear rapidly or at all when the patient assumes the recumbent position.

Another characteristic of hypernephromas is that they form late metastases, which involve especially the bones. There are now a number of cases where an operation has been done for supposed primary malignant tumor of the bone, which has proven to be a metastatic growth from a hypernephroma.

Another feature, which is soon discovered in operating on a series of these cases is the tendency for the tumor to grow into the renal vein and to extend through the venous circulation; lymphatic extension does occur, but it is rare.

In spite of the slow growth and late tendency to metastases the prognosis after operation is extremely bad as shown well by the report from the Hochenegg Clinic. Here of twenty-four cases of hypernephroma operated on only one was alive and well four years after operation. My own results have been but little more encouraging. Of fourteen nephrectomies I had but a single death from operation. One patient lived six years and then died from recurrence. Two patients are alive and well three years after operation.

The operative technique in these cases has varied with different operators, some advocating the abdominal, others the lumbar

extraperitoneal route. I have personally employed both methods, but have of late years employed the lumbar extraperitoneal route almost to the exclusion of the abdominal incision. By making an oblique kidney cut, and where necessary carrying it forward above the crest of the ileum even as far forward as the ant. sup. spine, sufficient room can almost always be secured to remove an operable kidney tumor. Where the tumor is firmly fixed and the lesion has evidently grown into the surrounding tissues, or so invaded the renal vein that the mass cannot be removed without endangering the ascending vena cava, the operation should be made simply exploratory, and the case handled as an inoperable one.

In this connection I want to mention one of the most interesting facts that has developed in our work on hypernephroma.

Three or four years ago I made an exploratory incision on a case which proved to be inoperable on account of the extension to the colon in front and firm fixation to all the surrounding tissues. More as a placebo, and in part as an experiment, we put the patient under X-ray treatment. The kidney tumor, which was on the left side, and as large as a fetal head, melted down under the X-ray within a few weeks, just as a large leukemic spleen will often do. The patient's general condition was not much improved, and he developed a large mass in the epigastric and right hypochondriac region, evidently an extension of the same process, from which he later succumbed.

Some months later I removed a large hypernephroma which had involved the renal vein. The patient made an excellent recovery from the operation, but within a short time there appeared a recurrence deep in the scar. The patient was submitted to the X-ray, and this mass rapidly melted down and disappeared. When last seen, more than a year later, there was no recurrence and the patient was in excellent health.

Last spring I operated upon a class-mate of mine, a physician who came to me first with a right-sided hydrocele which came on suddenly. I found when I first examined him a freely movable tumor of the right kidney. I advised an immediate operation, but he kept putting it off until six months went by, when he finally submitted to operation. I found a large tumor growing over and around the ascending vena cava in such a way that removal was impossible. I made the operation simply an exploratory one, and have since put him under X-ray treatment. The tumor has greatly diminished under the treatment, and for a time he picked up considerably in weight. A recent report, however, tells me that for some time now there has been no further improvement. I offer this possible explanation, that the suprarenal tissue of a hypernephroma is probably peculiarly susceptible to the action of

the X-ray, just as is the tissue of the spleen. I report these results simply for what they are worth, and on the strength of these experiences I would suggest a thorough trial of the X-ray in inoperable hypernephromas, and in cases in which nephrectomy has been done, as a possible insurance against recurrence.

In my own clinic, where we have been so frequently compelled to differentiate between these three kidney lesions which we have just discussed, we have in most cases been able to make the diagnosis before the exploratory operation. In a general way we have been guided by the following simple rules: The patient is submitted to a most careful X-ray examination. If this discloses stone the diagnosis is made. If no stone shadow is found after repeated search, stone can be excluded with a margin of less than 10 per cent. of error.

If no stone is found a most careful examination for tubercle bacilli is made; if these are found the general diagnosis is established. If not, tuberculosis can be excluded with a margin probably of less than 25 per cent. of error, provided the cystoscopic examination of the bladder is negative. In the cases where the X-ray shows no stone, and the examination no evidence of tuberculosis, but where there is blood in the urine and evidence of kidney enlargement, the probable diagnosis is tumor, and today in the adult the diagnosis of hypernephroma can be made with a fair degree of probability.

I have thus attempted to present to you a picture of the present status of the surgery of stone, tuberculosis and tumor of the kidney, very different from the one that would have been drawn twenty years ago. Modern surgery can now offer much in the treatment of these diseases. Progress is being made rapidly, and we have reason to hope that the future will add much to that which has already been accomplished.

Diseases of the kidney belong for the most part to that borderland which must be cultivated by both the physician and the surgeon in order to bring forth the best fruit. The physician who handles these cases must keep in close touch with the surgical progress being made. He should follow the case to the operating table, and see for himself in vivo the pathological conditions which are responsible for the symptoms present. The surgeon must understand fully the value and possibilities of medical and hygienic treatment, before he can arrive at a just estimate of the value of surgical procedures.

PRO-PERITONEAL AND OTHER INTERNAL HERNIAE*

BY F. N. G. STARR, M.B.,

Surgeon to the Hospital for Sick Children, Toronto, etc.

It is not my intention in this short paper to go into the whole subject of internal hernia in all its forms, but merely to report three cases that have come under my observation presenting symptoms of intestinal obstruction.

The first was that of a male, aged 40, who was admitted to the General Hospital on December 2nd, 1905, under the care of the late Dr. George A. Peters, with the following history: In the fall of 1904, at Huntsville, the patient had his first attack. It commenced with pain, chiefly in right iliac region, persisted for three days and was very severe. He would neither eat nor drink, had no bowel movement but no vomiting. Enemata relieved the condition.

The second attack was at Waubauskene in April, 1905, quite similar to the previous attack, lasting three days, with pain, loss of appetite, but no vomiting. Again he was relieved by enemata. The condition was thought possibly to have been appendicitis. In each attack, when relief came, it came suddenly.

The third attack, almost a month before admission, lasted four days, with similar symptoms, but with vomiting in addition, although this was not fecal in character. He was treated by Dr. J. A. Harvie, of Coldwater, with enemata and recovered.

The fourth and present attack occurred while patient was working at railway construction on the C. P. R., and commenced similarly to the others but was not relieved by similar treatment. It began on November 28th with pain in the abdomen in the right iliac region, and constipation. He consulted Dr. J. A. Harvie, who gave him a purge and ordered hot applications to abdomen. This was not effectual and next day he began to vomit. The vomited material was white and slimy, but pain was not a marked feature. On November 30th the doctor gave him an enema, which was ineffectual, and on December 1st he started to hiccough; this continued until he entered the hospital on December 2nd. The patient had vomited every day since November 29th, and upon admission the vomited material was brown, fecal in appearance and odor. Enemas were given which brought away some fecal matter, probably from the lower bowel.

Upon examination the patient was seen to be a rugged, well-nourished laborer. There was some distention of the abdomen

* Read at Surgical Section of the Academy of Medicine, Toronto, April 20, 1909.

and the presence of a marked peristaltic wave. There was some slight rigidity of the lower part of the right rectus. There was a tympanitic note over the entire abdomen, except in the region of the bladder, where there was an alteration in the note. The heart sounds were transmitted over the abdomen, but more marked in the upper half.

The facial appearance indicated some serious intra-abdominal condition, though the pulse was 70, and the temperature normal. Hiccoughing at times was distressing, but the pain was less severe.

On December 3rd the pain returned, became worse; the vomit was very brown in color, and though the temperature remained normal the pulse became accelerated. Immediate operation was decided upon.

The abdomen was opened in the middle line between the umbilicus and the os pubis. The small bowel in its upper two-thirds was distended, while near the ileo-cecal end it was collapsed. Between these the bowel disappeared into an opening at about the level of the internal ring and between it and the median line. About eighteen inches of ribbon-like anemic gut were drawn out of an intraperitoneal sac, and at once became better in appearance. That part of the bowel that impinged on the rounded edge of the sac looked damaged in its serous coat, but there was no solution of continuity. Upon dissecting out the sac it was found to consist of peritoneum, and was tucked between the parietal peritoneum and fascia transversalis. The margin of the opening was rounded and thick. When dissected out the sac was about three inches long, and the opening in the parietal peritoneum thus left was closed with catgut sutures. The entrance into the sac would appear to have been originally a peritoneal pouch internal to the internal abdominal ring, and the hernia, instead of finding its way into the inguinal canal, pushed the peritoneal pouch out between the parietal peritoneum and the transversalis fascia.

After operation the vomiting ceased and the patient had two bowel movements the following morning. He continued to improve for five days, when on the evening of December 8th, he began to complain of pain in the lower abdomen. Upon examination the abdomen was tense, tympanitic, with absence of liver dullness, and increase of pulse rate from 84 up to 120, together with the abdominal facies. Perforation of the damaged gut was diagnosed and I opened the abdomen through the former incision, wiped out a quantity of fecal matter, and discovered a perforation the size of a split marrow-fat pea in the small bowel, where it had been damaged by pressure on the margin of the hernial opening. The opening was closed with two layers of continuous catgut sutures. The fecal matter was washed out with some saline

solution, and four drainage tubes were inserted in different directions and the wound partly closed.

He was returned to bed in a greatly shocked condition and normal saline per rectum ordered. The pulse continued to fail, and at midnight an interstitial saline was administered, and these were continued every eight hours for the next 32 hours. On the 12th he was somewhat better, and was put up in what is now called the Fowler position for better drainage. Bronchitis developed, and for the next few days he coughed up great quantities of muco-pus. On the 15th the large drainage tubes were removed and smaller ones inserted. It is unnecessary to relate the further progress of the case more than to mention that he was discharged from the hospital on February 23rd, and started for his home in Quebec.

The second case was that of a boy aged 7, who, upon returning home from a party on the evening of January 4th, 1906, complained of abdominal pain, which was relieved by hot applications. The next evening he was seen by Dr. J. N. Harvie, of Orillia, and though there was some indefinite abdominal pain there was no muscle rigidity, no increase in pulse or temperature and the bowels moved with an enema. The day following there was no increase of pain—more an uncomfortable sensation—but in the evening there was a sudden acceleration of pulse, from 88 to 140 in a few hours. The face took on the appearance so common in peritonitis and the abdomen became distended. When the patient was under the anesthetic—after midnight of that day (really the early morning of January 7th)—I was able to make out a large, sausage-shaped mass extending upward from the right iliac region toward the middle line, and I am free to confess that I thought we had a case of intussusception to deal with. Upon opening the abdomen a large coil of distended, gangrenous, foul-smelling gut appeared in the wound. This had passed through a loop formed by an attachment from the summit of a Meckels' diverticulum to the margin of the mesentery. About fourteen inches of bowel had passed through and then had drawn the diverticulum with it, producing strangulation of the circulation where the diverticulum and bowel was twisted upon itself. The loop was drawn out of the abdomen until the two healthy ends appeared. These were quickly sutured together, and then to the abdominal parietes; the bowel opened and irrigated, and the rest of the opening closed. The child survived only for about twelve hours.

The third case was in a girl of six years whom I saw with Dr. W. L. T. Addison, on March 29th of this year. The history was, that on the evening of March 26th the child complained of not feeling well, and the mother gave it a dose of

castor oil. Soon after there was vomiting. Towards morning there was a slimy evacuation from the bowels and in it a large round worm. On Saturday the girl was better, but towards evening began to be uncomfortable and to complain of pain. A laxative was given without result, and early in the morning of the 28th vomiting commenced. In the afternoon when the doctor saw the case there was severe vomiting, normal temperature, a pulse-rate of about 80, but there was pain and no rigidity. Stomach sedatives were administered, and calomel, but when I saw the case on the following afternoon there had been no bowel movement, though mucus had passed fairly often, and the vomiting continued.

Upon examination there was no rigidity, very little tenderness in the abdomen, but a peristaltic wave could be made out. To the right of the middle line, and about the level of the umbilicus, there was a soft mass with an indefinite outline. It did not feel like bowel within bowel—as in an intussusception—but, as I remarked at the time, it felt like a localized bunch of gut filled with gas. The patient was in a state of marked shock with the eyes sunken and dark circles around them, the pulse rate was 156, and there was only a slight elevation of temperature. Examination per rectum revealed nothing.

Two hours later I opened the abdomen through the right rectus; some distended bowel presented at the opening, and, while it was darker in color than the other portions, there was no evidence of strangulation. Upon delivering this handful of bowel I found it had herniated through a loop on the lower margin of the omentum, and consisted of about two feet of small bowel and a few inches of the caecum and ascending colon. The loop was disposed of, the abdomen closed quickly, and the patient returned to bed. Stimulants were administered, artificial heat applied, and the child made an uninterrupted recovery.

This case will come under the head of incarcerated hernia without strangulation. The first one related showed incarceration with beginning strangulation, while the second one was a complete strangulation.

The confusing feature in the diagnosis of these cases seems to be the gradual onset of symptoms, and yet the secret of success in their treatment is an early diagnosis and early operation.

112 College Street.

DATE STONE IN TRACHEA—LARYNGEAL PARALYSIS— REPORT OF CASES

BY D. J. GIBB WISHART.

Senior Surgeon, Department of Oto-Laryngology, Toronto General Hospital; Late Senior Surgeon, Department of Oto-Laryngology, Hospital for Sick Children, Toronto.

Case 1. W.N. Male, aged 4 years. Admitted to the Hospital for Sick Children, Nov. 25th, 1907, with the following history: Two and a half hours since, the patient came into the house from play in the street, screaming, gasping for breath, and cyanosed. Two doctors failed to relieve the distress, and at a hospital to which he was taken, no successful aid was rendered beyond a hypodermic to quieten him. No direct evidence of the cause of the obstruction was obtainable.

The cyanosis and distress were so great when the child entered the Hospital for Sick Children, that the administration of oxygen was at once commenced, and the esophagus was explored by a surgeon without result.

There was marked tracheal tugging, and the usual symptoms of laryngeal obstruction. Without further delay, under general anesthesia, respiration having almost ceased, the trachea was opened, and no relief being obtained by this measure, a pair of curved forceps was introduced afterwards, and the membrane irritated. An expulsive cough followed, and a date stone $\frac{3}{4}$ inches long by $\frac{1}{4}$ inch in diameter was expelled through the wound.

The incision was partially closed by three horse hair sutures, a moist compress adjusted, and the patient placed under a tent with a steam vaporizer. The breathing was distinctly croupy for forty-eight hours, and then the typical rash of scarlatina developed. The wound healed slowly, and the fever ran its usual course, the patient being discharged cured on the thirty-eighth day.

Case 2. F. S. Female, aged 8 years. Contracted laryngeal diphtheria, and entered Isolation Hospital, November 17th, 1907. Was intubated on the 18th. Tube removed on the 23rd. Again intubated on the 26th, and tube removed December 2nd. Discharged cured, December 24th. On the 27th of January following contracted a cold, attended with marked dyspnea. Intubated again, and tube left in place four days. Entered my service in the Hospital for Sick Children on the 6th of February, and on admission the following conditions were present: Face is cyanosed, breath-

ing stertorous, and pupils dilated; patient maintains a position of opisthotonos, and there is marked tracheal tugging, and epigastric indrawing, all the accessory muscles of respiration being energetically in action, reflexes are all sluggish or absent.

An ineffectual attempt was made to insert intubation tubes, those for four years and two years being tried. The patient becoming increasingly cyanosed, a little chloroform was administered, and the trachea rapidly opened, the isthmus of the thyroid requiring to be cut between artery forceps. Respiration being re-established, the vocal cords were examined through the wound from below and found to lie in close apposition. They were then separated by forceps, and an intubation tube, size eight years, introduced from below, and then from above, and left in position. The edges of the tracheal wound were approximated with sutures, but no attempt was made to close the wound superficially, and the patient was placed in a tent-bed with steam. Satisfactory progress was made, the neck wound healed and on the twenty-sixth day, the intubation tube was removed, but in a few hours severe dyspnea again developed. An intubation tube was inserted, but was soon coughed up, but the breathing continuing easy, an antispasmodic was administered, and the steam tent employed. The next fifteen days were marked by dyspnea increased during sleep, but not sufficient to cause alarm. On March 18th, a croupy cough developed, and the dyspnea became so marked that intubation was attempted without success, and unconsciousness supervening, the trachea was again opened, with immediate relief. On the fourteenth day thereafter, the adenoids and tonsils were removed, and this was followed by severe hemorrhage. The patient progressed favorably during the month of April, and on the 5th of May another attempt to intubate was made, three sizes of tube being tried, but on account of spasm insertion was impossible, and the tracheal tube had to be left in place. On the 21st, the chords were found to move more freely, and the tracheotomy tube was plugged daily, the patient breathing comfortably meanwhile. On June 23rd, the larynx was examined by direct laryngoscopy (Killian) and the tracheal tube removed, but as there was still some dyspnea an intubation tube (size six years) was introduced. This tube was removed on several occasions, but required to be reintroduced, but was finally withdrawn on the 14th of July.

Examination on the 6th August showed that the movement of the right vocal chord is weaker than that of the left, the power of phonation is good, but the voice husky, and the pitch cannot be raised. General health good. Patient discharged on the 254th day.

During the whole treatment strychnine was administered regularly in doses varying up to the point of toleration.

The patient did not appear again for about three months, during which time her respirations were notably labored, and the voice hoarse. On examination both chords were deficient in abductive power, and in deep inspiration assumed the cadaveric position. Strychnine was again ordered and the patient permitted to accompany her mother to England.

47 Grosvenor St., May 12, 1909.

❁ School Hygiene. ❁

OPEN AIR SCHOOLS

SPAIN AND AUSTRIA, as well as England and Germany, are now having open air schools. Mr. James Baker, late Commissioner for the Board of Education, in a recent number of the *St. James Gazette* describes an open air school in Spain:

We are all familiar with the fact that these schools exist, and are spreading in England and Germany, but it is not so generally known that perhaps the oldest of them is to be found—where it would be last looked for—in Spain.

The school is situated in the Valle de Paradix, near to Granada, not far from the shores of the Mediterranean. It is the ancient home of the gypsies, and gypsy children are its present scholars. It was started, and is now carried on by Padre Manjon, who is a "padre" in more than its ecclesiastical meaning. It consists mainly of a play-ground, with a church and certain necessary school buildings. "On the walls of the buildings," writes Mr. Baker, "were great maps, in deep, crude color, of Spain, the World, Europe," etc. But the playground is the chief and most interesting feature. This can be best described in the words of the writer who has seen it:

"The plan of the playground was entirely novel. I saw a little mound close to a pool of water, where I was standing, and the boys' quick answer to my question was 'That is Mount Sinai,' and the water was 'The Flood,' a pillar near was the Tower of Babel. I was in the Scripture part of the playground. The centre of the playground is laid out to represent the dial of a clock. In another part is a skeleton for teaching anatomy; the planetary system is taught with a series of movable balls upon wires, illustrating the solar system. In a shallow tank of water was a raised map of the world, so that the pupils could see the oceans and seas and greatest rivers. Another part was divided into squares of numbers, and we had a lesson in arithmetic given upon these squares. The children were numbers, and they had to exchange or fall out, as they were added, or multiplied, or subtracted, and quick and alert they were to leap to their places."

During summer the class teaching is carried on in cool caves, of which there are several. In the school building there is a

kitchen where the girls prepare the meals; workrooms, where patching and mending is done, and useful garments made; also a theatre, in which plays of child-life are performed. This is the Central School. But there are several branches, and in all some 1,500 children are being educated in the open air. It seems like a Vale of Paradise in more than the name.

From *Progress* we learn that two new Open Air Schools have been opened in Germany during the present year, one by the Municipality of Elberfeld, and one by that of Lübeck. They have the same objects, and are run on precisely the same lines as those described in previous numbers of *Progress*. There is one special feature about the Elberfeld School that deserves mention, and that is its superb situation. After leaving the outskirts of the city, one ascends for more than an hour by winding paths through thick forests of oak and beech and lime, with forests stretching for miles round as far as the eye can reach, and there on the summit, in an open glade, are the school buildings, with their 100 happy children, rejoicing in new-found health and spirits.

AN AUSTRIAN FOREST SCHOOL.

Last June a start was made at Meuwaldigg, near Vienna, through the efforts of Dr. Weiss, the President of the Goutte de Lait, the necessary buildings being erected at the expense of the Red Cross Society. The Creche Settlement, with its nursery, dormitories, kitchen, etc., and tents to protect from the heat of the sun, is pitched in an open glade in the midst of a vast forest, well sheltered from the wind. The building, constructed on the newest hygienic principles, provides beds for twenty babies. As the number is limited, and as the object of the founders is to do something towards lessening the terrible infant mortality by removing children thus early in life from the vitiated air of the tenement blocks to the pure air of the forest, the selection of those to be admitted is left to the *Fürsorge* and *Säuglingsschutz Verein*. The staff consists of two nurses and two nursing mothers, who in addition to feeding their own children, also feed others when breast-food is considered necessary. When able, the parents pay about 4d. a day.

WHAT IS THE MATTER WITH THE PUBLIC SCHOOLS?

A LITTLE while ago, *The Delineator* was asking the question, "What is the matter with the public schools?" There were a number of suggestions that developed from that investigation. There are a number of things the matter. Out of them all one defect in our educational system stands out glaringly. It is most

tersely told in the last report of the United States Commissioner of Education. It's a simple statement of the salaries that American cities pay their school-teachers.

And that, ladies and gentlemen of the school boards, is what is the matter with our public schools. We pay our unskilled street laborers something like a dollar or a dollar and a quarter a day. We are paying our school-teachers some less and some a little more. It is the wages that a dull brain and a primitive mind are worth. In return for such wages we are requiring a service that should be entrusted only to a mind and heart enriched with all that literature and art and science can contribute to a perfect culture. It should be only such a personality into whose training we give the future citizens of the nation. Can we get personalities like that to serve us in our public schools? Not any longer than they can help it. Just as soon as their force of character and intelligence and initiative enable them to reach a better-paying position, one that will allow them to buy books and hear music and have the other good things of life that their larger natures crave, they go after it.

Until we realize with a conviction that reaches our pocket-books that the school laborer is worthy of her hire, we aren't going to keep the best school laborers in the public employ. And there will continue to be something the matter with the public schools.

Selected Articles.

MEDICAL VERSUS SURGICAL TREATMENT OF AMEBIC DYSENTERY.*

BY JOHN MILTON HOLT, PHIL.B., M.D., BROOKLYN, N.Y.,
Past Assistant-Surgeon United States Public Health and Marine Hospital Surgeon.

In a paper¹ read before this association in 1907, I advocated surgical treatment of all patients with amebic dysentery, in whom, after a fair trial of other forms of treatment, *Amoeba coli* could be found in the stools.

In offering some definite time limit during which these various other methods of treatment could be carefully and impartially exhibited, before classing a case as chronic (and, in my opinion, surgical), I suggested a period of about a year.

In the discussion of the paper, Dr. A. J. MacKenzie, Portland, Ore., expressed the view that I had been too conservative in waiting a year before operating, and suggested that appendicostomy be performed if the disease proved resistant after six months.

The fact that this question is of such vital and practical importance is my justification for presenting another paper on the subject.

Another incident influencing the production of this paper has been the appearance, since last year, of several other articles dealing with different phases of amebic dysentery. The topic may not arouse the lively interest of all, but should a physician consulted in a case of amebic dysentery be unfortunate enough to acquire the disease, the question would then appeal to him very strongly.

At one time I was a victim of this malady, and for five years I have made an exhaustive study of the subject in all its phases. I consider it an obligation, therefore, to record my observations, experiences, and opinions, and leave for time and the majority experience of other workers in the same field to determine the course to be generally adopted for the greatest good to the greatest number. As it is now, too many of these patients are receiving too little serious attention, when their salvation could be worked out at the expense of but a modicum of mental energy.

All observers are agreed as to the marked tendency of amebic

*Read at the Annual Meeting of the Oregon State Medical Association, Portland, Ore., July 2, 1908.

dysentery to resist all ordinary treatment and to become chronic, a fact which renders it all the more imperative for us to devote our best endeavors to the development of a rational, uncompromising plan of attack in dealing with the disease in its chronic form. We should not permit any case to run on indefinitely, because the patient is "doing fairly well," when it could be cleared up at once and for all by simple surgical treatment.

In one of my cases reported last year treatment by colonic irrigation was begun as soon as amebas were demonstrated, or about three weeks after the onset of symptoms. This treatment was continued daily for over a year, except on the day on which microscopic examination was made. Amebas disappeared from time to time, only to return. Undue exertion or ordinary physical fatigue always caused an exaggeration of the symptoms, and a life of semi-invalidism seemed a certainty. During part of that time irrigation was practised twice a day (always once a day), care being taken by change of position to encourage the flow toward the transverse and ascending colon. Several hours were devoted each day to the careful, conscientious employment of the irrigation treatment, with the full hope that recovery would be the reward. Nothing was considered too much trouble. But, while there were periods of improvement, symptomatic improvement—if we can speak of it as such—the parasites persisted, no matter what irrigating solution was employed. Hope began to wane. For a time ice-water irrigations were used, as recommended by J. P. Tuttle. The irrigator was filled with cracked ice and the solution allowed to stand in it for about twenty minutes before using, when as much as five quarts of it would be introduced at one time. As an indication of how cold the solution was, I would say that chipped ice still remained in the irrigator after the entire solution had been passed into the colon, and the hand, held against the abdomen over the transverse colon, could detect the ice-cold temperature of the skin of the abdominal wall, transmitted through all the structures and tissues between the palpating hand and the colon.

The sigmoidoscope was used, and it was seen that no lesions were present below the sigmoid. Operation was decided on in this case after one year, but, owing to family reasons, its employment was not possible until after two years.

Will anyone offer and prove a valid reason for continuing medical treatment indefinitely after an experience of this kind? It should be added, however, that this is not an isolated example, but, unfortunately, is the experience in a large percentage of cases.

Any man who has had both medical and surgical experience with this disease will firmly endorse my line of classification, with the principles of treatment as suggested for the two classes of cases—acute and chronic.

But it is not to those men of the profession to whom I would particularly address myself (except for confirmation and endorsement), but to those who have not given the subject particular study, and to those who have treated all their patients medically.

In the persistent study and presentation of this subject my sole object has been to invite earnest dissent, as well as earnest support, to the end that the best and most practical procedure may be adopted, even though it be the exact antithesis of my conclusions. It is the eternal truth toward which I am striving, whether that truth in this instance confirms or disproves.

There are altogether too many patients with amebic dysentery who to-day are no better than they were six months after the onset of the disease. There are patients now in the United States in whom the disease has persisted for six, eight, and even ten years. One might say that they could be treated surgically if they wished to be; but has appendicostomy been even offered to them? Has the profession been educated up to the point of offering, or better, of advising operation after a certain lapse of time? Evidently not, if we are to judge from the relative infrequency of the operation, and compare it with the large number of chronic cases.

According to the annual report of the director of health for the Philippine Islands, Victor G. Heiser, passed assistant surgeon, U. S. Public Health and Marine Hospital Service, during the year ended June 30, 1907, there were 344 deaths due to amebic dysentery in the city of Manila, as against 288 for the preceding year.

For every death there are about twenty patients who live, which would make a total of nearly seven thousand cases for that year. When we consider that a large proportion of that number return to the United States and are scattered all over this country, it can readily be seen that amebic dysentery becomes a matter of importance to the general practitioner everywhere in this country, and the subject cannot be dismissed because primarily a "tropical disease." Progressive practitioners indulging in post-graduate work should take opportunity to familiarize themselves with the *Amoeba coli* under the microscope, and then interrogate the stools in "that case of intractable diarrhea."

When a patient presents himself for treatment with a history of "a running off at the bowels," as it is frequently characterized, automatic recourse to bismuth, opium, or similar drugs should not invariably follow. With rest, dieting, and slight medication, an acute exacerbation of a chronic amebic dysentery will often yield, so far as the diarrhea is concerned, and one may be misled into thinking that a "slight attack of diarrhea" has been "cured." *There should be more frequent use of the microscope in these cases.* It should also be constantly borne in mind that a patient does not

have to go beyond the United States to acquire this disease, as it has been shown by Tuttle that cases have occurred among those who have never been outside of New York.

Futcher² reports ninety-five cases of amebic dysentery contracted in Maryland and seventeen in eight other states, which gives an idea how widespread the infection was five years ago.

Now, whether the disease be considered chronic after a year or after six months, I believe that when it becomes chronic it also becomes surgical.

On the other hand, while it remains acute, it also remains medical, with the single exception of those acute cases which grow steadily worse, even while under treatment. I do not advocate surgical treatment for both acute and chronic cases (with the one exception just stated), but assert that a case ceases to be a medical one as soon as it ceases to be an acute one.

While there may be debatable ground for the adherents of the medical treatment of appendicitis, there remains no tenable ground on which to justify continuation of medical treatment and exclusion of surgical relief in cases of amebic dysentery after they have ceased to be acute. In the latter case one has everything to gain and nothing to lose. He has already lost all he can spare.

It will be seen, therefore, that all through the consideration of this subject the questions come up: When does a case cease to be acute? When does it become chronic? While that can only be stated approximately, that approximate borderland should be bounded by some definite limits, as: Not earlier than six months or later than one year; or, placing it within narrower margins: Not earlier than nine months or later than one year. Some set of principles should be established on which to govern our practice in these cases. The issue should be squarely met. If some such borderland is not established, procrastination only will result and patients permitted to suffer who could be relieved. It was for that reason that last year I suggested a working basis in these words: "Amebic dysentery, with lesions above the sigmoid, chronic for over one year, resistant to colonic irrigations, then become a surgical disease."

One year was suggested as meeting the demands of conservatism, as I have been actuated by a conservative inclination from the beginning. But if further experiences prove that a year is too long to wait, the proper level will be shown by the gauge of clinical experience.

In the *Military Surgeon* for January, 1908, there appears an article on "Ipecacuanha in Amebic Dysentery," by Surgeon Henry I. Raymond, of the United States Army. While the enthusiasm of Raymond as to the permanent value of ipecac in

amebic dysentery is shared by but few others, still, for the purpose of this paper, I invite attention to certain points of related interest.

At this point I wish to state that in my opinion there is no known drug which, taken by mouth, can be tolerated in sufficient strength in the upper alimentary passages to secure a destructive or toxic action on amebas in the colon. Quinin has proved to be destructive to the parasites when brought in direct contact with them; ipecac has not. And yet quinin irrigations have failed to cure in many cases, perhaps because the amebas have become encysted, and then imbedded beneath the submucosa, sufficiently remote and fortified to withstand the action of the quinin solution in the lumen of the gut, only to develop marked activity after a lapse of time, during which the patient has considered himself, or has been considered, as cured. This would account for the fancied disappearance of amebas from the stools in so many cases. Quinin acts on the *Plasmodium malariae* in the blood, while *Amoebae coli* are within the lumen of the intestine, and are not approachable through the medium of the circulation.

For accurate scientific data of reliable clinical value I believe the stools should be carefully examined microscopically for many months, and even years, after supposed recoveries. It would be of value, too, if these examinations were made by an impartial observer, rather than by the clinician himself.

I know of patients who considered themselves recovered, and were so pronounced by their physicians, who were free from all symptoms for three, four, and five years, only to be stricken with severe acute attacks, in the meantime not having been beyond the borders of the United States.

In Case 4 in Raymond's article it will be seen that five months after reported recovery following ipecac treatment the report states that "a few sluggish amebas" were found. To be sure, this patient was in the Philippines at the time, but the time under observation after the treatment was discontinued was only ten months. During that time five microscopic examinations were reported, amebas being present once. The history of this case since November, 1906, would be of decided interest to workers in this field.

Raymond's Case 5 is reported as having been subjected to microscopic examination for only one month after treatment.

While it is not my purpose to belittle the ipecac or any other treatment, the ipecac treatment, by the majority of observers, has been found wanting in amebic dysentery, no matter what it may do in other forms of dysentery. With ipecac or without ipecac, with quinin or without quinin, with argyrol or without argyrol,

if *Amoebae coli* persist after a year, amebic dysentery becomes a surgical disease.

In his well-known work on "Tropical Diseases," Manson says:

"I can offer no explanation of the action of any of these drugs (including ipecac) in dysentery. We use them quite empirically. Ipecacuanha and simaruba really seem to have some sort of specific action on the disease or its cause, but in what way it is impossible to indicate. Strange to say, ipecacuanha, which has been found so serviceable in India, Africa, the Brazils, and elsewhere, has a very poor reputation as an antidysenteric in the United States (Osler); it has also signally failed in some English epidemics (Clouston); facts pointing to specific differences in the dysenteries of different countries."

If ipecac is of value even in a limited number of cases, give it a chance. Leave nothing undone in striving to prevent the case becoming chronic; then, having done all, treat it surgically.

To reiterate: Amebic dysentery, in its initial acute manifestations, is a medical disease. When it refuses to yield to medical treatment and becomes chronic, it then becomes a surgical disease, and no patient should be denied the permanent relief which surgical treatment holds out to him.

Anders³ has said: "I believe that ipecacuanha is the best single remedy for the treatment of this disease, but it is not a specific, and not all patients can take massive doses."

Referring again to the *Military Surgeon* for January, 1908, Assistant Surgeon Robert M. Thornburgh of the United States Army, in an article on "The Treatment of Amebic Dysentery," says:

"From the writer's observations while in charge of the dysentery ward in the Division Hospital, Manila (part of 1905-6), the cases treated solely by ipecac or by ipecac combined with quinin enemata, nearly always relapsed when the treatment was discontinued. . . . No internal treatment used by itself was successful in the hands of the writer in any case of these subacute or chronic cases. . . . Quinin sulphate . . . has been extensively employed with some undoubted cures and numerous relapses with fatal termination. . . . Ipecac can be given . . . to lessen the diarrhea. It lessens the number of stools, but *does not kill the ameba.* (Italics mine.)"

Thornburgh thinks well of rectal injections of argyrol, although the cases he reports were only under observation nine months. But whatever the results of further study of the effects of argyrol, the *rationale* of my line of treatment would not be modified. The patients relieved by argyrol would not have to be considered from a surgical viewpoint. If future experience results in reducing the number of cases now becoming chronic, so much

the better; then there will be fewer surgical cases. That would make a difference in numbers without any difference in the principle for which I contend.

Surgical treatment is not an experiment; it has an established place in the treatment of this disease, and I would gladly extend its benefits by heralding its virtues. In fact, it has been so well thought of that it has been employed in pathologic conditions of the colon other than those caused by the *Amoeba coli*, and with marked success.

To give expression to the conclusions of other observers who have treated this disease both medically and surgically, I will quote briefly from an article by Surgeon Holton C. Curl⁴ of the United States Navy, entitled "The Surgical Treatment of Dysentery." He says:

"The necessity for surgical interference was brought strongly to my attention by observing the number of cases admitted to hospital (Isthmian Canal Hospital, Colon) in fairly good condition, which grew steadily worse in spite of the best medical treatment by careful and experienced men, . . . what I call an 'intermediate class,' . . . where medical treatment does not check the disease, where the patient loses strength and finally dies, the pathologic condition apparently uninfluenced by medicine or ordinary irrigation. It is in this class, varying as it does between extremes, that I would advise operation, and in most of these cases it is a *dernier resort*, offering the patient the only chance of recovery.

"In a condition where there is nothing to lose and everything to gain, the surgeon is tempted to operate in cases in which he feels that the chances are all against recovery. He realizes, however, that cases of this sort, apparently hopeless, will recover in a most surprising manner, and he undertakes the operation often to the detriment of his percentage of recoveries. I prophesy that the mortality percentage will be high until the medical man (as in appendicitis) learns to send his patients to the surgeon before it is too late. Even more than in appendicitis there is a tendency to procrastinate, to try some new remedy, until, when the patient finally reaches the surgeon, his chances are small."

Recently I received a letter from Dr. Jerome B. Thomas, of Brooklyn, N.Y., from which I shall quote. Thomas spent several years in the Philippines, and was the physician in charge of the Government Sanitarium at Benguet. He writes as follows:

"I had an experience in treating a case of chronic amebic dysentery soon after my return from the Philippines that has led me to the same conclusion that you have reached. The patient was a personal friend of mine, and we tried diet, internal medication, sanitarium treatment, and all sorts of local treatment for

almost a year, when we agreed on appendicostomy as a last resort. Within two or three days after the operation he had made decided improvement, and then his progress was steady and quite rapid. I feel sure that he would have died without the operation."

This is only another of the many examples of how the surgical treatment appeals to the progressive practitioner. It is so essentially practical that it is no wonder that it has been referred to by MacKenzie as "a marvel of ingenuity."

One of Rockey's patients, also a medical man, has said that he would not take \$1,000 for the benefit that his appendix has been to him.

While all the literature on the subject is not available at this time, for the consideration of those who have not reached any conclusions in this matter I would mention the names of Weir, Tuttle, Rixford, Nydegger (U.S.P.H. and M.H.S.), Arthur (U.S.A.), Curl (U.S.N.), MacKenzie, Rockey, Barbat; Willy Meyer, Beck, Elder (of Montreal), and many others who have employed surgical treatment.

In conclusion, I would suggest that the *Amoeba coli* may not be pathogenic to all men, as it is well known that all individuals equally exposed do not contract the disease. The so-called *Entamoeba coli* may be the form of the parasite as observed in the stools of an individual not susceptible to amebic invasion. The so-called *Entamoeba dysenteriac* may be the same parasite developing greater activity coincident with morphologic changes in an individual having a susceptibility to the organism. Have *Entamoebae dysenteriac* ever been found in a case presenting no clinical symptoms? And have *Entamoebae coli* ever been found in a person sick with dysentery in whom no *Entamoebae dysenteriac* could be demonstrated? This may be a case of a distinction without a difference, a biologic distinction without a clinical difference.—*Journal of the A.M.A.*

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Proceedings of Societies.

THE TWENTY-NINTH ANNUAL MEETING OF THE ONTARIO MEDICAL ASSOCIATION

THE twenty-ninth annual meeting of the Ontario Medical Association opened in the Medical Building of the University of Toronto on the morning of June 1st last, and continued during the two following days. Over 200 medical men were in attendance from Toronto, Hamilton, London, Montreal, Ottawa, Buffalo, Detroit, New York, Winnipeg and other cities. The president, Dr. H. J. Hamilton, Toronto, gave an opening address, full of valuable suggestions, the keynote being "Educate the people, by starting with the rising generation." Alluding to the opposition to the vaccination of school children in Toronto, he remarked: "I venture to say that none of the members of the School Board in Toronto would hesitate about taking the Pasteur treatment for the prevention of hydrophobia, if bitten by a mad dog, yet they decline to enforce vaccination in the public schools. And what Pasteur's treatment is to hydrophobia, so vaccination is to smallpox." He declared that tuberculosis and typhoid fever were preventable diseases; but, to adequately secure their prevention, the homes of the people must be reached, and that could be more thoroughly done through a proper system of medical inspection of schools and the drilling of the school children in hygiene. The sewage disposal system and the water filtration system of Toronto were cordially endorsed.

The list of papers read at the meeting was a long one. We shall be pleased to publish several of them in subsequent issues of this magazine.

On the afternoon of June 3rd Dr. William Osler gave an address, which is noticed editorially in this issue.

The annual dinner, held at McConkey's, was a very enjoyable function, and was largely attended.

The next place of meeting will be Niagara Falls, Ont.

The following officers were elected for 1909-10: Dr. H. R. Casgrain, Windsor, President; Dr. H. B. Anderson, Toronto, First Vice-President; Dr. J. M. Rogers, Ingersoll, Second Vice-President; Dr. J. C. Connel, Kingston, Third Vice-President; Dr. J. R. Arthur, Collingwood, Fourth Vice-President; Dr. F. A. Clarkson, Toronto, General Secretary; Dr. G. S. Strathy, Toronto, Assistant Secretary; Dr. J. H. Mullin, Hamilton, Treasurer.

CANADIAN ASSOCIATION FOR THE PREVENTION OF CONSUMPTION

THE ninth annual meeting of the Canadian Association for the Prevention of Consumption and other Forms of Tuberculosis, just closed in Hamilton, was one of the most successful in the history of the Association. The Recital Hall of the Conservatory of Music was roomy, but not too large, well lighted and well ventilated, and in every way comfortable. The attendance, though largely from the city, was thoroughly satisfactory in point of numbers and in the interest manifested in the proceedings.

His Worship Mayor MacLaren welcomed the convention in a very neat and appropriate address, in which one might detect an undertone of becoming satisfaction with the fact that his own city stood in the front rank among Canadian cities in having provided facilities for the care and treatment of those suffering from consumption.

Dr. Lafferty, who had been called to the chair in the absence of the President, and who continued to discharge the duties of the chair until the close of the meeting, in a few well-chosen words made a felicitous reply.

The report of the Executive Council, presented by the Secretary, showed marked advance during the year. Dr. C. N. Valin, Professor of Hygiene of the University of Laval, Montreal, had been appointed to give a course of lectures in the chief centres of the French population of Quebec, and thus far his audiences range from 300 to 800 persons, and much interest had been awakened among our French fellow-countrymen.

The Executive Council also were fortunate in securing the services of Dr. Geo. D. Porter, of Toronto, as Lecturer and General Organizer. As yet his labors have been confined to the Province of Ontario, but the scope of his commission includes the entire Dominion and extends from ocean to ocean.

Down to the end of February, which is the end of the Association year, Dr. Porter had visited Almonte, Arnprior, Renfrew, Douglas, Pembroke, Smith's Falls, Brockville, Galt, Guelph, Berlin, Stratford and Woodstock, in most of which places he has succeeded in having branches organized.

Though not falling within the year of the Association, it was also mentioned that he had visited Kingston and Niagara Falls. In the latter the invitation to lecture came from the Civic Board of Health. Recently he succeeded in forming two organizations in Toronto, one of which is known as the "Heather Club," which finds its membership largely among the nurses of the Sick Children's Hospital, so widely known throughout the Province, in fact,

throughout the Dominion, as the result of the able and successful management of Mr. J. Ross Robertson.

One of the interesting events of the past year was the visit of Dr. R. W. Philip, Physician to the Royal Infirmary, Edinburgh, Scotland, who passed through Canada to attend the Washington International Congress.

By an arrangement made with the Association, he visited and lectured in Quebec, Montreal, Ottawa and Hamilton. Speaking as he did, out of the fullness of twenty years' experience in municipal handling of tuberculosis, his lectures were rich in interest and instruction to those who had the pleasure of listening to his presentation of the case.

During the month of May, 1908, the Secretary, by special invitation, visited Barrie and the County of Simcoe. He found everywhere a growing feeling in favor of the establishment of municipal or county institutions for the treatment of consumption. At the same time there was a manifest disinclination to undertake such an enterprise unless more largely aided by the Province than is possible under the Ontario Public Health Act of 1900. This feeling is by no means peculiar to the County of Simcoe, but pervades the country generally.

Nevertheless, hopeful beginnings looking toward the erection of sanatoria have been made in St. Catharines, for the city and the adjacent County of Lincoln; in London, for the city and the County of Middlesex; in the Counties of Carleton, Lanark and Renfrew jointly; and finally, after long-enforced delay, the Ottawa Association is in a position to proceed with the erection of the greatly-needed Relief Home for far-advanced cases.

NEW BRUNSWICK.

In the Province of New Brunswick a very hopeful movement has been started. On the 5th of January last it was resolved to form an association in St. John, and on the 21st of the same month a deputation, consisting of physicians, clergymen and others, waited upon the Provincial Government, asking a grant in aid of the establishment of a sanatorium and the appointment of a commission to select a suitable site. The Hon. J. Douglas Hazen, the Premier of the Province, gave the deputation an encouraging reply and promised early legislation in the direction sought.

NOVA SCOTIA.

Nova Scotia has long had a model sanatorium, owned and managed by the Provincial Government, and movements are now in progress with a view to the establishment of branch associations in Halifax, Yarmouth, Amherst, New Glasgow and other parts of the Province. Sentiment in favor of such action has been awakened

by the splendid work of the County of Colchester Association, which, under the leadership of such men as Dr. Smith L. Walker, the Honorable Judge Laurence, and Principal Calkin, has done some most excellent work in the last five years.

PRINCE EDWARD ISLAND.

In Charlottetown and Summerside the Associations report activity in the delivery of lectures and dissemination of literature with good results.

QUEBEC.

In this Province the Montreal League prosecutes the dispensary and educational work with unabated vigor, and looks hopefully forward to larger efforts during the year.

The Quebec League, which in 1905 received a grant of 137 acres of land adjacent to Lake Edward, has about finished their building, and expects to open the Lake Edward Sanatorium for patients within a few weeks. This institution will cost somewhere in the neighborhood of \$60,000, and will probably be opened free of debt and with a maintenance fund in hand to meet further outlay for some time to come.

In the city of Quebec a French branch of the Association has also been formed, with good prospects of successful work among the French-Canadian population of the city.

MANITOBA.

Under date February 23rd, 1909, Mr. E. M. Wood, Deputy Municipal Commissioner, writes: "I am delighted to be able to inform you that the site has now been definitely located at Ninette, and sufficient funds are in hand to enable the Trustees to proceed with the building as soon as the frost is out of the ground this spring, and we hope to open for the reception of patients early in the fall. The charter of the Association is being amended to permit the erection of a hospital for advanced cases, which will be built in or near the city of Winnipeg."

Early in the year 1909 an association was organized in Winnipeg, and has already established a tuberculosis dispensary, by means of which it is hoped the management may be brought into closer touch with the sufferers in the city.

BRITISH COLUMBIA.

The reports from the Tranquille Sanatorium of British Columbia have not yet come to hand, but it is known that the institution has prospered during the year.

The Association, in the year 1908-9 down to March 1st, had put into circulation fully two and a quarter millions of pages bearing

more or less closely upon the cause and prevention of consumption, and the Association's literature has been in greater demand during this year than ever before.

It was noted with regret that the Honorary Treasurer, Mr. J. M. Courtney, who had filled this office ever since the Association was first formed in 1901, had retired from this position. Mr. Courtney carries with him the highest respect and confidence of those associated with him all these years.

The Executive Council proposes for the now current year to appoint a committee on finance, whose duty it shall be to appeal to gentlemen of wealth throughout the Dominion for additional support sufficient to enable the Association to meet the needs of a constantly growing work. And also a committee on education which will be expected to devise measures to secure a more active co-operation on the part of the Provincial educational authorities, and to awaken a deeper and more active interest among the teachers of the different provinces.

The five days' convention of the teachers of Newfoundland, held in St. John, the capital of the Province, under the presidency of the Hon. John Harvey, was referred to as an instance of what might be accomplished by teachers, and as affording some hints for our guidance throughout the Dominion.

During the course of the convention there were three discussions of living topics, two of which were formally introduced by appropriate papers by Dr. W. C. White, of the Pittsburg (Pa.) Sanatorium, and by Professor Adami, of Montreal. Dr. White's paper dealt with the question of "Municipal Supremacy in Tuberculosis," while Dr. Adami treated the closely related question of "Economics and Success in the Treatment of Tuberculosis."

It is impossible for a layman to attempt to summarize these admirable, practical and instructive papers or the discussions which followed them, and there is the less need of such an attempt, as they will both appear in extenso at an early date in the official report of the transactions of the meeting.

The third discussion was perhaps of a less formal character, but none the less useful or instructive. The subject: "The Responsibility of the People in Relation to Tuberculosis," was introduced by Dr. Lockhart, of Hespeler, who, though not expecting to be the first speaker, opened the question in such a manner as to prepare the way for those who followed.

The election of officers took place on the afternoon of Thursday, when Dr. Adami was unanimously called to the presidency of the Association, and Mr. George Burn, the General Manager of the Bank of Ottawa, was with equal unanimity elected to fill the office of Honorary Treasurer:

Very cordial votes of thanks were passed to all who had in

any way contributed to the success of the Association, and the enlargement of its work during the past year. And especially to the Mayor and Aldermen of the city of Hamilton for their courteous invitation to meet in this city, and to all the members of the committee on arrangements, whose labors had done so much to contribute to the comfort and success of the convention.

The business of the meeting having thus been accomplished, Dr. Lafferty briefly reviewed the course of the convention, and adjourned the meeting to enable the members present to accept the hospitality of the Ladies' Board of the Mountain Sanatorium, and finally ordered another convention to be held in 1910 at such date and place as may be fixed by the Executive Council of the Association.

The Canadian Journal of Medicine and Surgery

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Doctors will confer a favor by sending news, reports and papers of interest from any section of the country. Individual experience and theories are also solicited. Contributors must kindly remember that all papers, reports, correspondence, etc., must be in our hands by the first of the month previous to publication.

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No. 1.

Editorials.

DR. OSLER'S ADDRESS TO THE ONTARIO MEDICAL ASSOCIATION

THE closing of the 1909 meeting of the Ontario Medical Association was dignified by an address on the subject of the treatment of disease by Dr. William Osler, regius professor of medicine in the University of Oxford. The address was given in the auditorium

of the Physics Building. Dr. Osler dealt with the advances made by medical science in recent years, contrasting the severe therapeutics which prevailed in early decades of the nineteenth century, when physicians pinned their faith to bleeding, purging and sweating, with the milder therapeutic agencies, which have held sway during the past sixty years.

Lauding the great discoveries made in the etiology of disease, he showed their importance by instancing their application to the prevention of diseases in tropical countries. In the Canal Zone of Central America, and in the island of Porto Rico, the death rate had been cut in half; malarial fevers and yellow fever could now be prevented by simple methods and remedies.

"We have advanced rapidly," he said, "along the road of the treatment of diseases caused by micro-organisms, and the treatment by means of antitoxins and vaccines has progressed. Anyone acquainted with the progress made in medicine in the last ten years cannot but have confidence in the future."

Pneumonia, he regretted to say, continued to be as potent a cause of death as ever; but he thought that a reduction in its mortality would result if it were regarded as a preventable disease. The lesson of humility was also taught to medical science by the high death rate of cancer.

Dr. Osler had been called a "therapeutic nihilist," a reproach borne with equanimity. He said that the profession, as a whole, had got away from the practice of indiscriminate drugging, and that the cure of disease could be produced by the use of a few drugs.

Manufacturing chemists received a note of praise, for their resourceful art in providing pleasant and potent drugs instead of the nauseating mixtures of the past; but the lecturer deprecated their practice of offering suggestions to physicians as to the treatment of disease.

Alluding to the prevalence of faith cures at home and abroad, he mentioned the cures at the shrine of Ste. Anne de Beaupré, Quebec, and at the grotto of Lourdes, France. He thought they were not wholly censurable, and said: "Who, if a beloved child were at death's door in Rome, would not send for the Santo Bambino? Has not credulity, the blessed perquisite of the race, some balance on the credit side for the comfort it has given to pious souls?"

The prayer of faith had saved many lives, and the principle of faith was the most precious asset of the medical profession—once lost, how long would a doctor retain his clientele? There must be a "willingness to believe" attitude; but, nowadays, the prayer of faith would not set a broken thigh, or prevent the spread of an epidemic of typhoid fever.

Dr. Osler thought that the clergy should not dabble in physic,—but should hand it over to the doctors.

Therapeutics, he thought, should be taught in hospitals, rather than in lecture rooms. In the former, students of medicine should learn the nature, course and treatment of diseases, the administration of the few great drugs, the use of ether and chloroform, the dieting of patients, and many other things. A vote of thanks to the distinguished lecturer was moved by Dr. J. H. Richardson, and suitably acknowledged.

J. J. C.

HYPODERMIC INJECTIONS OF MERCURIAL SALTS, IN LOCO DOLENTI, IN SECONDARY AND TERTIARY SYPHILIDES

PROFESSOR J. DARIER (Broca Hospital, Paris) has on many occasions employed local injections of mercurial salts in the treatment of secondary and tertiary syphilides. His pupil, Dr. Henri Hamel, of the same hospital, gives clinical histories of sixteen cases, in which he had employed Professor Darier's method successfully. His paper is published in *Le Bulletin Médical de Québec*, Janvier, 1909. He does not use this special treatment as a substitute for the regular constitutional treatment of syphilis; but, "when it is certain or probable that local lesions of syphilis result from a localization of its pathogenic agent, applies the curative agent at the very spot where it will be useful, instead of diluting it in the whole mass of the humors of the patient's organism."

Ulcers in particular have been advantageously treated by this method: they fill up rapidly, but the growth of skin over the ulcers takes a longer time. Papules and tubercles are removed with equal rapidity; they wither or dry up and become covered over with a horny crust, which is subsequently thrown off, as if it had been expelled from the interior to the surface, so quickly does the infiltration go.

After trying a solution of the biniodide of mercury, 1-2000, in several cases, Dr. Hamel gives the preference to a solution of the cyanide of mercury, 1-2000, with stovaine, 1-200, in a normal salt solution. This is painless.

He recommends a fine hypodermic needle, such as is used for intravenous injections. The needle is pushed obliquely into the lesion, tubercle or ulcer, so as to reach the deeper layers of the tissues, and the fluid is afterwards slowly injected, 2 cc. (about 34 minims) being used; the injected liquid should cause a marked infiltration of the lesion treated.

In looking over Dr. Hamel's cases, one notes that eleven of them were cured by hypodermic injections of the biniodide of mercury, the solutions used varying in strength, viz.: 1-2000, 1-3000, 2-1000. In five cases the cyanide of mercury preparation was used, and in four of them there were no untoward results. In Case XVI., however, a bloody diarrhea followed the injection of the cyanide of mercury solution; a preparation of iodide of potassium caused symptoms of iodic poisoning; the cure of the syphilide was effected by local injections of biniodide of mercury of a strength of 1-3000. The objection to the injection of even weak solutions of the biniodide of mercury is that they are painful, and that cocaine and stovaine cannot remove this difficulty, as they both yield precipitates with the biniodide salt. A saturated solution of guaiacol added to the biniodide solutions produced no appreciable analgesic effect. Dr. Hamel therefore recommends cyanide of mercury, 1-2000, combined with stovaine, 1-200, in the isotonic solution of chloride of sodium.

J. J. C.

THE MILK SUPPLY OF TORONTO

UNLESS the city of Toronto obliges the dairymen who send milk to Toronto to conform to proper sanitary regulations, pure milk will not be supplied by all of them. In the Ontario Health Act, 1884, Section 39, Sub-section 1, municipal inspection of milk is provided for; inspection of cow-byres is also provided for in Schedule A, Section 10, of the Act. The Provincial Board of Health has gone as far as its limitations allow, by impressing on local boards of health the importance of the careful inspection of dairies, and by

furnishing them with specifications by which they should measure the capacity of each dairyman to supply good milk. It has issued a circular showing the requirements of a first-class dairy. The construction, lighting, ventilation, cleaning of the cow-byres, are minutely described. The proper method of milking, the hygiene of the milkers, the most approved method of handling milk until it is delivered to the customer are given in detail.

Excellent as these rules are, they will not suffice to accomplish the intended object. Local boards of health in municipalities which ship milk to Toronto will not oblige their dairymen to tear down old-style byres, in order to construct better ones. They will not insist on proper methods of keeping cattle neat and tidy. They will not order an analysis of the well water of the dairy, nor insist on the removal of a privy situated too close to the dairyman's well. Rural medical officers of health receive a mere pittance for attending to the grosser unsanitary evils of their municipalities, and cannot be expected to incur loss of local influence, or loss of money, in suits for damages, for looking after the purity of the Toronto milk supplies. The fear of the Lord is the beginning of wisdom, and the fear of an independent milk inspector from Toronto, backed by a bacteriologist, will teach the dairyman to observe the rules of the Provincial Board of Health. City inspectors should visit the dairy farms regularly, and they should have power to enforce the observance of the rules of the Provincial Board of Health, by ordering the dairyman to discontinue sending milk to Toronto for disobedience to these rules.

The weak point of the milk situation in Toronto is that inspectors are not employed to enforce the regulations of the Provincial Board of Health in the 200 dairy farms which send milk to this city.

Mr. E. B. Shuttleworth, who, for fifteen years, was bacteriologist of the local board of health of Toronto, stated in an interview published in *The Daily Mail and Empire*, May 27, 1909, that it had not been the practice of the Medical Health Officer of Toronto to make or order to be made regular bacteriological examinations of samples of milk; that the work of the inspectors of milk in this city is very imperfectly done; that there is no Provincial standard by which milk may be tested for butter fat, and that the medical health officer has no protection against suits for damages by milk dealers, whom he may report as guilty of selling impure milk.

In reference to the inspection of dairies, which includes places in which milk is received and sold, the work in Toronto was confided to *one* man, who reported on the condition of the dairies, the number of cans of milk received, whether it was sold in cans or in bottles, and on the condition of the establishments regarding cleanliness. Where cows were kept within the city limits, an inspection was also made of the byres, but this left the country dairies unprovided for. There must be 200 dairies from which Toronto is supplied. Last year there were 2,500 cans of milk a day brought into Toronto, and this year there would be 3,000.

About 40 per cent. of the dairies are small farms, which supply under 40 gallons a day, and 14 per cent. of them supply under 16 gallons.

The inspection of these dairies has been done in a very imperfect way. The conditions in them are usually exceedingly unsatisfactory, both as to sanitary arrangements in the byres and as to care in milking, and in the cooling and storing of milk.

Hence it is evident that, for the last fifteen years, the civic health department of Toronto has accepted the milk supplies sent from the country with an insufficient knowledge of, or a lack of control over, the conditions existing on the dairy farms from which they come. Referring to this last point, Mr. Shuttleworth says: "If any consumer of milk was familiar with the conditions under which some of it is produced, he would hesitate a long time before accepting it as emblematic of purity." Such a state of affairs is intolerable, particularly when lives are at stake. The compliance of the Ontario dairyman with the rules of the Provincial Board of Health respecting dairies is quite voluntary. It ought to be made obligatory, and Toronto should send inspectors to the dairies to enforce these rules, the city taking legal responsibility for its own acts and making no effort to shield itself behind a local board of health or a medical health officer.

J. J. C.

EDITORIAL NOTES.

Merited Praise for Toronto.—The recent reduction of liquor licenses in Toronto, 110 licenses being now granted, instead of 150, as had been the custom for the past twenty-two years, together with an increase in the license fees, receives favorable mention in an editorial note written by Dr. St. Jacques, in *Le Journal de Médecine et de Chirurgie*, Montreal, April 24th, 1909. He says: "There are over 300 barrooms in the east end of Montreal. Really, we should inquire if our authorities know what they are about. They know that over 175 of these places belong to one man, and over 125 of them to another. Why do they not make the diminution of the number of licenses obligatory, and keep up the revenue by raising the license fees? Instead of asking \$400 for a license, which is the price asked in this city now, why not ask \$1,200, as they do in Toronto? The longer we live, the more convinced are we that English-Canadians place patriotic feeling and respect for their fellow-man on a higher and better level than we do. We are forced to think ill of our authorities." What strikes us in Toronto as inexplicable is the lack of influence exercised by temperance advocates, particularly the clergy, in Montreal. The clergy of Montreal are in a better position to know the crime, moral degradation and poverty arising from intemperance than other men. The doctors see the diseases, diseased conditions, and the lessened power of resistance to disease, which are traceable to intemperance. If these two professions were to join forces in a campaign against the excessive number of bars in Montreal, failure would be impossible.

Tuberculosis Traced to Firewater.—The late Dr. Oronhyatekha, one of the most intellectual Indians of the nineteenth century, was strongly opposed to whiskey, which had been instrumental in lowering the physical prowess of the redman. So fatal is whiskey to Indians, that in Canada whites are forbidden by law, under severe penalties, to sell it to Indians. We presume that a similar law exists in the United States. Whether this be true or not, the Indians in that country manage to get whiskey, and are misusing it, to their own undoing. Dr. Porter, State Commissioner

of Health, New York State, reports, May 21, 1909, a large mortality from tuberculosis among the 5,000 Indians in the various reservations in that State. In the opinion of Dr. Huber, an expert who has just made a study of this subject, whiskey is the most potent agency in causing tuberculosis among American Indians.

Some Recollections of the Practice of Medicine at Toronto General Hospital in 1869-70.—In a paper read at a meeting of the Toronto General Hospital ex-House Staff Association, April, 1909, Dr. Alexander Taylor, Goderich, says: "In reference to the treatment of enteric fever, we gave large doses of quinine. I have seen as high as 30 grains given, and, if the temperature did not come down in four hours, I have seen the dose repeated." It is true that the cold water treatment of typhoid fever, introduced by Brand, of Stettin, in 1861, had not reached Toronto General Hospital in 1869; but it is doubtful that it had reached other hospitals in America at the latter date. Quinine was used as an antipyretic in typhoid fever in 1869. Even in 1884, when the cold water treatment of typhoid fever had become general, the great American author, Flint, wrote: "Of drugs which have an antipyretic effect, quinine holds the first rank. It should be given in a full dose, that is, from 20 to 40 grains, before the evening exacerbation." Hence the Toronto General Hospital physician who, in 1869, prescribed 30 grains of quinine as an antipyretic in a case of typhoid fever, was acting according to the received opinion of that day. The writer's own hospital case book does not show that the antipyretic administration of quinine in typhoid fever was generally adopted by the hospital staff in 1869-70. For instance: "E. W. N., etat 19, male, April 19, 1870; typhoid fever:—

R _x	Quinine sulphat	grs. xxxii
	Acid. sulph. aromat	f ʒii
	Aq. ad.	ʒ viii
	Sig. ʒ ss. tid.	m

Here no effort was made to lower temperature with a drug or interrupt the natural course of enteric fever. Quinine was occasionally prescribed by Toronto practitioners of 1869, to settle the diagnosis of a case, or through error. The writer's first case of typhoid fever, September 8, 1868, was of the latter nature, the physician first called having pronounced it a case of intermittent

fever and prescribed quinine. Forewarned by the failure of quinine to cure, and recognizing definite symptoms of enteric fever, the writer prescribed for the diarrhea in that case powders of hydrarg. c. creta with morphine; for the fever, bisulphite of sodium in doses of 10 grains three times a day. Diet: sago, beef tea, sherry wine in milk three times a day. After the fever left the patient, beef tea, chicken broth, wine and milk were ordered; no medicine. This patient recovered, the only complication being subcutaneous abscesses. In reference to the presence of smallpox in Toronto General Hospital in 1870, the following extract from the writer's hospital case book confirms Dr. Taylor's remarks: "June 8, 1870. E. F., female, etat 22, admitted for scrofulous eruptions on cheeks, nose and ears of 11 years' duration. September 15, 1870. She caught smallpox and was removed upstairs to a smallpox ward. October 4, 1870. Recovering." This patient had been in the Toronto General Hospital for over three months before she caught smallpox, although the upper flat was devoted to smallpox cases.

Diseases Cured by Radium.—In the course of a lecture on "Radium in Surgery," delivered at the London Hospital, January 26th, 1909 (*vide* B. M. G., Feb. 6, 1909), Sir Frederick Treves stated that radium will cure every form of naevus. It can cure the "port wine" stain. It can rid the patient of a pigmented mole or a hairy mole. The lecturer mentioned four illustrative cases. Radium cures chronic eczema, associated with itching. It causes keloid to vanish; the keloid left by a wound, the keloid left by tuberculous glands, and the acne form of keloid. Radium will cure long-standing rodent ulcers, in which the tissues have become adherent to the bone, or apparently so, in which there is ulceration, and in which—and this is the most important point of all—the Finsen light, the X rays, and cataphoresis have all been tried and have all failed. Epithelioma of the lips and epithelioma of the tongue have been cured by radium. The cured cases were in the early stages of the disease; but they were ulcerating epitheliomata, which yield to no other treatment than operation. Sir Frederick Treves had seen several of these cases. He also mentioned a case of epithelioma of the face, which had perforated into the nasal passages; the disease was cured by radium after a good many sittings. Other cases were: An epithelioma of the ala nasi, cured

by radium after a number of sittings, amounting in all to eight hours' exposure; an epithelioma of the cheek, as large as a 50-cent piece, cured and the surface healed over. The results are apparently of a permanent character. The lecturer saw a case in Paris, in which an epithelioma of the face, cured by radium, remained perfectly sound after two years. In *B. M. J.*, May 1st, 1909, p. 1072, we notice a description of a convenient radium applicator, which has been devised by Mr. W. H. Martindale, Ph.D., London, Eng. It is in the form of a square locket, with a mica window, which cuts off the alpha rays, while allowing the other rays to pass. Radium bromide is spread in a thin film on the square surface, either pure or mixed with an inert salt to yield a definite activity in uranium units, so that the operator may know exactly what strength he is using on a given surface. The locket applicators are made with an area of 1, 2, or 3 sq. c.m.; nine carat gold is employed, and the price is said to be reasonable.

A Separate System of Sewerage and Disposal Works at Baltimore.—A satisfactory and economical disposal of civic sewage depends on whether it is removed by the separate or combined system of sewerage. The combined system, which is in almost universal use, provides for the removal of all kinds of sewage and of storm water as well, through one set of pipes. In the separate system two sets of pipes are provided and connected with houses—one set for domestic or manufacturing sewage, and a second set for storm water. The separate system of sewerage simplifies and cheapens the purification of sewage, storm water, which is in many cases enormous in quantity, being excluded from the purification process. New sewers of the separate system type are being installed in Baltimore, Maryland. One set of sewers will remove sewage and another set will remove storm water. Two-thirds of the sewage proper will be intercepted by a high-level intercepting sewer and carried by gravity to the disposal works, situated close by the Back River. One-third of the sewage, gathered from the lower levels of the city, will be intercepted by a low-level interceptor, and afterwards pumped to the high-level interceptor, whence it will flow by gravity to the disposal works. The disposal works, when completed, will be capable of treating 300,000 gallons of sewage a day. At the disposal works, the sewage will flow into hydraulic

tanks, in which provision is made for the separation and subsequent removal of the sludge. The sewage then flows onto beds of broken stone, eight and a half feet deep, over which it will be distributed by means of sprays. It will then flow through under-drains to settling basins, situated at a lower level, and thence into the Back River. It is said that the effluent will come out practically clean water.

J. J. C.

PERSONAL.

DR. A. W. MAXBERRY and Dr. E. Herbert Adams, of Toronto, are among those who sailed on the SS. Laurentic on June 19th. They intend visiting some of the large clinics on the Continent and in England.

Obituary

DEATH OF DR. J. N. ANDERSON

Dr. J. N. Anderson, of 5 College Street, for over twenty-five years a practising physician in the city, was stricken with apoplexy last evening while visiting at the home of Mr. Wm. Bryce, of 63 Brunswick Avenue, and died in a few minutes. The deceased had not been in the best of health since the first of the year, but was able to attend to his professional duties, and his sudden death came as a surprise to all who knew him.

The late Dr. Anderson was born in Norfolk County, near Simcoe, sixty-eight years ago. He was a widower, and since the death of his wife a year and a half ago, his niece, Miss Tisdale, has been keeping house for him. Mrs. A. Garnett and Mrs. P. Dean, both of Tillsonburg, are sisters of the deceased.

News of the Month.

MILK STERILIZATION AT THE HOSPITAL FOR SICK CHILDREN

THE residents of Toronto are under renewed obligation to Mr. John Ross Robertson. He is placing in the Sick Children's Hospital a milk-sterilizing outfit. The plant will have capacity sufficient to supply milk to two thousand children daily, if necessary. This milk, in the first instance, will be for the use of the interne patients and staff, and then for the out-patients, and, finally, it is proposed that children at large will be supplied at cost.

This work is comparable to that carried on by Dr. Nathan Strauss, of New York, who supplies two thousand New York children. This milk is on sale in Tompkins Park at 1 cent a glass. Eight thousand glasses are sold daily.

Since the installation of pasteurization of milk in Randall's Island Hospital for Sick Children, a municipal institution, the death rate has dropped from 90 per cent of the children admitted to 45 per cent. A very important point to note is that this milk so pasteurized was a "certified" milk before pasteurization.

"Certified" milk, desirable as it is, may not be free from infection, by the bacilli of tuberculosis. The reason of this is that, although cows may be tuberculin tested every year or every six months, they may develop the disease within a short time after they have been tested, and the milk of such a diseased cow may contaminate the whole supply.

Pasteurization does not mean the sterilization of milk or the boiling of milk. The milk furnished by Strauss is produced by taking certified milk and subjecting it to a temperature of 155 degrees F. for twenty minutes.

The main reason why medical men have an antipathy toward pasteurized milk is because often in the past so-called pasteurized milk has not been pasteurized, but boiled or sterilized. In such milk the enzymes are destroyed, thus interfering with the nutritive value of the milk and making it more difficult to digest, and likewise more subject to putrefaction. In some instances such milk is said to produce rickets and scurvy.

The best authorities state that milk pasteurized properly is not damaged, and never produces any mal-conditions in the consumer.

TUBERCULOSIS OF THE CATTLE.

It has been found that as one proceeds northward through the United States, the incidence of tuberculosis in cattle increases. This is probably due to the fact that northern cattle are stabled more than the southern cattle. The out-of-door life which obtains with southern cattle has the same good effect in the prevention of tuberculosis as is found in the human family. Arguing along this line, there must be a good deal of tuberculosis among the Canadian cattle. In New York State, the statistics show that 25 per cent. of the milch cows there are tubercular. If even this condition obtains in Canada, it is high time attention was called to the milk which is subject to infection, and which is such a splendid culture for germs of all sorts.

La Presse, of Montreal, on the 22nd of May, contained a story of the condition of Montreal milk, Dr. Dube, of the Pure Milk League, asserting that the milk supply there was the worst in the world. In Toronto, three commissions are at work investigating the conditions of milk in that city and in the country at large.

The Medical Era's Gastro-Intestinal Editions.—During July and August, The Medical Era, of St. Louis, Mo., will issue its annual series of issues devoted to the gastro-intestinal diseases. The July number will take up the usual bowel disorders of hot weather, and the August will be devoted entirely to typhoid fever. These issues always attract considerable attention. The editor will forward copies to physicians applying for same.

The Physician's Library.

BOOK REVIEWS

A Text Book of Surgical Anatomy. By WILLIAM FRANCIS CAMPBELL, M. D., Professor of Anatomy, Long Island College Hospital; Attending Surgeon to the Methodist, Episcopal, Swedish and Bushwick Hospitals; Consulting Surgeon to the Jamaica Hospital. With 319 original illustrations. Philadelphia and London: W. B. Saunders Company. 1908. Canadian Agents: J. A. Carveth & Co., Toronto.

Dr. Campbell's text-book is composed of 650 pages, and is divided into six parts. Part one is devoted to "The Head and Neck"; part two, "The Thorax"; part three, "The Upper Extremity"; part four, "The Abdomen and Pelvis"; part five, "The Spine"; part six, "The Lower Extremity."

As the writer says in his preface, "Anatomic facts are dry only as they are isolated. Translated into their clinical values, they are clothed with living interest." To say the least of it, the study of the human anatomy makes somewhat "dreary reading"; but, when associated with "clinical values," the study is one of the deepest interest. The author is to be congratulated upon his volume, as it is not only one of scientific value, but beautifully illustrated, and, from a typographical standpoint, could hardly be improved upon. The work is one that should meet with a goodly demand, and be succeeded in a very short time by a second edition.

W. A. Y.

A Manual of Practical X-Ray Work. By DAVID ARTHUR, M.D., D.P.H., Medical Officer in charge of X-ray Department, West London Hospital, and Lecturer on Radiology, West London Post-Graduate College, and JOHN MUIR, B.Sc., M.B., Ch. B. and B.Sc. (Pub. Health). With about 120 illustrations. New York: Rebman Company, 1123 Broadway. 1909.

In the preface the authors tell us that their book is designed to meet the wants of graduates taking post-graduate courses, as well as medical students and practitioners desiring a practical working guide to the subject of X-rays, and in the 237 pages of reading matter this purpose is most admirably carried out in a manner both lucid and concise. The illustrations deserve a share

of praise also. The liberal use of heavy type permits rapid and easy reference, and emphasizes points of special importance. But seventeen pages are devoted to therapeutics, as might be expected in a manual of this sort, yet in this limited space the authors have condensed a large amount of useful knowledge, as well as much excellent advice. Typographically, the book presents an excellent appearance.

C. R. D.

Clinical Diagnosis and Treatment of Disorders of the Bladder, with technique of Cystoscopy. BY FOLLEN CABOT, M.D., Professor of Genito-urinary Diseases, Post-graduate Medical School; Attending Genito-urinary Surgeon, City and Post-graduate Hospitals, New York. Illustrated. New York: E. B. Treat & Company. 1909.

The object of Doctor Cabot's little book, *i.e.*, to teach general practitioners the principal methods of diagnosing and treating disorders of the urinary bladder, is well sustained through this little book of 213 pages.

We would commend it to all practitioners who may aspire to the successful use of the cystoscope, than which there is no more pesky instrument in use at present.

The chapter on the various kinds of instruments in vogue will prove useful, and probably more reliable than the agent of any particular kind.

F. N. G. S.

Lectures to General Practitioners on the Diseases of the Stomach and Intestines. With an account of their relations to other diseases and of the most recent methods applicable to the diagnosis and treatment of them in general; also "The Gastro-Intestinal Clinic," in which all such diseases are separately considered. By BOARDMAN REED, M.D., Member of the American Medical Association, American Climatological Association, American Academy of Medicine, American Electro-Therapeutic Association; Foreign Member of the French Société D'Electrothérapie; Late Professor of Diseases of the Gastro-Intestinal Tract, Hygiene and Climatology in the Department of Medicine of Temple College; Late Physician-in-Chief to the Samaritan Hospital, Philadelphia, etc. Illustrated. Second Edition. New York: E. B. Treat & Co., 241-3 W. 23rd St. 1907.

Dr. Boardman Reed's book, "Diseases of the Stomach and Intestines," is a volume comprising nearly one thousand pages. It consists of in all four parts, divided into eighty-two lectures. It would not be an easy matter to give our readers just as comprehensive an idea of the contents of Dr. Reed's book as we would like without taking up more space than we can devote to our re-

view. In a word, however, we may say that the author in dividing his book as he has done into four parts, considers in part one "The Anatomic, Physiologic, Chemic and Diagnostic Data"; in part two, "The Methods of Examination"; in part three, "Methods of Treatment"; and part four, "The Gastro-Intestinal Clinic."

There is no doubt that during the past decade considerable advance has been made in the diagnosis and treatment of diseases of the digestive system, and the author of this book has successfully endeavored to present to the profession a work that is complete and in every respect modern. Present-day methods of treatment of diseases of the digestive system are very much more accurate and efficient than they used to be, and in order for a scientific reader to enjoy the privileges afforded by present-day methods, it is absolutely essential that he should purchase as recent literature on the subject as can be obtained. Without such methods, it is almost impossible to successfully treat many diseases of the digestive canal. During the past few years a number of books on this subject have appeared from the press; but it falls to the credit of German authors to have produced and have translated into English those books giving the most recent thought on this most important branch of internal medicine. Among those authors belonging to the Fatherland are to be found the names of such men as Ewald, Boas and Riegal, all of whom have considered their subject at considerable length. There are, however, a number of still unsolved problems, in a pathological sense, in connection with diseases of the intestinal tract and these problems are dealt with at some length and most intelligently by Dr. Boardman Reed. We cannot say more regarding his book than to recommend all of our readers who are interested in digestion and nutrition to purchase his work. Its perusal will be no waste of time.

W. A. Y.

The Interrupted Kiss. By RICHARD MARSH, Author of "The Seen and the Unseen," "The Girl and the Miracle," etc. With frontispiece in colors by REX OSBORNE. Toronto: Cassell & Co., Ltd.

The tragedy begins in the opening chapters. A murder is committed in circumstances which readily throw suspicion upon several persons. How the incubus of this suspicion affects them, and especially how it affects the two whose blissful kiss was interrupted on the eve of the eventful night, is told in Mr. Marsh's most effective manner.

Elsie Grahame, the heroine, has reason to place herself under suspicion of being the murderer of her uncle, and her conduct in various trying situations provides some of the most delightful

reading in the story. Her interview with the blackmailer, and her subsequent offer of herself as security for the money raised to meet his demands are convincingly described. But the story teems with interest throughout; there is humor in plenty, dialogue of brilliant quality, and a continuous succession of incident that does not permit a moment of faltering interest.

The Practical Medicine Series. Comprising ten volumes on the year's progress in Medicine and Surgery. Under the general editorial charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume I., General Medicine; Edited by Frank Billings, M.S., M.D., Head of the Medical Department, and Dean of the Faculty of Rush Medical College, Chicago; and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Medical School. Series 1909. Chicago: The Year Book Publishers, 40 Dearborn Street.

The authors of this work have diligently studied the most recent literature of medicine and, under appropriate headings, given the latest findings in the etiology, diagnosis, prognosis and treatment of the more important medical diseases.

Tuberculosis is very fully dealt with, 116 pages being devoted to its elucidation. Pneumonia and other diseases of the lungs are fully dealt with. To diseases of the circulatory organs, 82 pages are given. To diseases of the blood, 62 pages. Infectious diseases, diseases of the ductless glands, metabolic diseases of the kidney are also treated of. There is an index of subjects and an index of authors. It is a volume of 403 pages.

J. J. C.

Conservative Gynecology and Electro-Therapeutics: A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. BETTON MASSEY, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia; Fellow and ex-President of the American Electro-Therapeutic Association, etc. Sixth Edition, thoroughly revised. Royal octavo, 462 pages. Illustrated with twelve (12) original, full-page, chromo-lithographic plates, and fifteen (15) full-page half-tone plates of photographs taken from nature, and numerous engravings in the text. Bound in extra cloth. Price, \$4.00 net. Philadelphia, Pa.: F. A. Davis Company, publishers, 1914-16 Cherry Street.

That this well-known book has attained its sixth volume is a merited tribute to its popularity. The author is as zealous as ever in his arraignment of unnecessary major operations in non-malignant gynecological affections, and in his plea for the alternative methods, of which he is such a frank, outspoken

champion, and which he describes in sufficient detail to be comprehended by any one interested. The value of the work is much enhanced by the large number of cases in practice cited as illustrative of his methods and claims. A new chapter is added descriptive of the employment of electro-chemical surgery for removing new growths, of zinc-mercury ionization in tubercular adenitis, and of high-frequency, high potential currents in gynecology. The author has brought his work thoroughly up-to-date, and it is deserving of the most serious and careful consideration.

C. R. D.

A Text-Book of Medical Chemistry and Toxicology. BY JAMES W. HOLLAND, A.M., M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College. Fully illustrated. Second edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, \$3.00 net. Canadian agents: Carveth & Co., 406 Yonge Street, Toronto.

The second edition has been thoroughly revised, and includes all the important recent advances in physiologic chemistry. The original work was intended as a text-book for medical students, and was not designed as a text-book in pure chemistry. The aim was to teach the essentials of medical chemistry and to omit the consideration of rare elements and compounds that are never encountered in the study and practice of medicine.

The author has followed the original plan in the second edition, and has made valuable additions in the line of chemistry of foods and their changes in the body, and he also includes the latest improvements in urinary tests.

This is an excellent book for medical students and for those practitioners who wish to keep up with the latest improvements in medical chemistry.

A. E.

The Rectum; Its Diseases and Developmental Defects. BY SIR CHARLES B. BALL, M. Ch., F.R.C.S.I.; Hon. F.R.C.S., Eng., Regius Professor of Surgery in the University of Dublin; Surgeon to Sir Patrick Dun's Hospital; Hon. Surgeon to the King. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, E.C. 1908. Canadian Agents: D. T. McAinsh & Co., Toronto.

A new book on "The Rectum," by the eminent authority, Sir Charles Ball, has made its appearance. The publishers are Hodder & Stoughton, Warwick Square, E.C.

The subject matter is lucid and comprehensive. The illustrations are original and from life. The morphology, embryology and pathology leave nothing to be desired. Practical details and

methods of examination are not abridged to make room for clinical rareties and statistics. The chapters on prolapse and cancer are not to be surpassed. The work is such as we would expect from so high an authority, and it will repay the practitioner a perusal, and is indispensable to the armamentarium of the surgeon. The high standard of excellence of the author's previous writings on the subject is maintained.

H. A. N.

The Therapeutics of Radiant Light and Heat and Convective Heat. By WILLIAM BELHAM SNOW, M.D., author of "A Manual on Electro-Static Modes of Application, Therapeutics, Radiography, and Radiotherapy," and "Currents of High Potential of High and Other Frequencies"; Editor of the *Journal of Advanced Therapeutics*, and late Instructor in Electro-Therapeutics in the New York Post-Graduate School, etc. New York: Scientific Authors Publishing Co. 1909.

In a very modest little volume of 119 pages, the author sets forth some of the conditions in which the scientific employment of radiant heat and light will be found advantageous. As this is a subject which is engaging an increasing amount of attention, and very little is known about it by the rank and file of the profession, the volume appears at a very opportune time. And as it aims to be a practical aid to beginners, and the author deals with the whole matter in his customary conservative style, the book is sure to attain the popularity it so well deserves. A careful perusal of the book should prove a revelation to those who have not hitherto devoted much attention to the subject, and every general practitioner may find much of interest and usefulness in its pages.

C. R. D.

Accidents and Emergencies. A manual of the Treatment of Surgical and Medical Emergencies in the absence of a physician. By CHARLES W. DULLES, M.D., Fellow of the College of Physicians of Philadelphia and of the Academy of Surgery; Consulting Surgeon to the Rush Hospital; formerly Surgeon to the Out-door Department of the Hospital of the University of Pennsylvania and of the Presbyterian Hospital in Philadelphia, and Assistant Surgeon Second Regiment N. G., Pa., etc. Seventh edition. Thoroughly revised and enlarged with forty-four illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1909.

The mere fact that this small book has already run through six large editions, and is now presented to the profession in the form of the seventh edition, speaks highly of its value. The book

covers in all two hundred pages, and takes up such subjects as, "Obstructions to Respiration," "Foreign Bodies in the Eye, Nose and Ear," "Unconsciousness or Insensibility," "Fits or Seizures," "Injuries to the Brain," "Effects of Heat," "Effects of Cold," "Electricity Accidents," "Sprains," "Dislocations," "Fractures," "Wounds," "Railroad Accidents," "Hemorrhage," "Business and Domestic Emergencies." Of course, as is to be expected, such accidents and conditions are referred to very shortly. The book, however, is practical and will be found very useful not alone to physicians, especially in their first few years of practice, but to medical students, nurses and those called upon to give first aid to the injured.

W. A. Y.

Aids to Medicine. By BERNARD HUDSON, M.D. (Cambridge), M.R.C.P. (Lond.); Asst. Physician to City Road Chest Hospital; Pathologist and Registrar to the East London Children's Hospital; Late Casualty Physician to St. Bartholomew's Hospital. London: Bailliere, Tindall & Cox, 8 Henrietta Street, Covent Garden. 1909.

This little work is a neatly got'en up "Pocket Medicine" for students, and is intended merely as a book for revision purposes. It contains about two hundred and fifty pages, is well printed, up-to-date, reliable and authentic, and will be found of great value to students as an adjunct to their larger text-books.

W. K. W.

A House With a History.

Over four hundred years ago, more than two decades before the discovery of America, the first book was printed at The Oxford Press. In Henry VIII's reign Wolsey suppressed the Oxford Press, which was re-established during Elizabeth's sovereignty by the Earl of Leicester at his own cost, and since that date the Press has published a consecutive list of about 19,500 separate books, not including Bibles and Prayer Books.

The Oxford Press does its own paper-making, ink-making, type-founding, electrotyping, stereotyping, letter-press, lithographic and all kinds of printing and bookbinding, to say nothing of employing its own builders, engineers, etc. The Oxford Type Foundry is the most ancient in Great Britain. The University Paper Mills are situated at Wolvercote, near Oxford, where the famous Oxford Paper is made. The headquarters of Mr. Henry Frowde, the publisher to the University, are in London at Amen Corner, close to St. Paul's Cathedral, where the publishing business is conducted. The University Binding House is also in London.

The publications of The Oxford Press have always been

marked by great literary merit, combined with distinguished scholarship. Accuracy and skill have been outstanding features of their publications. It is well-known that a guinea is given to any person who first points out an error in one of the Oxford Bibles. "Scrupulous accuracy and infinitesimal profits" is the way in which the Oxford publications have been characterized by Professor Goldwin Smith.

As an evidence of the high character of the Oxford publications it may be noted that a Grand Prix was awarded to the Oxford University Press at the Paris Exhibition in 1900 for each of its three exhibits:—"Higher Educational Publications," "Book-binding," and "Paper."

In the choice of authors and subjects The Oxford Medical Publications have the advantage of the advice and assistance of William Osler, M.D., F.R.S., Regius Professor of Medicine in the University of Oxford.

The books published by this very old established House can be secured from D. T. McAinsh & Co., 123 Bay St., Toronto.

The Yellow God: An Idol of Africa. By H. RIDER HAGGARD, Author of "The Ghost Kings," etc. With frontispiece in colors, and two half-tone plates by A. MICHAEL. Toronto: Cassell & Co., Ltd.

It is doubtful whether in any of his romances Mr. Rider Haggard has revealed a country more weird, more mysterious, than Asikiland, the home of "The Yellow God." Situated in the heart of "Darkest Africa," it is only rediscovered, through many perils and hardships, by the hero of the story. How he heard of this land of gold, and why he decided to seek it, form a pleasant prelude to the adventures themselves, save for the sidelight thrown on the methods of the exponents of "high finance" in the city.

As regards Asika herself, the presiding genius of this strange land, she ranks with Ayesha and those other royal women of Mr. Haggard's imagination, who allure by their peerless beauty and repel by their inhuman cruelty. Asika's mysterious demeanor, her horrible ceremonials, her imperious appropriation of the hero, her cynical contempt for human life, make her almost supreme among women of mystery in fiction.

Pamphlets Received. Report to the Government of British Honduras upon the Outbreak of Yellow Fever in that Colony in 1905, together with an account of the Distribution of the Stegomyia Fasciata in Belize, and the measures necessary to stamp out or prevent the recurrence of Yellow Fever. By RUBERT BOYCE, M.B., F.R.S. Printed by Waterlow and Sons, Limited, London Wall, London. 1906.

MILK THAT IS BACTERIOLOGICALLY PURE*

THE matter of a pure milk supply is one of the most important problems in city life. So much sickness, especially in the warm weather, is owing to impure milk, and too much altogether of such a product is supplied to the public in Toronto. How many children at this season of the year are laid up with cholera infantum and other intestinal conditions, and which are directly caused by milk that is loaded with bacteria? Only recently a hospital in this city was being supplied with milk which, when examined bacteriologically, was found to contain almost 100,000 bacteria to the cubic centimeter, and that in cold weather; needless to say, that particular milk contract was promptly cancelled. Last winter the Academy of Medicine appointed a Milk Commission to go into the question of milk supply. As a direct result of their untiring work, the Commission laid out certain requirements for the different dairies, and which, if lived up to, would earn for such firms the Seal of the Academy of Medicine, a mark of approval worth going after. Some of the rules laid down were as follows:

1. That the whole herd shall be tuberculin tested *twice* a year.
2. That the milk shall contain $\frac{4}{100}$ per cent. butter fat, with an allowed variation of $\frac{1}{2}$ per cent. greater or less than the $\frac{4}{100}$ per cent. The same may be said of the proteids.
3. That the maximum acidity shall not exceed .2 per cent.
4. That the milk must not be heated, neither must it be frozen.
5. That the Veterinary Inspector shall visit the dairies whenever the Commission desires. The Commission advises that all cows be clipped about udder and abdomen, and that the udder and teats be scrubbed before each milking, not once daily.

The first dairy to live up to those requirements was S. Price & Sons, Ltd., proprietors of "Erindale Farm," the Home of Certified Milk. To this firm has been awarded the Seal of the Academy of Medicine, Toronto, an honor that is a credit to Messrs. S. Price & Sons, Ltd., who have always shown every desire to supply its customers with "nothing but the best."

*Publisher's Department.