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HISTORY OF GONORRHOEA.

BY

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In a field of mere facts and dates one may be excused if he be brief, even to the point of mere recital; and in the merely historical side of such a subject there is probably much less profit than in the actual discussion of its practice; especially since opinion and theory are so prevalent, and actual facts of history so scarce.

If one be determined to find in the historical evidence very early mention of this disease, it is possible; and if one approach the subject from the opposite standpoint it is also possible to show great fallacies in the early evidence. Many authors are of the opinion that certain Biblical passages mentioning "running issues" and similar affections, refer to gonorrhœa; but the evidence is of no greater weight than that which goes to support the contention of one modern curiosity-hunter who has demonstrated—to his entire satisfaction—that the lamentations of the Psalmist in one well known passage clearly proved that he was afflicted with "acute tonsillitis." I do not state this from any idea of exciting a smile but rather to show to what really ludicrous ends a man's hobby-horse may lead him—or rather gallop him.

It is, however, interesting to note that the first history of this disease which merits any consideration was written 4,500 years ago; and that thirty-six centuries of silence intervened. Such as this can scarcely be called even hearsay evidence.

Passages are quoted from Herodotus and Hippocrates, which may be considered as evidence of venereal disease, but again the evidence is of the slenderest. Celsus, again, if he observed gonorrhœa, has given a description that is sadly lacking in the accuracy that marks his work. Milton—not of that ilk—from whom I shamelessly steal most of my

facts for this résumé, certainly seems reasonable when he says that gonorrhœa could scarcely have been well known and recognized among the Romans, since Horace, Juvenal and Persius make no mention of it; for on similarly delicate subjects they fearlessly pronounce. Martial, again, scarcely through modesty, has not even hinted at it.

One eager seeker declares to have found in poor old Cicero evidence of his acquaintance with the disease; school boy memories of Cato Major de Senectute fail to recall a single line that would render it likely that Cicero would have been so mundane.

Legions of writers, since the year 950, could be named, who have dealt with gonorrhœa so called; but so great uncertainty existed as to whether or not it was the true condition (and some of these plainly have confused the condition with spermatorrhœa) that the evidence must in great part be rejected. Doubtless, however, gonorrhœa did exist at this time, and with the ravages of syphilis in the fifteenth century it either lessened in its extent or was overshadowed by the importance of the other. But about 1500, when syphilis had somewhat spent its severity, gonorrhœa again comes into prominence. In 1504, Cataneus gave the first really accurate description of the disease and its contagious nature; he was followed by many other writers during the next forty years, after which again history is for a time silent.

Paracelsus classed gonorrhœa as a variety of syphilis, an error which passed unchallenged until the protest of Cockburn in 1728—and which lived until the present century. Previous to the period of confusion, as far back as 1740, Astruc pointed out the non-identity of the two conditions, and his contention was upheld in the latter half of the century by Balfour and Benjamin Bell. From 1770 onwards the Edinburgh school taught with no uncertain voice that gonorrhœa was a disease '*sui generis*.' This teaching began to become general in London only about 1805, but, notwithstanding, it is interesting to note that as late as 1829 mercury was given for gonorrhœa in some of the London hospitals. Finally, Ricord in a publication, the date of which I have not been able to ascertain, clearly demonstrated the distinction between gonorrhœa and syphilis. For many years, gonorrhœa and hard and soft chancres, had been jumbled together, and errors were copied from book to book; but in 1852, Bassereau proved conclusively the distinction between the hard and soft chancre, and from that time, though there existed some doubt as to the syphilitic or non-syphilitic nature of the chancroid, there has been no confusion between gonorrhœa and syphilis.

No distinct mile post stands out on the road until 1870, when Neisser of Breslau announced that he had found an organism existing in gonorrhœal pus; and that it was identical with the organism of ophthalmia neonatorum. Immediately a host of observers followed

and confirmed his work; with the result that, since that time, the presence of the gonococcus can be decided as "an immoral certainty."

But here again a new field opens up, for the supposition now was that gonorrhœa was entirely a local disease; although the clinical connection of gonorrhœa and arthritis had long been familiar. At the time of writing I have mislaid all the notes made as to the extension of knowledge regarding the gonococcus, and its appearance elsewhere than the urethra. I am sorry that I can trust my memory for neither observers nor dates; but this is practically history of to-day.* Let it suffice to say, that the presence of the gonococcus has, within the last decade, been determined in most of the serous cavities of the body; its presence in peritonitis, arthritis, iritis and salpingitis have been again and again demonstrated; more rare, but as undoubted, is its presence in the pleura; and lastly, it has been demonstrated not only in abscesses in the muscle of the uterus, doubtless by direct extension, but also in at least one case of multiple abscesses of the body muscles.

It is safe to predict that "the end is not yet."

* Dr. Macrae was called away from Montreal before the completion of this contribution to the Discussion on Gonorrhœa at the Montreal Medico-Chirurgical Society he having been appointed Lieutenant of Artillery in the Second Contingent to the Cape.

ACUTE GONORRHOEA AND ITS COMPLICATIONS IN THE MALE.*

BY

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While purulent inflammations of the urethra, running a definite course and frequently complicated by extension of inflammatory processes by contiguity to other parts, are due to other causes than that producing gonorrhœa, nevertheless, it would seem that the commonest cause of urethritis is due to a more or less pure culture of the gonococcus of Neisser; and it would seem, from a review of the literature of the subject, that the chief difficulty lies in being able readily to differentiate this coccus from others which closely resemble it.

Gonorrhœa is a contagious, specific inflammation of the mucous membrane of the genito-urinary tract. Purulent discharges occurring during the course of typhoid fever or during the secondary stage of syphilis are not unknown and are the result of other irritants than gonococci.

Clinically, we meet with the disease in two distinct forms:—(1) The acute or inflammatory gonorrhœa, and (2) the subacute or catarrhal. Either may be the result of immediate or mediate contagion.

The period of inoculation is very variable being, if we can believe our patients, from a few hours to three weeks, and apparently depending upon the virulence of the infection and the vital resistance of the mucous membrane. The average duration, however, is from three to five days.

The earliest symptoms of gonorrhœa are:—

Sense of heat and itching in the glans.

Tickling in the meatus.

Feeling of increased tension in the penis, followed promptly by,

Swelling of the meatus.

Appearance of a thin, greyish, watery discharge.

Ardor urinæ.

Frequent micturition. And, according to the extension of the inflammatory process backwards into the canal and deeply into the submucosa, vesical tenesmus and chordee. The discharge at the beginning and at the declining stage is most watery and contains fewer gonococci as a rule. Occasionally, one sees along with the above symptoms marked œdema of the glans, foreskin, and distinct evidences of

* Being part of a Discussion on Gonorrhœa at the Montreal Medico-Chirurgical Society, January 5, 1900.

lymphangitis of the penis, not necessarily associated with more intense urethral symptoms.

Loss of appetite, general malaise, and a haggard appearance will depend largely upon the character of the nights. Untreated, and often when overtreated, the disease runs a course of from five to ten weeks. Relapses are common and would seem to be dependent upon many causes. Finally, without involving the deep urethra the inflammation may become chronic.

While the above group of symptoms, in varying degrees of intensity, constitutes the clinical history of an attack of acute inflammatory gonorrhoea, a thin watery discharge coming on at very varying intervals may constitute the chief, if not the only symptom of a subacute gonorrhoea, with occasionally slight ardor urinæ, but very rarely chordee. These last attacks are frequently seen in those who in years gone by have had the more severe symptoms, and it would seem to be a debated point whether the mildness of the symptoms depends upon a certain degree of immunity acquired by the mucous membrane, or whether it is in reality an infection by attenuated gonococci, which a healthy urethra would have rendered inert.

The complications which may arise in acute gonorrhoea and not rarely in subacute gonorrhoea even when carefully treated, are balanoposthitis, with phimosis or paraphimosis, folliculitis and peri-urethritis with their complications, abscesses, and cowperitis, lymphangitis, lymphadenitis, cavernitis, posterior urethritis, acute prostatitis, rarely cystitis, vesiculitis and epididymitis. The more serious ascending inflammation, such as ureteropyelitis, and the acute suppurative nephritis occurring in the course of chronic gonorrhoea, are due to other pyogenic organisms. Rarely arthritis, pleuritis, endocarditis, peritonitis, ophthalmia or proctitis may occur as complications.

I should like just here to draw attention to the frequency of a previous history of gonorrhoea in those the subject of prostatic and vesical tuberculosis; at least in most of the cases which have come under my own observation this is true.

Acute posterior urethritis is probably the commonest complication of gonorrhoea and is due to direct invasion from the anterior urethra. Strong injections, excessive bodily exercise and over-indulgence in stimulants, etc., are important predisposing factors in its production. It may become manifest during the second, but more frequently during the third week. Frequent, urgent, and painful micturition ushers in the attack; perineal pain, nocturnal pollutions, vesical tenesmus, and occasionally, retention may follow. The severity of each of the symptoms depends upon the intensity of the inflammation and the virulence of the infection. In the mildest cases pus in the second of a two-glass

specimen with increased frequency of urination may constitute the only symptoms.

The only other complication to which I will refer in detail is spermato-cystitis, and this because it is comparatively common and frequently overlooked. It may run an acute but more frequently a chronic course. It is frequently mistaken for prostatitis. In the acute variety persistent pain in the perineum, stabbing in character, made worse on urinating or defæcating, and radiating to the anal and crural regions, frequently felt over the sacrum or in the hypogastrium, is present. Nocturnal pollutions are frequent and are often red in colour. Rectal examination will reveal a tender, nodular, sausage-shaped mass extending upward from the prostate. Examination is best made in the stooping posture with the bladder full. In the chronic form the symptoms are much less acute, though such patients rapidly develop neurasthenic symptoms which are exceedingly difficult to relieve.

Treatment. I shall not attempt to give even a résumé of the methods of treatment in vogue at the present day for the disease, but shall confine myself to those methods which I have found most serviceable.

So far as prophylaxis is concerned, immediate urination with thorough washing with frequently changed water and a mildly antiseptic soap, with or without a copious, weak, antiseptic injection, would, according to the testimony of some, prove thoroughly efficient.

So far as abortive methods of treatment are concerned, they have in my hands proved valueless unless the cases presented themselves very early. In two cases during the last year where symptoms indicative of a fresh infection, as judged by symptoms in previous attacks, were present, injections of nitrate of silver, 20 grains to the ounce, produced a profuse, purulent discharge which contained gonococci. The discharge in each case rapidly subsided by rest in bed and the use of hot fomentations and weak astringent injections of zinc sulphocarbolate and hydrastis. I do not as a rule practice the treatment simply because cases suitable for it do not present themselves.

Thorough cleanliness of the parts and of the patient's hands and instruments, I believe, helps to shorten the duration of the disease and especially prevents complications. Bodily rest, low diet, avoidance of stimulants, careful regulation of the bowels, and cool sleeping rooms are of the utmost value from the outset. I have on several occasions seen an acute attack of gonorrhœa get perfectly well during an attack of typhoid fever, but, on the other hand, I have on two occasions seen the symptoms return and in one case epididymitis occur during convalescence and while the patient was still in bed.

The method of treatment which has proved most satisfactory, and which I have practiced exclusively for the last two years, has been by

copious irrigations with weak antiseptic solutions; at first with bichloride and latterly with permanganate of potash, using these in large quantities and hot, at a temperature of at least 115° F. and frequently 120° F. These I applied by means of rubber catheters, glass catheters, special irrigators and meatus nozzles. It matters but little, I think, which is used so long as the irrigation is thorough and frequently repeated. Preferably I use the glass catheter. Within the last six months each irrigation has been followed by an injection of protargol, $\frac{1}{2}$ to 2 per cent., which is retained for fifteen to thirty minutes. If possible, irrigation should be commenced at once and repeated twice daily for the first four or five days, then daily for a week or more, so long as the discharge remains purulent and contains gonococci. When the discharge is thin and serous I substitute an astringent salt, usually combined with a vegetable astringent, to be used by the patient until the discharge ceases. This method, where it could be faithfully carried out, has been most satisfactory; the time required by the physician as well as by the patient in my opinion militates against its adoption. Where instructions have been given the patient, depending upon him entirely for carrying them out, the results have been no better than by much simpler methods, at least, that has been my experience.

In most of the patients the alkaline diuretics combined with an anodyne, and occasionally in robust patients with an arterial sedative, have been employed in the initial stage to relieve the ardor urinæ. Salol in 10 grains three times a day, I believe, is an important drug in the treatment of gonorrhœa, and particularly at the end of the first week; and combined with cubebs in a cachet materially helps to diminish the pus during the second week. Copaiba and sandal wood, in my hands, have been efficient only in inducing gastric trouble without benefiting the patient.

In anterior urethritis when, in spite of prolonged use of astringents of various strengths and combinations, the morning drop or gonorrhœal threads persist, exposure of the urethra invariably shows granular patches or areas showing inflamed follicles which more or less readily yield to pencilings with rapidly increasing strengths of nitrate of silver followed by the application of 25 to 40 per cent. boroglyceride.

Posterior urethritis, when acute, I have treated by rest in bed, hot hip baths, application of leeches to the perineum, hot irrigations if possible, and injections of protargol solution. Emptying the bowels twice daily by tepid saline solutions and urinating in a hot bath does much to relieve the patient's suffering. Rest must be secured at night if need be by morphine hypodermically or an opium suppository. Salol

and pulv. ipecac co. in cachets, I believe, do much to relieve vesical tenesmus.

In the chronic stage, irrigations of abundant hot saline solutions followed by instillations of increasing strengths of argentic nitrate or, where this is not well borne, by nitric acid, beginning with a drop to the ounce, is often serviceable. And here the use of the urethroscope is invaluable. By it you can determine the point or points where inflammation is localized, and having noted these carefully by rectal touch, instillations with an Ultzman's syringe can be readily carried daily, or every second or third day as acquired, to the desired part.

In acute spermato-cystitis the treatment suitable for acute prostatitis or acute posterior urethritis would be necessary. In the chronic form Fuller has shown that cures may be secured by emptying the contents of the vesicle into the posterior urethra by pressure exercised through the rectum, the bladder and urethra being subsequently carefully irrigated.

CHRONIC GONORRHOEA IN THE MALE.*

BY

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To deal with the subject of stricture of the urethra, its causes, development, symptoms, treatment, complications, and sequels in the time at my disposal is quite impossible. Neither is it proper for the opener of a discussion to set forth any peculiar views that he may hold, but rather to deal with the subject in a general way under headings that are suggestive and debatable.

Stricture is a narrowing of the urethra due, and secondary to, disease of its walls. Stricture, whether gonorrhœal, traumatic, or congenital, is of slow growth, requiring months and often years for its full development. Small cell infiltration takes place into the submucous layer. This may probably sometimes be absorbed but as a rule it slowly and gradually becomes organized into tissues more or less dense and fibrous. It is for all intents and purposes scar tissue and tends to contract. It is this contraction of scar tissue that narrows the tube, that lessens the calibre of the urethra. The mucous membrane also is altered; at first in a condition of catarrhal inflammation, it becomes later on pale and smooth and dense, rarely rough. The interference with the normal function of the canal and circulation through its vessels depends upon its extent in length and depth.

If this was the beginning and the end of the pathology the condition would be comparatively simple; it is, however, only the beginning. The obstruction offered to the outflow of urine leads to alteration of the parts behind, commencing at the site of the stricture and ending at the kidney, these alterations in time giving rise to systemic pathological conditions of the most serious import. The urethra behind the stricture first becomes dilated, then the bladder, the ureter, and lastly the pelvis of the kidney. If no bacterial infection occurs a simple hydronephrosis may result.

The next great factor to be considered is the infection of the altered walls of these important organs. The bladder does not completely empty itself and its resisting powers are lessened. While it is probably true, as pointed out by Guyon in 1888, that the normal bladder is not easily infected, it is also a matter of daily clinical experience that a dilated bladder not containing residual urine is most vulnerable. If

* Being part of a Discussion on Gonorrhœa at the Montreal Medico-Chirurgical Society, January 5, 1920.

the pelvis of the kidney becomes altered it at the same time becomes less resistant to infection.

The primary and most obvious result of stricture is undoubtedly its obstructive action, and this in itself may indeed prove serious enough; but the second and very important result of stricture is the alteration in the urinary organs, rendering them the more easily infected by pathogenic organisms.

The source of infection may doubtless be the intestinal canal, the lungs, the bones, as in osteomyelitis or other septic focus; but only too often do evidences of infection follow soon after the introduction of instruments into the bladder through the urethra. These are the two most frequent roads of infection, the blood and the urethra. When the infection is through the blood the kidney is almost invariably first involved and the intestine the most common source. This view is that advocated by Koving of Copenhagen and receives valuable confirmation in the experiments of Posner and Lewin, who found that on ligation of the intestine in animals, microbes from the intestine passed into the urine. Other sources of infection than through the urethra or blood stream are contiguous abscesses in the peritoneal cavity or prostate. These, by perforation into the urinary canal, may cause infection. I emphasize these points because later I shall urge that by far the most common source of infection is through the urethra and by the physician or surgeon: and before doing so it is only right to make clear the other sources of infection that the surgeon is powerless to remove. The cystitis or bacteriuria may take origin in the kidney, it being infected through the blood stream; but only too seldom can we make this point quite clear.

I think that we all must and should admit to ourselves that infection is as a rule coincident with urethral instrumentation. I say this for two reasons. In the first place it is a part of the plain truth, and secondly it is a good creed to believe in. A man feeling his responsibility is more likely to observe all known precautions than one who does not. I am not prepared to say that infection can always be avoided, but it generally can. The sterilization of the instruments to be used and the operator's hands should of course be observed by all, but the sterilization of the urethra is perhaps not always possible. It should always be attempted. It always contains germs, in the anterior part at any rate. The accessible parts should be carefully washed with soap and water and then with sublimate solution, 1 to 2000, or a 2 per cent. solution of carbolic acid. The urethra itself should then be washed out by means of a syringe or irrigator. For this purpose I am in the habit of using a solution of permanganate of potash, one-half of one

per cent., or a saturated solution of boracic acid. By means of a long narrow glass nozzle or a small sized rubber catheter, that part of the urethra anterior to the anterior triangular ligament can be well washed by a stream of antiseptic solution flowing outward. There is nothing I do with greater hesitancy that introduce for the first time a catheter into a distended bladder, whether the distention arise from prostatic or stricture obstruction. Explain it how we will, we constantly see old men using rough, dirty catheters, that they carry in their pockets and never think of washing, and passing turbid, odorous urine, with impunity it is true, but they either have acquired immunity or their urethral and vesical lining is invulnerable to attacks of ordinary bacteria.

Infection of the bladder and cystitis having occurred in spite of all precautions or as a result of no precautions being taken, the necessity of overcoming the narrowness of the urethra is all the more pressing. I do not here need to go into the bacteriology of cystitis. The different bacilli found in cystitis, their peculiar properties, their classification into two distinct groups, the urea decomposing and nondecomposing, are well described by Rovsing in his book "Klinische und Experimentelle Untersuchungen über die infektiösen Krankheiten der Harnorgane," and by Mansell Moullin in his book "Inflammations of the Bladder," as well as in numerous magazine articles, and I will not discuss them at present.

The next point I want to draw attention to is the infection of the kidney from the bladder. Perhaps I may say that this is the all important point in the sequelæ of urethral stricture. A knowledge of its possibility forces us to use due diligence in the relief of cystitis.

The infection spreads to the kidneys by three routes, the lymphatics, the ureters, and the blood vessels. I mention lymphatics first because I think they are the most frequent route. They carry the infection through the capsule into the kidney. I am sorry that pathological specimens are ruled out to-night as we have some very interesting specimens in the Montreal General Hospital of this condition. Only a few days ago there were removed at the autopsy two kidneys with multiple small abscesses. The history of this case is interesting and it illustrates the natural history of urethral stricture. The man who died of this multiple suppurative nephritis told us that when a boy only twelve years of age he found it necessary to pass urine very frequently. This frequency of micturition was a few years later accompanied by a certain discomfort during the act. Twelve years ago, he tells us, he was operated upon for stricture but that no after-treatment was kept up. When he was admitted to the hospital he had a stricture a little in front of the bulb through which a number six catheter could be passed. The

stricture felt very hard and dense and was annular. He micturated very frequently and complained of some pain during and after the act. The urine was turbid, alkaline, ammoniacal, and very offensive. The infection was mixed. In this case I divided the stricture and drained the bladder through the perineum. This was followed by an improved condition of urine, the cystitis was much relieved, but the relief came too late to save the kidneys. In this case the autopsy showed the cystitis to be local, limited pretty much to the trigone. The mucous membrane of the ureter was not materially altered, nor the pelvis of the kidney. The abscesses were all through both kidneys and the channel of infection was regarded by Dr. Wyatt Johnston to be probably the lymphatics.

When the infection passes up through the ureter, the pelvis is naturally the first to be infected, just the reverse of what occurs when the infection is brought to the kidneys through the lymphatics or blood channels. To sum up, then, the natural history of stricture is narrowing of the urethra, obstruction to the outflow of urine, dilatation behind the stricture, of the urethra, bladder, ureters, pelvis of the kidney and hydronephrosis. When infection occurs, then follow cystitis, ureteritis, suppurative nephritis, septicaemia and death.

The symptoms of stricture are well known; they are difficulty in micturition, slowness in starting the stream, lack of projecting force in the stream so that it falls on the boots or trousers, and in extreme cases micturition in the sitting posture.

A definite diagnosis is made by the use of instruments. In the passing of instruments the greatest possible care must be exercised to prevent infection. The instruments and hands of the operator should be thoroughly sterilized and the urethra in front of the anterior triangular ligament washed out by the use of a plentiful supply of an antiseptic solution introduced to the deeper parts by means of a small, soft rubber catheter and allowed to flow outwards.

In regard to the method of treatment to be adopted, I am strongly in favour of dilating all dilatable strictures; and nearly all gonorrhoeal strictures behind the peno-scrotal angle are dilatable by the interrupted or continuous method. In a general way, I reserve for cutting gonorrhoeal strictures of the pendulous urethra, traumatic stricture and congenital stricture of the urethra. I have not excised any traumatic stricture because I have not met with any cases adapted to this method of treatment. In one case, recently, of traumatic stricture involving fully two inches of the urethra, I found it necessary to lay open the stricture area by dissection, and then to form a new floor, as in the operation for hypospadias. The result was entirely satisfactory.

Cock's operation, or the opening of the urethra behind an impermeable stricture and therefore without a guide, I have performed only in cases of extravasation of urine. I have performed this operation in several such cases. In all of them the emptying of the bladder has been accomplished, but the future of such patients depends upon the extent and virulence of the infection of the tissues and the recuperative power of the patient. This complication frequently occurs in old men with diseased kidneys and is often fatal.

GONORRHOEAL ARTHRITIS.*

BY

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It is not my intention to take up the subject of gonorrhœal arthritis in a systematic manner, but simply to give an account of some of the more important features of a series of forty-eight cases that have been under observation in the Royal Victoria Hospital during the past four years. I am indebted to Dr. Cushing for the following very careful analysis of these cases.

During the past four years, forty-eight cases of gonorrhœal arthritis have been treated in the wards of the Royal Victoria Hospital. This number only includes those cases in which the diagnosis was certain and the patient remained in the hospital for a course of treatment.

The following statistics have been prepared from the case reports and special charts of these cases. These have been kept with more than ordinary care and accuracy for the purpose of observing the results of treatment by the Tallerman-Sheffield hot air apparatus.

Of the forty-eight cases only six were women. All the cases were young adults, the average age being about 30 years. The only exception was an old man of 69 years.

An attempt was made to ascertain whether a previous rheumatic history predisposed to involvement of the joints in the events of a subsequent gonorrhœa, but no such relation could be made out. Only two asserted that they had suffered from inflammatory rheumatism in early life and one from chorea. Only three had a decidedly rheumatic history. It was, however, clearly shown that one attack of gonorrhœal rheumatism predisposed to another in case of a fresh infection of the urethra, as no less than 15 cases *i.e.*, nearly one-third of all, have a history of previous attacks of gonorrhœal arthritis.

Only four cases gave a history of exposure, overwork, or intemperance, to account for the extension of the trouble from the urethra.

As to the gonorrhœa, it is impossible to draw any general conclusions; to judge from these cases arthritis is as liable to follow a mild attack as a severe one. Twenty-six claimed that it was their first attack of gonorrhœa. Some of the others had had repeated attacks of gonorrhœa before arthritis occurred. As to the stage of gonorrhœa, there is the same difference. Eighteen cases occurred in the acute stage be-

* Being part of a Discussion on Gonorrhœa at the Montreal Medico-Chirurgical Society. January 12, 1900.

fore the end of the third week of the discharge, twenty-two occurred later in the disease, and in eight cases, mostly women, it was impossible to ascertain the stage of the urethritis. In five cases the arthritis occurred more than a year after the onset of the gonorrhœa, which had become a chronic gleet.

The urethral condition of the patients while in the hospital is of interest. Although most of the patients entered the hospital late in the disease *e.g.*, twenty-four entered more than a month after the onset of the arthritis, almost all were still suffering from urethritis in some form. In twenty-five, there was acute or subacute gonorrhœa with visible discharge; in fourteen, some form of chronic urethritis or stricture; and in only four was the genito-urinary system found to be normal. Possibly this continuance of inflammation at the source of infection will account for the numerous relapses which characterized many cases.

The cases differed widely in the mode of onset. In four cases, the onset was like that of any acute fever, the arthritis only becoming a marked feature after two or three days. Ten cases were characterized by a sudden onset of pain and inflammation in one or more joints, generally occurring at night. In the remaining thirty-four the onset was more or less gradual with pain in some one joint, gradually becoming worse, and usually extending to other joints in succession, but not subsiding in the first joints as others were involved.

The clinical forms of the disease differed greatly but it was difficult to make any classification, as no sharp line of distinction could be drawn. The commonest form was what might be called the polyarthritic; of this there were twenty cases. These resembled subacute rheumatism. Inflammation began either suddenly or gradually in one joint, and extended to others with moderate fever and constitutional disturbance. Most of these cases when admitted early did well, but at least half were left with partial ankylosis of some of the joints involved. There were twelve chronic cases, mostly with ankylosed joints, two having hydrarthrosis. These cases were only slightly benefited by treatment. They all began as polyarthritic or monarthritic forms. Of the latter there were six acute cases in the hospital. These resembled the first group except that only one joint was involved, or else the rheumatism subsided in other joints in a few days and remained in the one joint. Of these six, three were cured, but three were left with more or less damaged joints.

There was a group of seven cases where the infection was confined to the heels and soles of the feet without any joints being affected. These all did well but some were left with some pain on walking.

Lastly, there were three cases which might be termed septicæmic, marked with fever and grave constitutional disturbance with involvement of several joints.

As to the frequency with which the different joints were involved, taking all the cases together the knees were the most frequently attacked, being involved in twenty-nine cases. Next to this is involvement of the heel and plantar fascia, in eighteen cases. Then, in order, the ankles, the small joints of the feet, the elbows, the shoulders, the wrists, and the small joints of the hands. The joints least frequently involved were the vertebral, in five cases, the temporo-maxillary in four, the sterno-clavicular in three, and the thro-arytenoid in one case.

The complications were very few; the commonest was endocarditis. This was present in eight cases. In one the lesion was an old one and probably associated with a former attack of chorea. The remaining seven showed apparently recent affection of the mitral valve: in two, the endocarditis was noted to occur in the wards. Of these seven cases five were what is described above as polyarthritic, and two were septicæmic. There was no case of malignant endocarditis.

The next most common complication was iritis occurring in four cases and leaving adhesions in one. Conjunctivitis occurred in two cases. In these cases the secretion did not contain gonococci and no bad result was left. Phlebitis of the left femoral vein occurred in one case. All the above complications occurred in febrile cases with several joints involved.

Treatment and Results.—As a whole the results were unsatisfactory. Although no deaths occurred, only nine were discharged cured. Thirty-five were improved, and in four cases, all chronic ones, there was no improvement. Fully half the cases left the hospital with one or more joints so damaged that complete restoration was not likely to occur. One explanation for this poor showing is that but few cases entered the hospital early in the disease. Only four entered during the first week and twenty-four entered more than a month after the onset. All the nine cases cured entered the hospital early in the disease. Of these, four were of the polyarthritic type, one monoarthritic, and in two the heels and plantar fascia only were involved. The average duration of treatment in all cases was thirty-four days.

As to the details of treatment,—all acute cases were treated with strict rest in bed and low diet. As has been stated above, cases treated thus ultimately did better than those cases which entered late in the disease. No remedy used internally was found to be of much value. Salicylates were given in full doses in twelve cases, but in no case was any marked reduction of temperature or relief of pain noticed. Salol,

potassium iodide and alkaline mixtures were also given without any special result. Tonics were given in some of the chronic cases with some improvement to the general condition.

Hot air baths by the Tallerman-Sheffield apparatus were used in thirty-six cases, in some cases in combination with other modes of treatment. By this apparatus the affected joint is exposed to dry air heated to about 300° F. for about half an hour. This is repeated daily or every second day. Under this treatment the general condition of the patient was always noted to improve though this may have been due to the improved hygiene of hospital life. There was an average gain in weight of about one pound a week. In practically all the cases of mild or subacute arthritis the baths caused marked relief of pain and greater freedom of movements for the time being. The action could not be termed specific as the majority of cases were left at the end of three or four weeks treatment with some stiffness of the joints and pain on exertion, but certainly the results were better than those obtained by ordinary local measures. In chronic cases, the relief of pain was also a marked feature in almost all cases. In some cases of partial fibrous ankylosis, there was increased mobility, but in half the cases there was none. The two cases of hydrarthrosis were not benefitted.

As to other local measures, hot fomentations were used in most acute cases. They afforded great relief of pain in all cases. In four cases where only one joint was involved, fixation by splints was found to afford greater relief than fomentations. Blisters were used in some more chronic cases, and in some are said to have relieved the pain but do not seem to have any other action. Painting with iodine was also used but with no good results whatever. Massage in some of the chronic cases was found to give increased mobility.

GONORRHOEA IN THE PREGNANT FEMALE.*

BY

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It is now pretty generally admitted that gonorrhoea may cause painful and troublesome affections of the vulva and its glands, the vagina, the rectum, and the genito-urinary system. The infective process may ascend and invade the uterus, the adnexa and the peritoneum. It may derange menstruation, may seriously complicate pregnancy, often causing abortion, may set up febrile disturbances in the puerperium, which may prove dangerous or even fatal, and after weary months may leave the woman with pus-tubes or other local conditions curable only by operation. It may wholly change the sexual life of a woman, rendering her sterile and incapable of normal sexual functions.

It is only of recent years that we have begun to realize what an important part the uterus plays in the gonorrhoeal process. There is still a difference of opinion among the best authorities:—(1) as to the frequency of gonorrhoea *in utero*; (2) as to the way in which the infective process spreads; (3) as to whether clinical signs suffice for diagnosis, or whether a bacteriological examination for gonococci is always necessary, and finally, (4) as to whether the diseased endometrium should be treated vigorously or should be left at peace. These disputed points cannot be settled satisfactorily until we have determined positively the nature of the infective agent and the way in which it is spread.

Are the remote symptoms of gonorrhoea in the uterus, the adnexa, and the peritoneum, caused by gonococci, and by gonococci only? Must gonorrhoea be demonstrated in pus collections presumably of gonorrhoeal origin, in order that their gonorrhoeal character may be affirmed? Or, may the presence of a gonotoxine, which long out-lasts the gonococci, explain the occurrence of pus collections in which no living gonococci are found? Without going into details, suffice it to say, that it has been proven that gonotoxine determines in animals and man inflammation and suppuration at the point of application, whether it be in subcutaneous cellular tissue, the eye, the pleura, the uterine mucosa, the peritoneum, or the urethra.

Various explanations have been given of the phenomena of chronic gonorrhoeal infections. Wassermann holds that although no gonococci

* Being part of a Discussion upon Gonorrhoea at the Montreal Medico-Chirurgical Society, January 12, 1900.

may be found in the pus, they may be present, nevertheless, in the walls of the tube, and that for a long time gonotoxine is formed, little by little, by the death or destruction of the gonococci, which multiply or perish as their environment changes. He assigns the chief rôle in chronic gonorrhœal infection to multiplication and degeneration of the gonococci, with the concomitant formation of gonotoxine.

During the past two years a Russian, Maslovsky, has been working at this subject in an experimental way, and the results of his observations appeared recently in the *Annales de Gynécologie et d'Obstétrique*, (Nov. and Dec., 1899). His views are worthy of attention, for they seem to explain some puzzling clinical conditions in a tolerably clear way. He says that gonococci act upon the body by means of toxines, which have a two-fold action, *local* and *general*. The *general toxic action* is shown by elevation of temperature, a loss of weight, and even by death. The *local* action, inflammatory and suppurative, manifests itself at the point where the toxine is applied. His experiments prove that gonotoxine is capable of producing an accumulation of pus in closed cavities, which augments progressively. For example, the inflamed tube, shut off from the uterine and abdominal cavities, is practically a closed sac; gonococci, carried by leucocytes to the walls of the tube, perish and form gonotoxine; the pus of the tube, containing, therefore, gonotoxine and not being able to escape into either the uterine or abdominal cavity, increases and continues to do so after the death of the gonococci. Martin has already shown that, of all the pyogenic organisms in tubal suppuration, the gonococcus is the first to disappear. If these observations be correct, the accumulations of pus in the closed cavities of the tubes can be explained without invoking the aid of living gonococci. It is the same action of gonotoxine which explains the complications of gonorrhœal infection of the tubes, such as localised peritonitis. The peritoneum reacts to gonotoxine, not only when the latter is employed in considerable doses, but even in conditions in which it is found in the distended tube.

Turn we now to the clinical aspects of gonorrhœa in women. The gonorrhœal affections of the vulva and its glands, the vagina, the rectum, and the genito-urinary system will be described by other speakers. The purpose of this paper is to deal briefly with the effects of gonorrhœa upon pregnancy. It is important to recognize the truth of the following statement:—

So long as the gonococcus does not gain entrance into the uterine cavity and attack the endometrium, a cure may be effected without seriously disturbing the sexual life. Gonococci may get into the cervical canal without going further, although it is highly probable that uterine infection will take place if once they become lodged in the cervix.

Menstrual Disturbance. The first and most important symptom of gonorrhœal infection of the uterus, adnexa, or peritoneum, is a suddenly-occurring disturbance of menstruation. The study of these menstrual disturbances as a means of diagnosing gonorrhœal infection is too much neglected. In a previously healthy woman, menstruating regularly and painlessly, the type of menstruation changes suddenly when the endometrium becomes involved in the gonorrhœal process. The flow becomes *profuse* and *irregular*, coming on too early or too late, recurring suddenly without obvious cause. Then there is pain mostly at first in the pelvis or loins sometimes preceded by, or accompanied with, pain in the external genitals. Colicky pains are especially significant, showing that the adnexa and the peritoneum have been invaded. There may be fever and rise of pulse, but in a couple of days these constitutional symptoms subside and the pains disappear or become bearable. These symptoms of menstrual disturbance are of great value in the matter of diagnosis and treatment, the chief point being the sudden change of type without other assignable cause.

Gonorrhœa in Pregnancy and the Puerperium. The signs of gonorrhœa in pregnancy are so few and the bladder troubles and vaginal discharges differ so little from the similar conditions common in pregnancy, that the ordinary primipara, young and inexperienced, is apt to overlook them altogether or regard them as troubles resulting from the pregnant state. Even should she consult her physician, he will probably regard her symptoms in the same light. Nevertheless, the condition is far too serious to be passed over lightly; it may result in wrecking the sexual life, with subsequent sterility and chronic invalidism. As physicians, we should take this matter to heart; we may be sure that we will not find gonorrhœa until we begin to look for it; we should suspect it, be on the watch for it in all primiparæ, and not rest satisfied until we can conscientiously exclude it. Just as careful physicians and surgeons are on the watch for syphilis everywhere without respect of persons, so should careful obstetricians be on the watch for gonorrhœa.

A satisfactory diagnosis cannot be made in pregnancy from the clinical symptoms alone; where there is the slightest suspicion, the husband should be questioned as to the existence of a previous gonorrhœa, and then a careful search should be made for gonococci, not only in the vaginal discharges but also in the cervical mucus. With proper care no harm should follow the removal of the cervical mucus for examination. But while the microscope helps us to make a diagnosis of the presence of gonococci, it does not inform us respecting the virulence of the infection or the danger of the process; the course of the puerperium, alone, can determine these points. Very many pregnant women

infected with gonorrhœa, go through a favourable, uneventful, puerperium, while others have the pains and anxieties of a severe fever with numerous subsequent ill effects. An ascending gonorrhœa during the puerperium is a complication which is underestimated both as to its frequency and its significance.

It should be remembered that, in general, gonorrhœal invasion is a disease of the mucous membrane; other tissues are seldom attacked. In pregnant women the upward march of the gonococci is usually stopped at the *os internum*, above which point the uterine mucosa has been changed into decidua. Gonococci do not seem to penetrate into or spread along the decidua. The gonorrhœal process may seem to lie dormant until after the shedding of the decidua in labour, then the newly forming mucosa offers a new culture medium, and the infective process is awakened into renewed and increased activity. This is the explanation of the fact that an infective process, which has been inactive for weeks or months during pregnancy, may break out into an acute stage of marked intensity and extent during the first few days of the puerperium. The openness of the Fallopian tubes allows the easy passage of the cocci into them.

The first sign of beginning gonorrhœa in the puerperium appears generally on the third day, with a moderate rise of temperature and pulse. The patient feels pretty well, complaining only of pain on one side; there is usually tenderness on pressure over the adnexa or over the junction of the tube and the uterus on that side. These local conditions may continue practically unchanged for several days. The lochia become more offensive than usual, though no actual fœtor may exist; the quantity is increased without a preponderance of either bloody or purulent constituents. Specially noticeable, is the irritating acid reaction of the lochia causing pain and smarting in vaginal or perineal wounds and even intertrigo. Eczema of the external genitals should cause one to search for gonococci in the cervix. Bladder disturbances should lead one to examine the urethra. In the further course of the puerperium, repeated obstinate hæmorrhages may occur, even though placenta and membranes came away entire. The changes in the lochia and moderate fever (101.5° F.) may last for eight to fourteen days or even less, and may then disappear without the occurrence of subsequent trouble. In other cases in about eight to ten days, there is a chill followed by a sudden rise of temperature (104° F.) and pulse, and the signs of severe puerperal infection (sharp abdominal pains, distention of the abdomen, sensitiveness of the uterus and adnexa to pressure, profuseness and acidity of the lochia). The diagnosis from acute septic infection is difficult at first; but in gonorrhœal infection the temperature falls to 100° or 101° in a day or two, and fluctuates only one or two degrees during the twenty-four hours; the great rises and falls of tem-

perature so common in septicæmia are not observed in gonorrhœal infection. The pulse rate diminishes even more rapidly and remains usually with a maximum of 100. The lochia are never as foetid as in septic cases. The tongue is moist and not coated; the patient soon regains her appetite; the abdomen becomes softer and bears pressure. The pains limit themselves to the uterus and adnexa; and by external examination, a distinct swelling, generally bilateral, can be made out. These tumours are so large, and they go on so often to pus formation that they can be differentiated usually from true parametritic exudation. It must be remembered, however, that puerperal pyosalpinx sacs develop easily in the loosened connective tissue of the broad ligament, thus giving rise to a false diagnosis of parametritis. There is often a mixed infection; some observers note that gonococci attacking the endometrium seem to prepare the way for streptococci, which in turn destroy the gonococci.

Gonorrhœa plays an important part in the production of puerperal infection, either alone or in connection with other microbes. Krönig was able to cultivate gonococci in 50 out of 170 cases in which the puerperium was febrile.

As the result of gonorrhœal infection some women become absolutely sterile and never bear a child; others bear one child and thenceforth are sterile. This latter condition is called *one-child-sterility* by some observers, and is held to be highly significant of gonorrhœal infection. The explanation of absolute sterility and one-child-sterility is interesting. If the woman becomes pregnant shortly after marriage the ovum enters the uterus, a decidua is formed and a barrier set up which prevents the extension of a gonorrhœal process that has been slowly advancing up the vagina. After the birth of the child, the gonorrhœal process, which has remained latent, invades the uterine cavity, involves the endometrium and causes sterility. If, however, the woman does not become pregnant before the gonococci invade the uterus, she may become absolutely sterile. There is, in a certain sense, a race between the fertilized ovum and the gonococci for the occupation of the uterine cavity, and the question of absolute or one-child-sterility depends largely upon which reaches the endometrium first. The severity and obstinacy of the disease in the chronic stage, long after the puerperium is over, give a grave significance to gonorrhœa in the puerperium.

Prophylaxis and Treatment. Particular attention is directed to the fact that gonorrhœal affections of the uterus, adnexa, and peritoneum, occurring after labour and particularly after abortion, in cases where operative interference has been employed, give the worst prognosis and furnish the largest number of cases which go on to operation. The scope and value of prophylaxis can be estimated only when we accustom

ourselves to think of the possibility of gonorrhœa in any pregnant woman. Abortion should be prevented, if possible, and operative measures avoided. During pregnancy, a supervision of the habits and method of living, as well as judicious local treatment, will diminish the chances of abortion and perhaps modify the intensity of the local disease. During abortion or labour, an expectant attitude is best, until it becomes evident what the course of the disease is likely to be. Internal examinations should be avoided as much as possible; Cr  d  's method of expelling the placenta and other violent manipulations of the uterus are apt to be harmful.

In the puerperal period the first essential is *perfect rest*, and the patient should be kept in bed as long as possible. During pregnancy, if the vagina, urethra, or rectum only is attacked, the cervix being as yet unaffected, energetic treatment of these organs should be instituted and sexual intercourse forbidden. Treatment of the cervix itself is somewhat risky and should only be done by means of ointments of ichthyol, protargol, or silver nitrate carried or injected gently into the cervical canal. It would be helpful to know in any given case whether the cervix alone is infected, or whether the uterus also has become involved. In the present state of our knowledge it is generally impossible to decide.

In the puerperium, if there be signs of advancing infection, absolute rest is the best treatment. Ice bags and opium will relieve pain and the symptoms of peritoneal irritation. Warm applications and dieting will help bladder troubles. All other methods of local treatment will do more harm than good. Vaginal irrigations are especially to be avoided, as they are so apt to bring on colic and contractions. The patient should be kept in bed for a long time and permitted to get up only when fever has gone and pain is felt only upon deep pressure over the organs,—rarely before the fourth week, better usually in the seventh week. Then we can begin treatment looking towards absorption. Then will be the proper time, too, for large hot douches, for ichthyol and glycerine tampons. In no case should intra-uterine treatment be undertaken before the end of the puerperium.

Time permitting, it would be interesting to show the danger of sudden, acute infection during the puerperal period by rupture of old gonorrh  al pus pockets. Death has occurred from rupture of a small gonorrh  al abscess two weeks after delivery, the puerperium up to that time having been normal. Death has occurred from nephritis during the puerperium, the tubes and ovaries having escaped infection, but the kidneys having been involved. An interesting point for discussion here would be the usefulness or advisability of abdominal section in these sudden, infective cases late in the puerperium.

In conclusion, let me again urge the importance of early diagnosis and energetic treatment in the gonorrhœa of pregnant women. The cocci may lurk in so many pockets and corners of the genito-urinary tract, the rectum, and the parturient canal, that great care must be taken to turn them out from all their hiding places. Treatment which does not succeed in doing this will probably fail, because of the lasting properties of the gonotoxine. In the light of recent investigations, the expectant attitude, in the matter of treatment, cannot be defended. Careful diagnosis, a thorough local examination, persistent treatment, the results being checked from time to time by bacteriological examination, seems to be the line now indicated. Finally, we should remember, in treating such cases, that the infection has come from some latent gonorrhœal process in the husband. It will, therefore, be of little use to cure the wife unless at the same time we take care that she be not re-infected by the husband. Both should be under treatment, and a return to ordinary marital relations is not safe until both are free from all possible foci of infection. Simultaneous treatment of both will give the best results.¹

* The whole question of diagnosis and treatment of gonorrhœa in the female is thoroughly treated by Dr. Adolf Calmann, of Hamburg, in a paper which appears in the *Dermatologische Zeitschrift*, Bd. VI. I am indebted to this article for many valuable points in the preparation of this paper.

GONORRHOEA IN ITS RELATION TO DISEASES OF THE EYE.*

BY

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There are undoubtedly two forms of inflammation of the eye caused by gonorrhœa. The first, most frequent, and by far the most important of these is the well known purulent conjunctivitis which can nearly always be traced to direct inoculation or infection of the conjunctiva with urethral virus. In most of these there is auto-inoculation by means of the fingers carrying the secretion from the urethra to the eyes. This accounts to some extent for the greater frequency of the disease among males, whose fingers are, for obvious reasons, more liable to become contaminated; there are moreover, no doubt, a greater number of males affected with all forms of venereal disease owing to the different social habits of the two sexes.

I need not dwell upon the characteristic symptoms of gonorrhœal conjunctivitis, save that the specific micro-organism of gonorrhœa is always to be found in every genuine case. This makes a positive diagnosis always possible, but the presence of an acute purulent ophthalmia even in its early stages in a person obviously affected with gonorrhœa is sufficiently conclusive evidence as to the nature of the disease for all practical purposes, and an early diagnosis may be of vital importance for reasons I shall presently mention. In the absence of any source of auto-infection, or of positive facts as to the time and manner of infection, a bacteriological examination may be the only means of establishing the diagnosis, as there are undoubtedly purulent ophthalmias of a severe type induced by other infective material.

I do not find any modern writer describing the supposed metastatic gonorrhœal ophthalmia of earlier authors, and I think we may fairly assume that bacteriology has thrown this hypothetical disease out of court. On the other hand it has been shown that so long as a person has a discharge from the urethra containing gonococci at all, such a person is not free from danger of contracting gonorrhœal ophthalmia.

There are undoubtedly some cases of this disease much more virulent than others. The explanation of this clinical fact is largely theoretical, and although a mild type of the disease does occasionally present itself, the rule is that a large percentage of eyes attacked by gonorrhœal ophthalmia will perish, or only recover in a damaged condition, despite the best treatment we know of even at the present time.

* Being part of a Discussion on Gonorrhœa at the Montreal Medico-Chirurgical Society, January 12, 1900.

The purulent ophthalmia of early infancy is nearly always due to the same kind of infection and still, unfortunately, contributes a large proportion of inmates to the blind asylums. This is a deplorable fact when we consider that this disease when properly treated from the outset rarely causes loss of vision and it does seem to me that legislation might well be invoked to protect young infants more efficiently against the ignorance and neglect which year by year renders so many human beings helpless for life at the very outset of their existence. According to Fuchs there are in Europe alone more than thirty thousand persons in the asylums for the blind from this cause alone.

The other form of inflammation of the eyes caused by gonorrhoea occurs as an iritis, and, so far as I have seen, always in the later stages of gonorrhoea, and in connection with other manifestations of gonorrhoeal rheumatism; exceptionally, we must be prepared to meet with this complication as the only evidence of the arthritic tendency, and there are cases on record in which an iritis or an arthritis occurred indifferently with every attack of urethritis the individual contracted.

It is generally conceded that in gonorrhoeal iritis there is no invasion of the intra-ocular tissues by the micro-organisms of gonorrhoea, but that the eye is merely irritated by the systemic toxins after systemic infection; the characters of the iritis are in favour of this view, being usually of the so-called serous variety, with little tendency to the exudation of plastic lymph, whilst, as pointed out by several of those who have taken part in this discussion, in gonorrhoeal urethritis, there is a singular tendency to the exudation of a highly plastic material, and with this the micro-organisms are found in the tissues of the joints affected.

The treatment of gonorrhoeal iritis does not differ materially from that of iritis of rheumatic origin. It would, however, seem a rational procedure to rid the patient as soon as may be, of the urethral disease and so free him from the continued source of infection. I am not sure that modern ophthalmology has made any great advances in the way of successfully treating the virulent forms of gonorrhoeal ophthalmia; indeed, we still rely on the use of remedies that were commonly employed fifty or sixty years ago, viz: nitrate of silver and solution of perchloride of mercury; the former as an application to the averted lids once or twice daily in 1 or 2 per cent. solution, the latter as a cleansing wash, 1-5000. Frequent and thorough cleansing with some mild antiseptic is essential. Boracic acid 3 per cent., permanganate of potash, 1-10 of 1 per cent., or dilute peroxide of hydrogen and other antiseptic solutions are no doubt quite as useful as the perchloride, only the cleansing must be thorough and it is a good plan to keep the conjunctival sac filled with molten vaseline after each cleansing. Protargol and solution of argonin have recently been much vaunted,

but in so serious a disease it is something of a risk to use remedies that have not an established place in therapeutics.

Bacteriological investigations have demonstrated that in the early stages of gonorrhœal ophthalmia the gonococci are present only in the conjunctival epithelium, but that later on they penetrate deeply in the subconjunctival tissues. If, therefore, an early diagnosis can be made the logical inference is that an antiseptic powerful enough to render aseptic the entire epithelial structure should be capable of arresting the disease. Acting on this assumption, in the two last cases I have seen where an early diagnosis could be made (within thirty-six hours of the onset of the disease), I have been fortunate enough to so modify its course that recovery with good vision has occurred. In both, the onset gave all the signs of a most virulent form of gonorrhœal ophthalmia which would I believe have ended in the destructive ulceration of the cornea under ordinary circumstances. The patients, one a male the other a female, had gonorrhœa of not more than two weeks duration and came under my notice the day after the eye symptoms appeared. I explained the gravity of the disease and obtained consent to an abortive plan of treatment which I carried out in the following manner:—

The conjunctiva was thoroughly washed with perchloride of mercury solution, 1 in 3000, the patient etherized; the outer canthus freely divided, the lids thoroughly everted so that every part of the conjunctival sac was exposed, irrigated with warm water and, after protecting the cornea with vaseline, the entire conjunctiva was freely swabbed with an 8 per cent. solution of nitrate of silver, and after a few minutes with perchloride, 1 in 2000, and lastly, smeared abundantly with vaseline, and cold borated compresses applied, these being renewed frequently and vaseline used freely. After twenty-four hours there was nothing but a severe muco-purulent ophthalmia, the secretion being distinctly more mucoid than purulent. In both, the disease ran a fairly mild course, and terminated in recovery with but little impairment of vision. The cornea did not escape some ulceration, but by no means destructive; even this I think would not have occurred had it been possible to protect the cornea completely from the action of the silver nitrate. These results are so encouraging that I feel sure the method is worthy of a further trial under similar conditions.

ON A CASE OF HAMMER-TOE AFFECTING THE FOUR OUTER DIGITS OF EITHER FOOT.

BY

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While hammer-toe can scarcely be described as uncommon, it is, I believe, rare to find the condition so extensive as in the case I am about to describe, and the literature bearing upon the condition being singularly scattered and slight, cases rarely coming to autopsy and permitting thus a full study of the relationship of the various parts involved in the production of the condition, a full description of so extensive a case as this is perhaps worthy of being placed on record.

The specimen here described was found in a female *æt.* 64 under Dr. Stewart at the Royal Victoria Hospital. She was admitted from the Ladies' Benevolent Society's Home in this city, but unfortunately no data could be obtained of her previous or again of her family history.

It is unnecessary here to dwell upon the various features of the post-mortem record beyond saying that the main lesion was a large tumour springing from the *dura mater* in the occipital region and causing great atrophy of the posterior portion of the right hemisphere.

The feet were found equal in size, fairly well proportioned, their skin smooth and soft and free from calluses, and there was no eversion or inversion, although the soles of the feet had the appearance of having borne the weight of the body somewhat more on the outer side of the arch of the instep than is normal. With this there was a definite tendency towards *pes cavus* in each. The muscles of the calves showed no abnormality.

Both great toes were well formed and in the normal position, but the four outer toes of each foot were in a position commonly designated by the term, "Hammer-Toe." Each toe showed marked hyperextension of the first phalanx, the second phalanx was flexed at a right angle to the first and held so firmly in this position as to give the impression of ankylosis of the joint. The distal phalanx occupied the normal position relative to the second. The extensor tendons stood out prominently in the angle formed between the metatarsal and the first phalanx of each toe; the flexor tendons were apparently in their normal position.

Upon dissection it was found that the joints were not ankylosed (as from their rigidity had at first been thought), the peri-articular tissues were found to be in a normal state and though the interphalangeal

joint could not be flexed into its proper position, yet there was no apparent affection of the joint itself. Upon division of the flexor tendon, however, the toe could at once be easily straightened though it was still held in a position of hyperextension relatively with the metatarsal.

Now upon division of the extensor tendon the toe was immediately straightened out into the natural position. Not only was there no ankylosis but also the lateral ligaments were found definitely not to be contracted, in opposition to what has been observed and described in certain other cases of hammer-toe.

The number of toes involved and this absence of contraction of the lateral ligaments are points in which the above case differs from most recorded in the literature to which I had access. Quite the most frequent condition would appear to be one affecting the second toe only, of one or both feet, while in all cases cited, the flexor and extensor tendons were found normal. A series of observers describe a more or less marked contraction of the lateral ligaments at the articulation of the first and second phalanx. I have met with records of three cases of Hallux Flexus, but have come across no case of the condition so extensive as that here described, although in saying this I am far from wishing to indicate that such do not exist. At most I would say that hunting through English and French literature I have not come across such.

Upon showing this specimen to Dr. Shepherd he pointed out to me that the shortening of the tendons and the slight though definite condition of pes cavus would indicate that here we clearly have an example of the primary stage in the development of club-foot, and that as clearly we are dealing with a congenital condition. I find on reviewing the literature that Dr. Wm. Anderson, in 1887, in a paper before the Pathological Society of London, was of the same opinion with reference to many cases of the condition. Nor, studying the specimen more fully, do I see how a more simple and satisfactory explanation can be adduced. Both conditions show an abnormal shortness of the muscles (with their tendons) which control the foot.

At the same time it must be noted that other views have been brought forward. Thus in 1885, in a monograph on the subject, Blum divided the cases into three classes, (a) Congenital, (b) Acquired, and (c) Simulated. He explained the congenital variety as due to thickening and contraction in utero of the fascia on the dorsal aspect of the articulations of the first and second phalanges; the acquired variety he held to be due to the wearing of ill-fitting or badly made shoes.

S. G. Shattock exhibited several specimens and read papers on this

subject before the Pathological Society of London in 1886 and 1888. He regarded the malposition as of neuro-muscular origin, dependent probably on some affection leading to loss of power in the interossei. Little was of the same opinion.

Anderson, in 1887, before the same society, advanced the theory of heredity as the essential predisposing cause; he regarded ill-fitting shoes as the probable exciting cause. His paper gives an analysis of 22 cases in all of which the condition occurred between infancy and early adult life. In one it was noticed shortly after birth; in three of his cases there was associated hallux valgus and in two an associated pes cavus.

In 1893, Warrington Howard brought the subject again before the Pathological Society. His paper is of especial interest as indicating the hereditary nature of the condition. Thus he gives a history of one patient, a boy of 15 years, whose right second toe was affected. This patient's paternal grandmother had the second toe of the right foot affected, her son (the lad's father) had the same deformity, and of this man's family of seven, (1) The eldest son had the second right toe affected; (2) the eldest daughter, the second toe of both feet; (3) second daughter, no deformity; (4) third daughter, no deformity; (5) second son, second toe of left foot affected; (6) fourth daughter, no deformity; (7) third son (the patient in question) second toe right foot.

I regret that the complete absence of notes bearing upon the history of the case here recorded makes it absolutely impossible to throw any light upon the question of heredity in this connection. I may, however, add that in conversation with Dr. Shepherd and one or two other Montreal physicians, I have heard of other cases in this immediate neighbourhood in which there is an undoubted hereditary history. I can only repeat that it is difficult to regard most cases as other than congenital, the absence of deformity in the phalangeal bones and joints (apart from the mal-position) and the shortening of the extensor as also of the flexor tendons and the tendency to pes cavus, all support this view.

Whether a case such as this in which so many toes are affected, is of the same origin as the more frequent cases where only the second toe is the seat of the change, must be left an open question. We may, however, I think, safely divide cases of hammer-toe into,

(a) *Congenital*, occurring in one or more toes, either unilateral or bilateral, and being a condition either distinct in itself or a primary stage in the development of club foot, showing further a marked tendency to be transmitted.

(b) *Acquired*, beginning as an inflammatory process lighted up by

traumatism, as in direct injury, or again excited by the slow and intermittent pressure of an ill-fitting shoe.

To complete and round off my remarks a brief note may be given with regard to the treatment of the condition. Operative measures are only demanded when the deformity is fixed to a greater or less extent. In the higher degree of fixation Anderson's operation of excising the head of the first phalanx through a lateral incision is recommended by many, though Peterson recommends division of all the structures on the flexor surface down to the bone, the wound then being allowed to fill with granulations after the toe has been fixed in an extended position. In the slighter degrees of fixation, according to Adams, a subcutaneous division of the contracted tissues is all that is necessary.

In conclusion I beg to express my thanks to Dr. Adami for the opportunity of studying this case and to Dr. Shepherd for advice so willingly given with regard to its essential nature.

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Blum, Albert—*Rev. de Sciences Médicales*, Vol. 26, p. 295, 1885.

Cohen, E.—*Rev. de Sciences Médicales*, Thèse de Paris, 1888.

Warrington, Howard—*Trans. Path. Soc. London*, Vol. 44 p. 130, 1893.

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The following references to the subject I have not been able to come across :

Blum—*Orteil à Marteau*, *Arch. Gén. de Méd.*, 1884, 51b.

Ricard—*Orteil à Marteau*, *Gaz. des Hôp.*, 1887, 1020.

Terrier—*Bull. et Mém., Soc. de Chir. de Paris*, 1888, n. s. 14, 614.

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QUARTERLY REPORT OF THE EYE AND EAR CLINIC OF THE ROYAL VICTORIA HOSPITAL, MONTREAL.

BY

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AND

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A Case of Acquired, Double-sided Lenticonus Posterior.

Removal of the Lens of one Eye by McKeown's Method—Recovery of Normal Vision.

Lenticonus, the condition in which the curvature of the lens is abnormally increased, is one of the rarest affections in eye surgery. In a recent article Pergen¹ was only able to gather 15 cases from the literature to add to his own which occurred in a buphthalmic globe. The affection occurs as a congenital or acquired condition, and may affect one or both eyes. In nearly every instance the increased convexity was confined to the posterior surface of the lens, and in several cases was associated with posterior polar cataract. In four cases the presence of divergent strabismus denoted the exclusion of the affected eye from binocular vision.

The following case is especially interesting because of its being the first instance in which operative treatment was adopted for the cure of the condition. The ease with which the lens was removed by McKeown's procedure, and the brilliant result obtained from the operation more than justify the adoption of this method in the management of all similar cases. The case is as follows:—

Mrs. G., æt. 60, entered the Royal Victoria Hospital, Sept. 29th, 1899. She complained of gradual loss of vision during the past four or five years, previous to which time her sight had been excellent in every respect. Two years ago she consulted a local optician and procured a pair of glasses (strong minus lenses), which helped her a little for a short time. The patient could assign no cause for the loss of vision. A short time before the onset of the ocular condition she had had an attack of quinsy, but of late her general health had been good.

Patient was an elderly, well nourished woman. Examination of urine negative.

¹ Pergen's—"Buphthalmus with Lenticonus Posterior," *Archives of Ophthalmology*, Vol. XXVIII., p. 620.



FIGURE I.

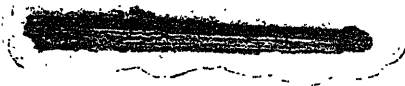


FIGURE II.

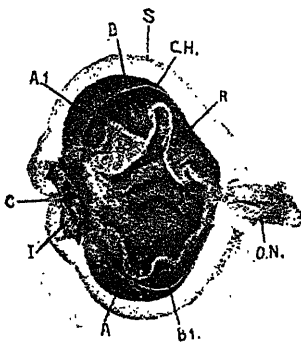


FIGURE III. S., sclerotic; Ch., choroid; R., retina; A, A1., sub-choroidal space; B, Bl., sub-retinal space; O. N., optic nerve. Iris (I.) attached to posterior surface of cornea at C.

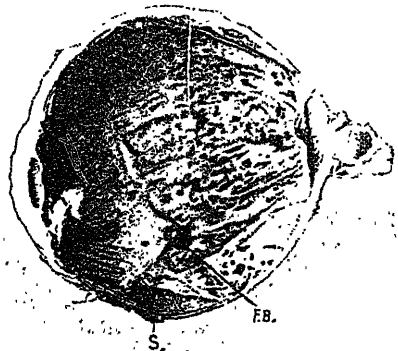


FIGURE IV. Foreign body (F.B.) held in position by bands of connective tissue; S., margin of equatorial staphyloma.

Lids, conjunctiva, and lachrymal apparatus of both sides normal; the corneae were clear and bright and both showed a normal curvature with the ophthalmometer, i.e. $\frac{1}{2}^\circ$ of astigmatism, according to the rule.

On first throwing light into the eyes the impression was that one had to do with a case of conical cornea, but further examination with the ophthalmometer, a mirror for parallactic movement, and the direct method, showed that the case was one of double-sided lenticonus posterior. There appeared to be both by the direct and indirect methods a more or less rounded opacity near the posterior pole of each lens. In certain positions, however, one got practically clear but reduced images of the retinal vessels and fundi through the centres of the lenses showing that the opacity was due more to the irregular refraction of light than to definite changes in the lens substance itself.

At the same time with the direct method one could see there was slight but definite loss of transparency in the lens near its posterior capsule. The condition was more marked on the right than on the left side. At all times there were the optical phenomena of squirming and wriggling of the vessels.

The left fundus was absolutely normal. Along the inferior nasal branch of the right retinal artery and some millimeters from the optic disc was a large, irregular patch of golden-yellow colour the exact nature of which could not be made out. In one place a retinal vein was slightly hidden from view in its substance, but it was too dull and too far from the optic disc to be medullated nerve fibres; it was certainly not an atrophic condition, and apparently not an exudate.

There were a moderate number of opacities in each eye in the anterior part of the vitreous which moved rather quickly; Th. in both.

Without mydriatic, R.V. = $\frac{6}{60}$, L.V., $\frac{1}{6}$, not improved.

With mydriatic, R.V. = $\frac{6}{60}$; $0^\circ - 0.5 - 0.5 = \frac{6}{24}$. L.V. = $\frac{6}{60} - 0.5 = \frac{6}{24}$.

Though the periphery of the lens was less myopic than the centre, the exact difference was not absolutely determined. The correction under mydriasis may be taken roughly as the measurement of the marginal error.

October 4th, 1899: Right preliminary iridectomy, cocain.

November 1st, 1899: Right extraction, cocain. Capsule was first freed from the lens by the injection underneath it of a physiological salt solution as recommended by McKeown of Belfast.² After the entrance of the saline solution there was no red reflex from the fundus, the lens having become totally opaque. A free incision having been made in the capsule the lens was now expressed with ease, the small

² McKeown—"A Treatise on Unripe Cataract." H. K. Lewis, London.

amount of lens substance remaining being afterwards washed out with the salt solution.

December 7th, 1899 : A thin capsule which had formed over the pupillary area was needled, and on January 11th, a day or so before the patient was discharged from the hospital, the following note was made of her condition :—

Right eye quiet ; angles of the coloboma in position ; thin capsule all over the pupillary area ; small but central aperture. A few opacities in the anterior part of the vitreous ; fundus as before ; Tn.

Right eye. $90^\circ \pm 0.0$; $0^\circ \pm 1.5$. R. V. = $0/60$; $0^\circ + 1 + 10.0 = \frac{5}{8}$; $0^\circ + 1 + 14.0$ Jaeger 1.

Left eye as before.

A Case of Exophthalmos from Empyæma of the Frontal Sinus and Ethmoidal Cells—Operation—Recovery.

The frequency with which eye-surgeons are called upon to deal with disease of the frontal sinus and ethmoidal cells is explained by the close proximity of these structures to the orbit. Tumours generally originating within the accessory cavities of the nose find the way of least resistance towards the orbit, and the orbital structures themselves are of such a nature as to be readily affected by inflammation spreading from the neighbouring sinuses. The following report is in general typical of what occurs when secretion is pent up in the frontal sinus and ethmoidal cells. The sudden onset is to be explained both by a probable lack of careful observation on the part of the patient, and by the onset of an acute orbital cellulitis secondary to the chronic empyæmic condition. An interesting point is the failure of the transillumination to give accurate information. Although the left frontal sinus was filled with pus the light intensity was the same on both sides, while on the other hand the left antrum which was distinctly darker than the right was absolutely free from secretion.

The patient, a butcher, æt. 19, came to the out-patient department, December 19, 1899, with a history of painful bulging of the eye extending over 15 days. The protrusion was said to have come on suddenly (during the night) and the patient stated that the proptosis had not increased since the time of its first recognition. Weakness, loss of appetite and chilly sensations were the constitutional accompaniments of the local condition.

Present Condition : See photograph. Noticeable pallor and obvious weakness, general appearance that of a very sick man ; tongue furred, bowels confined ; temperature 102° .

Left eye exhibits an exophthalmos of 15 mm ; bulging forward and slightly upward : the upper half of the cornea covered by the lid which

is reddened but not swollen. Slight degree of marginal blepharitis and moderate injection of the conjunctival vessels with watery discharge; slight tumefaction of the conjunctiva towards the inner angle: pupil the same size as the right, normal in all its reactions.

Fulness of the veins of the left side is the only ophthalmoscopic change present. Left vision equals $\frac{5}{6}$.

Some tenderness and indefinite fulness over the anterior part of the inner wall of the orbit. Tension of globe —1.

All movements of the left eye are very markedly impaired, though the excursion outwards is slightly better than in the other directions.

The right eye is normal in every respect, vision equals $\frac{5}{6}$.

Examination of the nose reveals a small amount of pus in the middle meatus, and on the posterior extremity of the middle turbinate of the affected side. Transillumination shows no difference in the transparency of the two frontal sinuses: the left antrum of Highmore is distinctly darker than that of the right side.

Operation. Dec. 14th, 1899: A transverse incision was made over the inner end of the left frontal sinus and the median extremity of this joined by another vertical cut at right angles. Skin and periosteum dissected back. The withdrawal of the trephine after its entrance into the frontal sinus was followed by the welling out of a considerable amount of muco-purulent matter. The anterior wall of the sinus was now laid freely open with bone forceps and the cavity carefully cleaned. The ethmoidal cells, transformed in great part into a soft pulpy material which oozed freely, were removed, as far as possible, by careful scraping. An opening into the nose was then made in the usual way and a drainage tube inserted.

Contrary to what was expected, the antrum of Highmore of the left side, though freely exposed, was found to be free from secretion. The difference noted in the illumination seemed to have been caused by an unusual thickness of the bony wall of this side.

The operation was followed by a gradual abatement of all symptoms. On the eighth day the temperature reached normal and remained so, the protosis slightly diminished, and the movements of the eye became perfect in all directions. Drainage was maintained for some time to guard against the recurrence of the condition.

When last seen, March 4th, the exophthalmos present was barely perceptible. Vision was normal, and the movements of the globe perfect in all directions. The general condition of the patient was excellent.

A Peculiar Case of Injury to the External Auditory Canal.

P. S., a healthy looking boy from the country *æt.* 10, was sent to the Hospital Dec. 29th, 1899.

A month previous to admission he fell from a load of hay head first to the ground. Immediately after the accident he complained of pain in the left ear which continued with much suffering for about a week when the ear began to discharge a purulent fluid with some relief of the pain. The discharge has persisted ever since.

On admission the external meatus was found occluded by a fleshy mass resembling an ordinary soft polypus and was discharging freely a thin yellowish pus. There was in addition to this a little swelling of the tissues below the ear and considerable tenderness on pressure in the same locality. The house-surgeon was directed to snare off as much of the polypoid growth as he could reach and keep the ear thoroughly clear with boric acid syringing. This was done and the cleansing treatment continued until Jan. 7th, when an examination showed the condition to be about the same as when first admitted.

It was then decided to administer an anæsthetic and make a thorough exploration of the auditory canal. This at once revealed a firm substance occluding the canal. On grasping this mass with forceps some shreds of woody fibre were brought away and the mass, though distinctly movable, was firmly imbedded and evidently extended downwards into the swollen and tender region below the ear. With a little manipulation the mass was grasped by the forceps and drawn out. It proved to be the woody stem of some weed or shrub which had penetrated the outer end of the floor of the auditory canal from above downwards and lodged in the tissues of the neck below the ear.

After its removal the auditory canal and the track of the foreign body were thoroughly syringed with solution of hydrarg. perchlor., and lightly packed with iodoform gauze. This was removed after two or three days and the subsequent treatment consisted in keeping the ear clean. Ten days later the wound was entirely healed and the ear found in a normal condition; only a small reddened scar marked the point of entrance of the foreign body in the floor of the meatus.

The accompanying Figure (11.) shows the actual size and character of the foreign body, (4.6 mm. long by .5 mm. thick), the somewhat pointed extremity of which was smooth and clean whilst the part occluding the meatus was torn and ragged, having evidently been broken off from a longer stem in the fall. The consequences to the ear itself would have been much more serious had the missile penetrated the drum membrane as usually happens in injuries of this kind.

Systematic Examination of Excised Eyeballs.

(From the Pathological Laboratory of the Royal Victoria Hospital.)

Case I: Atrophia Bulbi, following Perforating Wound of the Cornea.

J. K., æt. 3, was brought to the hospital in Dec., '98; the child's right eye was visibly shrunken and though quiet when first seen, there

was marked filling of the pericorneal and conjunctival vessels after the usual slight examination. A large cicatrix, situated about the middle of the cornea, extended from the outer almost to the inner corneo-scleral margin. The central parts of the iris were drawn forward and firmly attached to the posterior surface of the corneal scar (anterior synechia). The anterior chamber was deeper on the temporal than on the nasal side; V. equals no p l; T.—1.

The parents stated that the eye had been injured in the August previous, but that there had been practically no pain in the organ.

Examination: Measurements of the globe, 18 mm. antero-posteriorly, 22mm. transverse. Nothing of interest apart from what is noted above.

Section (Fig. III) in the vertical meridian after hardening in formalin, and freezing in the usual manner, shows a central corneal scar in transverse section, and the anterior surface of the cornea somewhat depressed at this point, giving the whole structure an epsilon-like appearance. The pupil seems to be entirely closed by a purse-like contraction, and the whole central area of the iris is drawn forwards and attached to the convexity on the posterior surface of the cornea. The anterior chamber is thus divided into two almost equal compartments. The lens is very much shrunken; a small portion remaining is in close contact with the posterior surface of the iris. On each side from the corneo-scleral margin to well beyond the equator of the globe, the ciliary body and choroid are extensively detached from the sclerotic. The space thus formed is filled by a clear firm exudate which is seen by the aid of the lens to be traversed by fine stretched fibrils of the lamina fusca and lamina suprachoroidea. To the inner side of the choroid the retina is extensively detached and thrown into numerous folds. The subretinal space is likewise filled with an exudate similar to that in the subchoroidal space.

The sclerotic coat gradually increases in thickness from about the *orra serrata* to the entrance of the optic nerve on each side of which it measures between 3 and 4 mm.

Microscopically, sections taken below the level of the corneal cicatrix make clear a few points in connection with the globe. The exudate between the sclerotic and choroid on the one hand and the choroid and retina on the other is entirely free from cellular elements. The choroidal vessels where this structure adheres to the sclerotic are moderately dilated but elsewhere, in the detached areas, the vessels are not to be seen.

The bundles of the sclerotic generally show a lack of compactness and towards the posterior pole, corresponding to the enlargement, observed macroscopically, this condition is especially noticeable.

Remarks : The condition of the globe described above is one which is seen with comparative frequency after penetrating wounds of the cornea. In the collection at the Royal Ophthalmic Hospital, London, there are numerous specimens showing similar changes. This form of atrophy, however, is not to be confused, though it frequently is, with the atrophía bulbi following upon a plastic iridocyclitis. Here the changes are more of a trophic or mechanical nature and the first link in the chain is in all probability the shrinking of the vitreous following upon an escape of its substance through a perforation or rupture of the hyaloid membrane. The absence of the normal support of the retina leads to detachment of that structure and the vacuum thus created brings about in turn a separation of the choroid. The order of detachment of the retina and choroid might, however, be reversed, and in this instance the anterior synechia may have also played a part.

Case II : Perforating Wound of Cornea—Traumatic Cataract—Uveo-Retinitis—Secondary Glaucoma—Ciliary and Posterior Staphyloma—Calcareous Degeneration of the Cornea.

About 30 years previously the patient, a male aet. 50, had accidentally run a needle into the right eye, which was painful and irritable for 10 or 12 weeks. The organ was perfectly quiet until three weeks before coming to the hospital when it became inflamed and painful for a second time. V. equals no P.L.; Tn: other conditions as below:—

Microscopical Examination : The eye measures 27 mm. in the antero-posterior by 25 mm. in the transverse meridian. The cornea is opaque and carries in its middle half a transverse calcareous band. At its upper and inner margin is situated a small, rounded, dark-colored bulging, measuring about 4 mm. in the transverse by 3 mm. in the antero-posterior direction, which bulges outwards 2 mm. beyond the normal curvature of the sclerotic.

Section : At the upper surface of the globe the sclerotic is very much thinned and bulges outwards beyond the surface of the globe to the extent above mentioned. The point of greatest protuberance occurs just at the site of the ciliary body, which is greatly atrophied and stretched to form a thin, perforated, lining-membrane along the inner surface of the staphyloma. The iris is firmly adherent about its pupillary margin to the anterior surface of the lens, which is reduced to a thin atrophic disc, 0.5 to 1 mm. in thickness.

On either side of the central adhesion, the most typical condition of *iris bombé* is present, while both angles of the anterior chamber are completely blocked by the iris which is closely adherent to the posterior surface of the cornea for some distance inwards towards the centre.

A rounded ridge marks the line of separation between the staphyloma and the upper part of the posterior chamber.

The choroid and retina show evidence of long-standing inflammation leading to atrophy and pigmentary disturbances especially along the posterior margins of the ciliary processes. There is deep cupping of the optic disc.

Microscopical Examination: The calcareous degeneration noted macroscopically is seen as isolated, rounded bodies or aggregated masses of a yellowish color. These are situated for the most part in the anterior layers of the cornea, immediately beneath Bowman's membrane, but occasionally they break through this structure and are seen imbedded in the corneal epithelium.

Under the microscope the anterior boundary of the bulging corresponds, as nearly as possible, to the corneo-scleral junction. The wall of the staphyloma is composed of a few strands of greatly attenuated sclerotic mixed with pigment cells, which also form a more or less connected layer on its inner surface. The conjunctiva is continued backwards over the anterior three-fourths of the prominence and between the two structures is a rich plexus of dilated vessels.

The lens corresponds roughly to a dumb-bell in shape. At either end a clear band of lens-matter in the periphery surrounds a central area of amorphous debris, while the central part connecting these two portions is filled up by newly-formed, fibrous connective-tissue, presumably derived from the iris on account of the relatively large number of pigment cells imbedded in its substance. Further confirmation is also found in the fact that the capsule of the lens is everywhere intact except about the middle of its anterior surface.

The iris where applied to the posterior surface of the cornea is reduced to a thin layer of pigment and on the other hand Descemet's membrane is noticeably diminished in thickness where the cornea and iris are in contact with one another. At the point on either side where the iris leaves the cornea the posterior elastic lamina becomes increased in breadth and the endothelial cells can be followed both along its posterior surface and the front of the iris for some distance.

The choroid is reduced to a comparatively thin band of tissue, free, for the most part, from blood vessels. While the pigment proper of this coat has almost entirely disappeared; the retinal pigment cells are seen in the usual situation. The thickness of this layer varies however; in some places it is very much thinned or wanting, in others broader than the average.

The entire appearance of the retina is altered. This structure now consists of a meshwork of fibrillae in which are imbedded rounded or

oval cells of moderate size and staining property, evidently the nuclei of the cells from which the processes originate.

Case III: Foreign Body in the Globe—Traumatic Cataract—Chronic Uveo-Retinitis—Secondary Glaucoma—Equatorial Staphyloma.

The patient, a blacksmith, *æt.* 77, had been struck in the eye with a piece of metal 25 years previously. He was operated upon shortly after the accident but never regained the sight of that side and the eye had been subject to severe attacks of pain from time to time.

Macroscopical: The eye measures 25 mm. antero-posteriorly, by 27 mm. transversely. The cornea is small and opaque, and the anterior chamber, which is shallow, contains a yellowish exudate in the periphery above and below. A slight bulging occurs in the equatorial region upwards (equatorial staphyloma). Tension \times 2.

Section: (Fig. IV). The cornea appears to be of normal thickness but the anterior chamber is shallow and blocked at each angle by the periphery of the iris. Breaks in the continuity of the tissue of this structure occur here and there from atrophy, while along its posterior surface it adheres to the lens, which is greatly reduced in size, irregular and cataractous. The ciliary processes are greatly atrophied and flattened and the choroid and retina throughout their whole extent show extensive atrophic changes with numerous spots of accumulated pigment. There is no cupping of the optic disc. At the equator of the globe above there is marked thinning of the sclerotic, which bulges slightly at this point. Close to the margin of the staphyloma on the inner surface of the globe lies a small dark foreign body of steel or iron firmly retained in position by strong bands of white organized tissue, which extend outwards from the sides of the choroid along the posterior extremities of the ciliary process.

Microscopical: The epithelial layer is present only as an irregular fringe, in many places the cells being entirely absent. A comparatively large number of clear spaces occur between the bundles of the *substantia propria* of the cornea, and attached to the sides of these are seen, not infrequently, one or more fixed corneal cells. Now and again a wandering leucocyte is found lying free in the spaces.

The ciliary processes and ciliary bodies are greatly flattened and atrophied, and the angle of the anterior chamber of both sides is blocked for a considerable distance by the periphery of the iris, which is firmly adherent to the posterior surface of the cornea. The anterior chamber is much diminished in size. The shape of the iris is such that it forms a roughly-triangular structure, one side of which is applied to Descemet's membrane, another forms the rounded posterior boundary

of the anterior chamber, and a third and largest extends from the inner apex (where it meets the same structure of the opposite side through a thin bridge of iris-tissue) to the ciliary body. These areas show a most intense small-round-cell infiltration.

The shape of the lens is roughly the same as in Specimen II. On either side is a rounded, cataractous mass the centre of which has undergone extensive calcareous degeneration. Between the two stretches an irregular band of newly-formed fibrous connective-tissue, which seems here, also, to have been derived from the iris on account of the presence of numerous pigment cells. The lens has been dislocated in the direction of the staphyloma, described below, and on this side, somewhat internally to the ciliary body, its capsule is in immediate contact with Descemet's membrane, the iris having, at this point, undergone complete atrophy from pressure.

The staphyloma consists of thinned and stretched sclerotic, in the outer layers of which pigment cells are also found; its inner surface is lined towards the periphery by the atrophied choroid, and more towards the centre by a single layer of flattened cells, though in the very middle of the concavity all these structures are wanting. The retina bridges over the base of the staphyloma, and the angles of the subretinal space, thus formed, are occupied by a reticulated tissue-mass in which are imbedded numerous pigment granules and round mononuclear cells.

The choroid and retina elsewhere present the characteristics of an atrophic, plastic choroido-retinitis. The latter structure generally is converted into a mesh-work of fine fibrillar cells with rounded or oval nuclei; only in the vicinity of the optic disc of each side can traces of the nuclear layers still be made out. The vessels show very typically the usual thickening of the walls, and concomitant narrowing or obliteration of their lumina. Where the retina crosses the base of the staphyloma and also in front of the optic disc is seen in its substance a considerable number of large clear cavities of more or less rounded shape, but entirely free from exudate of any kind. The choroid is reduced to a thin atrophic seam and its pigment generally is mostly seen along its anterior margin, now and again showing into the retina as isolated irregular clumps. As a whole the thickness of the pigment layer between the choroid and retina tends to vary greatly in some places being much more developed than in others. To the inner side of the anterior end of the staphyloma, and in front of the retina at the optic disc, is seen an irregular, wavy, nucleated mass of newly formed fibrous tissue. In the former situation it represents part of the bands which held the foreign body in position.

NOTE UPON THE CARBOLIC METHOD FOR THE DETECTION OF TUBERCLE BACILLI IN SPUTUM.

BY

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Agricultural College, Guelph, Ontario.

The following method, while in principle by no means new, has in my hands proved by far the simplest and most certain method of detecting tubercle bacilli in sputum, and I am led to draw attention to its value because I find the older and more cumbersome method of dissolving out the mucin of the sputum by means of caustic potash, is still very prevalent—a method which is slower, dirtier, and so far as my experience goes, by no means so certain to afford the tubercle bacilli when but few are present.

I have been unable to put my hands upon the article in which this method was first published, but if I remember aright it originated in Germany or Austria about the year 1893 or 1894. Kautback and Drysdale in their "Course of Elementary Practical Bacteriology," (1895), refer to it and acknowledge that it is by far the best method for detecting tubercle bacilli. They recommend that 10 to 20 cc. of the sputum be added to 100 cc. of a 5 per cent. solution of carbolic acid in a small flask and the mixture be shaken vigorously for five minutes until the sputum is thoroughly disintegrated: that then the contents of the flask be poured into a urine glass and allowed to stand for twelve to twenty-four hours. After decantation a little of this sediment is to be removed from the extreme depth of the glass and rubbed between two cover glasses. The films so made are to be dried in the usual manner, then washed in a mixture of alcohol and ether for one to three minutes and after having been dried between filter paper and passed again through the flame, they are to be stained with carbol fuchsin according to the ordinary method. Where the sputum is watery they recommend that to 100 cc. of it 5 cc. of glacial carbolic acid be added and the mixture shaken and treated in the above manner.

The modification of this method employed by me is more rapid than the above. So soon as the sputum arrives at the laboratory there is added to it an equal volume of 5 per cent. carbolic acid, the mixture is then briskly shaken up for a few minutes:—by this means the mucus is broken up and disintegrated. It is then allowed to settle. Sedimentation takes place very rapidly and it is not necessary to wait for twelve to twenty-four hours as recommended by Kautback and Dry-

dale; indeed, within an hour all the bacilli which are present would seem to be deposited. And now using a pipette of small calibre the deepest portion of the sediment is drawn up, a small drop is placed on each of two perfectly clean coverslips, made into a film, dried in the air and then passed three times through the flame of a Bunsen burner.

It is not essential to treat with the mixture of alcohol and ether, but forthwith a drop or two of carbol-fuchsin can be placed on the coverslips and the film be stained by the ordinary method and counter-stained by means of Gabbri's blue.

Besides the disinfection of the sputum which is insured by this process—in itself an advantage—the method is both simpler and much pleasanter to work with than is the use of caustic potash with or without boiling, while it would seem that the preliminary employment of the carbolic acid is a definite aid to the subsequent staining by means of the carbol-fuchsin.

RETROSPECT OF CURRENT LITERATURE.

Medicine.

UNDER THE CHARGE OF JAMES STEWART.

Latent Fever in Chronic Pulmonary Tuberculosis.

MIRCOLI. "Latent Fever in Chronic Pulmonary Tuberculosis." *Deut. Arch. Klin. Med.*, 63, 162.

Mircoli contributes an interesting article on the temperature in chronic tuberculosis. The work is both experimental and clinical, and shows that elevation of temperature is by no means a necessary feature of tuberculosis.

Elevations of temperature in tuberculosis are due to various causes. Proteins resulting from the destruction of bacilli play probably only a slight rôle in inducing fever, owing to the long life and slow destruction of the tubercle bacilli, which in these particulars contrasts strongly with the bacteria of pneumonia or influenza. Koch's R. tuberculin is a good example of the fever produced by proteins. Toxins form a second group of substances capable of inducing fever, and their strength and quantity may be regarded as the measure of vitality of the bacilli. Proteins are thus the products of dead, whilst toxins represent the activity of living bacilli. A third group of substances, the organic products of necrosing tissue resulting from bacteria, is also capable of raising the temperature.

On the other hand, certain toxins act as antipyretics and reduce temperature. In certain stages of other infections the action of these toxins is well seen, such as the afebrile stages of recurrent fever and of streptococcus or staphylococcus septicæmia.

In a large number of experiments on guinea pigs, Mircoli shows, that whilst the injection of large quantities of bacilli produce tuberculosis accompanied by fever, yet an afebrile tuberculosis results from a smaller inoculation. The latter cases run a prolonged course and the absence of fever is to be attributed to the power of the organism to accommodate itself to the toxins rather than to any differences in the anatomical conditions. In other words an equilibrium is established

in which the pyogenic toxins are neutralized by those having the opposite effect. The temperature of tuberculous guinea-pigs is, however, much more readily affected by heat or cold, by toxins as tuberculin, or by infections with other bacteria. Inoculated with typhoid bacilli, for instance, the resulting fever is much higher than in a healthy animal.

In a number of clinical observations of man, the writer states that fever in early cases of tuberculosis is an extremely unusual feature, even when well marked lesions are present in the lungs and bacilli are abundant in the sputum. [It is, however, not stated at what hour of the day the observations were made and as an ambulatory clinic was largely used, frequent daily observations can hardly have been carried out.] In cases with fever, puncture of the lung showed a mixed infection with pyogenic organisms.

In apyretic cases, the temperature is commonly below the normal, and inoculations of the serum of such patients to other non-febrile tuberculous individuals produced still further lowering of the temperature, indicating the presence of antipyretic toxins.

A comparison of rectal and axillary temperatures in afebrile tuberculous subjects, shows that the differences are often considerably greater than in health. According to Ewald, the rectal temperature is about $.5^{\circ}$ C. (2° F.) higher than in the axilla, whereas in tuberculous subjects, Mireoli found the difference to vary from $.5$ to 2° C., and averaged about 1° C. Such a feature may have some diagnostic value.

Muscular work has a marked influence in raising the temperature in tuberculous subjects, and this sensibility has also been suggested as a sign of some value in the diagnosis of tuberculosis.

An attack of influenza is often one of the most effectual methods of recognizing an apyretic tuberculosis. The temperature rises and remains persistently high. The writer regards this rise as due to the transformation of a latent fever to an active form, and states that the temperature is out of all proportion to the activity of local changes in the lungs.

At certain periods of the day, febrile symptoms, such as headache or muscular pains, have been observed in the absence of any elevation of temperature. The sweating of tuberculosis, often attributed to fever, has been shown by Maragliani to be due to a different cause, as he was able to produce it without fever by the use of ethereal extracts of tuberculous toxins. As a practical deduction, the writer believes that elevated temperatures have too commonly been regarded as an essential feature of early tuberculosis. Although not showing itself by elevation of temperature, yet the latent fever is indicated by unusual thermal differences between the rectal and axillary temperatures, by increased sensibility to thermogenic stimuli, such as muscular work; by infections

with other organisms, such as typhoid or influenza; or by exposure to external heat or cold. The so-called pre-tuberculous stage is probably to be regarded rather as representing the development of tubercle, whilst the condition we recognize as tuberculosis clinically is a later stage of the disease.

Notes of Twenty-two Cases of Juvenile General Paralysis, with Sixteen Post-Mortem Examinations.

F. W. MOTT, M.D., R.R.S. "Notes of Twenty-two Cases of Juvenile General Paralysis with Sixteen Post-mortem Examinations." *Archives of Neurology*.

A case of general paralysis in a lad of 16 was published by Clouston in 1897, and there are now on record some 89 cases in early life. Mott's cases ranged, at the age of onset, from 8 to 23 years, and the sexes are about equally represented. They were all derived from the middle, or lower middle, classes.

Hereditary syphilis played a preponderating rôle in the etiology of these cases; in not a single instance could it be positively excluded; there was clear evidence of infection in 60 per cent. of cases, as shown by scars, teeth, etc.; and in 20 per cent. more, of a maternal history of this disease.

The duration of the disease was rather longer in the female, and longer in the cases which commenced early. In individuals attacked about the age of 20 or over, the disease ran an acute course. Progressive mental dementia was a constant feature, mania was present in three cases, whilst delusions of grandeur were much rarer than in adults.

Progressive paresis was present in every case, with one exception. Paresis and contracture of the legs occurred in quite half of the cases. Tremor of the face muscles, tremulous tongue and slurred speech, together with affection of the handwriting were present in all cases examined.

The pupils were irregular, or they reacted sluggishly or not at all to light.

In all the above symptoms it will be observed that the disease corresponds with the adult form, the most marked differences being the less severe character of convulsions when they occur, and in diminished frequency of delusions of grandeur.

Pathologically the changes found were similar to those in the adult. Atrophy of the brain, thickening of the pia-arachnoid membranes, and dilatation of the ventricles and granular ependyma were found in all cases examined.

Anomalous Eruptions in Typhoid Fever.

J. M. DaCOSTA. "Anomalous Eruptions in Typhoid Fever." *Trans. Assoc. Am. Phys., Vol. XIV.*

DaCosta calls attention to a diffused erythema simulating scarlatina and to an eruption resembling measles, in the course of typhoid fever.

The scarlatiniform rash is a uniform red eruption: it is seen all over the body, though not so in every instance. It is more distinct in some places than others and is easily influenced by pressure; it has periods of greater or less intensity, of partial disappearance, of vivid return; it lasts generally a week or somewhat longer. For the most part it is not associated with sore throat, although Jenner mentions a case where the occurrence of a sore throat and rash led to the erroneous diagnosis of scarlatina. Desquamation does not occur and there is seldom difficulty in determining the nature of the disease.

(These scarlatiniform rashes are known to occur in other infectious diseases, such as influenza. They occasionally follow the administration of drugs. I have recently seen a well marked instance forty-eight hours after the administration of quinine). A measly rash in typhoid is much rarer and may prove more puzzling.

One case is recorded in which the measly rash so closely resembled typhus, that it was deemed advisable to isolate the patient.

In two other cases an intercurrent attack of measles occurred during an attack of typhoid. In the latter cases a rise of temperature and catarrhal symptoms and in one a history of exposure to measles, enabled the diagnosis to be made.

The measly rash of typhoid has no influence on the temperature; it is less papular, finer, and has not the crescentic arrangement of measles, and there is no itching or desquamation. No influence on the course of the disease can be traced to these complicating eruptions and they are of interest only from the standpoint of diagnosis and pathology.

F. G. Finley.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Digestion after Resection of the Small Intestines.

PROFESSOR CARL SCHLATTER. "The Process of Digestion after Resection of About Six Feet of Small Intestine." *The Lancet*, Jan. 27, 1900.

Professor Schlatter reviews the cases reported by Dreesman at Düsseldorf, and advises uniformity in the method of measuring the resected bowel. He points out that a piece of necrosed intestine 20 inches long became 36 inches in length by simply filling it with water, not using any undue force.

Up to the present, six resections of more than two metres have been successfully performed, viz:—

- 215 c. m. (Köberle).
- 208 c. m. (Kocher).
- 215 c. m. (Dreesman).
- 234 c. m. (Shepherd).
- 310 c. m. (Fantino).
- 330 c. m. (Ruggi).

Subsequent disorders of the digestive tract followed in all but two of these.

Schlatter does not believe that the results obtained by experiments on animals can be applied to the human subject. Nevertheless, he would agree with Dreesman that:

(1) Resections, if less than two metres, do not provoke any disorders of the digestive tract except when complications are present.

(2) That resections of more than two metres may be performed without subsequent disorders of the digestive tract, provided the patients are young. The disorders referred to manifest themselves chiefly as diarrhœa.

In his own case, where 192 c.m. were removed, Dr. Peaut of Zürich, during the patient's convalescence, by scientific and approved methods, estimated the amount of the ingested albumin and fat which was assimilated by the patient during a period of nine days, and from the data thus obtained Professor Schlatter concludes his article by saying:—"That this case shows that, contrary to what has hitherto been the received opinion, the function of the digestive tract is seriously inter-

ferred with, even in young persons, by the resection of more than two metres of the bowel, unless precautions are taken to secure the requisite sustenance."

Celluloid Yarn for Sutures and Ligatures.

SANITÄTSRATH J. PAGENSTECHEK. "Celluloid Yarn—A New Material for Sutures and Ligatures." *Philadelphia Medical Journal*, Feb. 10, 1900.

Linen thread impregnated with a solution of celluloid, which can be sterilized by steam or in boiling water, according to the author, offers the following advantages:—

- (1) It is cheap.
- (2) It can be sterilized in steam without sticking together or getting entangled.
- (3) It is smooth, non-absorbent, strong and non-irritating.
- (4) It is stronger than silk; knots do not readily slip, and needles are very easily threaded with it.

Pagenstecher has employed it exclusively for some years for all purposes, particularly in intestinal, bladder and joint sutures.

It would seem from the article that this new material, when used as buried sutures, does not give rise to secondary abscess such as not infrequently follows the use of chromicised cat-gut, silkworm-gut or silk. The material is made in five sizes by Lütgenau & Co., of Krefeld.

Primary Resection of Gangrenous Intestines.

ARTHUR E. BARKER. "On Primary Resection of Gangrenous Intestine." *British Medical Journal*, December 23, 1899.

Barker lays down three courses as being open to the surgeon:—

- (1) Establishment of a permanent artificial anus.
- (2) Establishment of a temporary artificial anus, followed later by resection of the gangrenous gut.
- (3) Primary enterectomy.

He would advise the latter method in all cases where the patient is not too old or exhausted by vomiting and sepsis, and when the surroundings, after-care, and assistance, are such as to warrant the extra time necessary for its performance. Success depends upon:

- (1) The preliminary and the after-treatment, as well as upon a carefully carried out operation.
- (2) Lavage, when there has been stercoraceous vomiting.
- (3) Means to maintain the body heat.
- (4) The use of subcutaneous saline solution in feeble individuals, as well as hot brandy and water enemata.

(5) Local anæsthesia by means of eucain beta in all but the most excitable patients.

In the operation itself, while using Murphy's button, he prefers the use of the silk suture. Finally, he believes much benefit results from the subcutaneous use of saline solution, one pint at a time, twice daily for some days after the operation.

Injuries to the Neck of the Femur in Early Life.

ROYAL WHITMAN. "Further Observations on Depression of the Neck of the Femur in Early Life; Including Fracture of the Neck of the Femur, Separation of the Epiphysis, and Simple Coxa Vara." *Annals of Surgery, February, 1900.*

The author reports 48 cases of depression of the neck of the femur, of which 17 were simple fracture, one was separation of the epiphysis, thirty were examples of coxa vara, in four of which latter traumatism would seem to have been the exciting cause.

Whitman takes issue with Sprengel, who regards ten of the cases of fracture of the neck of the femur as reported by Whitman as examples of separation of the epiphysis, by saying:—"The anatomical evidence is now supplied and, finally, it may be stated that there is neither clinical nor experimental nor anatomical evidence to support the assertion that the epiphysial junction is a weak point in a healthy child, in the sense that separation at that point is more common than fracture. If this junction is ever a weak point in this sense, it is not in childhood, but rather in adolescence, when the external cartilage and resistant covering of periosteum have diminished to nearly the adult condition. It is at this age and in the class of cases that Sprengel has described, that epiphysial separation may be caused "by a slight degree of violence."

Fracture of the neck of the femur in childhood presents the following peculiarities:—

(1) It does not entail the immediate helplessness and persistent disability associated with injury.

(2) Patients may be able to walk in a few days after the injury.

(3) As a rule, perfect functional recovery takes place in the joint, but as the neck of the femur in its new position is subjected to a greater strain, a gradual exaggeration of the condition with its attendant symptoms of actual and apparent shortening, limp, and disability (a traumatic coxa vara), is extremely probable.

Of the 30 cases of coxa vara, 22 were in males, 8 in females; 25 were unilateral, 5 bilateral. In 27, the neck of the femur was displaced downwards and backwards, and in 3 downwards and forwards.

Rickets, traumatism, and a congenital narrowing of the angle, would seem to be the chief factors in producing the deformity.

Treatment. In the early stage, apparatus to remove the strain, combined with exercises, was effective in relieving the symptoms but did not prevent recurrence when discarded. A linear osteotomy below the trochanter, in advanced adolescent cases, enabled the operator to correct the adduction and outward rotation, but left the angle at the neck still narrowed. Lately, he has practised cuneiform osteotomy, preceded by vigorous manipulations, to overcome ligamentous or muscular obstruction to abduction, the chief limitation in movement. The wedge of bone is removed opposite the trochanter minor, the upper cut being at right angles, the lower oblique; the distance between should be about three-quarters of an inch. The femur is abducted till the cut surfaces come in opposition and is maintained in that position by a spica of plaster-bandage, which should extend to the foot.

Excision of the hip is only performed in cases where separation of the epiphysis is followed by non-union.

The Röntgen pictures were employed in all cases to demonstrate the accuracy of diagnosis made from physical signs.

Renal Papillectomy.

E. HURRY FENWICK. "A Contribution to the Study of Painless Unilateral Renal Hæmaturia in the Young Adult." *British Medical Journal*, February 3, 1900.

Fenwick points out that, since the introduction of the electric cystoscope, the site of hæmorrhage in renal hæmaturia can readily be determined; but he draws attention to the fact that persistent, painless, unilateral hæmaturia in the young adult, not due to stone, cancer, tubercle, or other "specific cause," and which up to the present have been described as cases of renal hæmophilia (Senator, Broca, Passet); as hæmorrhage of anatomically unchanged kidneys (Piqué and Reblaud, Groslik); as hæmaturia from a healthy kidney (Kleinperer); and as being due to an angioneurosis; is due in some cases, at least, to the renal papillæ and the mucous membrane covering them.

He reports two cases, both women, on whom nephrotomy was performed for persistent hæmaturia; an examination of the pelvis, in each case, with a strong electric light, revealed a villous-like tumour of one papilla, all the others being normal. On examining this mass on removing it with a Volkman's spoon, the condition was found to be due to varicose vessels in the mucous membrane. Papillectomy in both cases was successful in stopping a hæmaturia which had not been relieved by long courses of medical treatment.

A. E. Garrow.

Gynaecology.

UNDER THE CHARGE OF WILLIAM GARDNER.

Strangulation of Intestines by Fallopian Tubes.

P. C. FENWICK, M.B., Lond., M.R.C.S., L.R.C.P. "Strangulation of Intestines by Fallopian Tubes." *British Medical Journal*, Jan. 13, 1900.

The above condition occurred in the following case. The patient, aged 52, was admitted to hospital exhibiting the usual signs and symptoms of intestinal obstruction. On opening the abdomen half an hour later, several feet of small intestine protruded through the opening and the bowel had to be evacuated through a linear incision before it could be returned or the hand passed into the abdomen. A band was found in the pelvis tightly grasping a mass of small intestine. The band was divided between two ligatures and the liberated bowel brought to the surface for inspection, but was found to be merely congested and so was replaced. The patient did well for the first ten days but then died quite suddenly. Post-mortem, the constricting band was found to consist of the left Fallopian tube and ovary, the end of the tube having become adherent to the side of the pelvis leaving a round opening through which several coils of intestine had passed and become strangulated.

Chronic Hypertrophy and Dilatation of the Bladder Simulating an Ovarian Cyst.

JAMES OLIVER. "Chronic Hypertrophy and Dilatation of the Bladder Simulating Ovarian Cyst with Death from Uræmia." *British Medical Journal*, Nov. 4, 1899.

The patient was a multiparous woman, aged 55 years, who had ceased to menstruate five years previously. Her abdomen had been enlarged for eight or nine months but the size had rapidly increased during the last four or five weeks, pain being absent. For three weeks she had been troubled with incontinence of urine, but until that time, micturition had been normal.

Examination showed the abdomen to be distended by a large swelling which extended from the pelvis up to the ensiform cartilage. Percussion revealed resonance in the flanks and dullness elsewhere. Fluctuation was not very distinct; there was slight œdema of both legs but

pulse and temperature were normal. Vaginally, the cervix was found to be very high in the pelvis and the internal vaginal wall was pushed down "by a firm roller-like swelling."

The patient was placed in the lithotomy position and a No. 4 catheter passed, through which five ounces of urine escaped. The bladder was then aspirated about midway between the pelvis and umbilicus, two pints of urine being drained off. A No. 8 catheter was now passed into the bladder per urethram and the bladder was thus emptied. Altogether about ten pints of urine were removed.

Six hours later the patient was seized with uræmic convulsions and died.

On post-mortem examination the bladder was found to be enlarged so as to reach above the umbilicus, and the reflexion of the peritoneum from the bladder to the anterior abdominal wall was situated over three inches above the pelvis, the space beneath this reflection being filled by rather thickened subperitoneal fat. The wall showed evidences of true hypertrophy and anteriorly there was a patch of ecchymosis, the viscus containing one and one-half pints of ammoniacal urine mixed with blood and mucus. Although there was no true sacculation between the muscular bundles, the trigone was enlarged and formed a pouch between its base and the urethra, the base forming a ridge which overlapped this sac. The external meatus lay high up behind the pubes and was surrounded by dense fibroid tissue. The ureters were dilated and there was double hydronephrosis.

Tubercle of the Uterus.

P. D. TURNER, M.D. "Tubercle of the Uterus." *British Medical Journal*, Nov. 11, 1899.

Dr. Turner examined the genital organs in twenty-seven consecutive cases of tuberculosis in females in connection with the post-mortem department of the Brompton Hospital, the specimens being examined both by the microscope and the naked eye.

In five cases (18.5 per cent.) undoubtedly tuberculous lesions were found, tubercle bacilli being discovered. Among these the following parts were involved, viz., tubes alone, once; tubes, fundus, and cervix, once; and tubes, fundus and one ovary, once. All five cases showed traces of ulceration of the intestine.

In several additional cases, evidences of catarrhal or interstitial salpingitis were observed. Tuberculosis was suspected in these cases but the presence of the tubercle bacillus could not be proved.

The author inferred "that the usual form of tuberculous salpingitis appeared to be due to the entry of the bacilli into the open ends of the tubes from the endometrium; infection through the blood supply

probably also occurred, but much less frequently. The cervix was similarly affected. The ovary did not form the nidus and was comparatively rarely diseased in these cases." As far as the author knew the patients presented no symptoms of genital diseases.

Complicated Convalescence from Ovariotomy.

JOHN D. MALCOLM, F.R.C.S., Edin. "Complicated Convalescence from Ovariotomy." *British Medical Journal*, Dec. 16, 1899.

The patient, aged 64, suffered from a large ovarian tumour which was removed by Mr. Malcolm on January 15, 1899. On the evening of the day of the operation she became very collapsed after very violent purgation, which was probably due to delayed action of the purgatives which had been administered previous to the operation. This condition, however, was successfully overcome by the use of stimulants and everything went along nicely until the fifteenth day when she was permitted to turn upon her side. The next morning the left side of her neck was painful and swollen; two days later the pulse rate was 120 and temperature 103.2° F. Examination of the mouth revealed the fact that the opening of the left Stenson's duct lay in contact with a decayed tooth and was hot and dry. This inflammation was subdued by soothing treatment and in about thirty hours a discharge of a white and slightly irritating fluid took place and could be increased by pressure over the parotid. This discharge kept up for some days but soon became thin and watery. Four weeks after the operation, the cedema and tenderness over the angle of the jaw increased and the patient complained of sharp paroxysms of pain in this region. The next day the capsule of the gland was incised, and about two drachms of pus escaped. A drainage tube was inserted and was not removed for some days, but it was not for nearly three months after the ovariotomy that the patient was able to go out.

This is the second case of parotitis due to a carious tooth that Mr. Malcolm has had under his care, but the first patient recovered without the formation of an abscess.

Vaginal Cœliotomy.

PROF. KYNOCH. "Vaginal Cœliotomy." *British Medical Journal*, Jan. 6, 1900.

In Prof. Kynoch's paper on this subject he stated that the three steps in this operation were: (1) Opening the abdomen; (2) removal or examination of the diseased organs, and (3) closure completely or partially of the vaginal wound. The vaginal opening may be either transverse or longitudinal, the latter being the one in which the ureters are least liable to become injured, and made either through the an-

terior or posterior fornix. The indications are: (1) Retroflexion of the uterus; (2) inversion of the uterus; (3) chronic ovaritis with adhesions, and (4) prolapse of the ovary.

In rupture of extra-uterine pregnancy with diffuse intraperitoneal hæmorrhage without the formation of an hæmatocele, the abdomen should be opened anteriorly, but where the condition is discovered up to the tenth week before rupture the sac may be advantageously removed per vaginam.

The best method of treating those cases first seen after the formation of an hæmatocele is still *sub judice*, but where the hæmatocele is in Douglas' pouch and is bulging down into the posterior fornix, vaginal cœliotomy gives excellent results.

The Capacity of the Female Bladder.

HUNNER, GUY L., and LYON, IRVING P. "The Mensuration and Capacity of the Female Bladder." *Johns Hopkins Hospital Bulletin*, Dec., 1899.

These investigations have been carried out upon living women with practically normal bladders and with the women in the genu-pectoral position, the bladder, rectum and vagina being distended with air. Repeated examinations of the same bladder under similar conditions showed that the intra-abdominal pressure was nearly uniform. Distention of the bladder by air with the patient in the genu-pectoral position caused less discomfort than if fluid had been employed and the patient placed in the dorsal position and, therefore, the former method is less liable to error than the latter. "The chief points investigated were: (1) The average atmospheric distention capacity of the female bladder, and (2) its actual internal measurement from the internal urethral orifice to certain chosen points on its walls."

For the first purpose the woman is placed in the genu-pectoral position and the three pelvic cavities filled with air. From a catheter in the bladder the air is conducted, on its expression, into a long bell glass inverted over water. This bell glass is graduated and the amount of water displaced is read off. This method was practiced on 25 women and the average atmospheric capacity of their bladders was found to be 303 cc., the extremes being from 160 up to 545 cc. The fluid capacity was also measured upon 23 women and found to be 429.7 cc., thus being greater than where air alone was used. The capacity, both air and fluid, of the bladder was found to be greater in nullipara than in parous women, probably due to the greater elasticity in the vesical walls in the former than in the latter.

F. A. L. Lockhart.

Reviews and Notices of Books.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION, VOLUME XVII.—Edited by DE FOREST WILLIAMS, A.M., M.D., Ph.D., Recorder of the Association. William J. Doran, Philadelphia, 1899.

The transactions of the American Surgical Association, always of interest, contain this year an unusual number of most interesting and carefully prepared papers. The President, Prof. Keen, of Philadelphia, in his address, took up the subject of "The Technique of Total Laryngectomy." After showing the great improvement in results as a better technique had been evolved step by step, Prof. Keen reported a case recently operated upon by himself. The Trendelenburg position was strongly advocated for this and for operations on the lips, mouth, tongue and pharynx, as most effective in preventing the entrance of blood into the air passages. In the future, Prof. Keen hopes to do without any tracheal tube.

Prof. Senn contributes an article on "First-Aid Package in Military Surgery." The history and exceeding usefulness of the first-aid package in military surgery is clearly and forcibly stated. The first-aid package must meet the following requirements:—

- (1) The material it contains for dressing the wound must not only be aseptic but antiseptic.
- (2) The antiseptic must be non-volatile and resistant to chemical changes for a long time.
- (3) It must contain a fixation material which will prevent displacement of the dressing after it has been applied.
- (4) Its size must be such as not to inconvenience the soldier or to prove a source of objection to the military authorities.
- (5) The dressing applied should not interfere with the free evaporation of the wound secretion.

This is followed by a paper by Fowler on "Observations upon the Organization and Equipment of Field Hospitals in the Volunteer Army." These two papers are of particular interest at the present time and are full of information.

One cannot mention all of the valuable papers contained in this volume, but the paper on "Appendicitis," by Richardson, is a most scholarly one, written by a man of large experience. This paper, and the discussion following, are worth the price of the volume. It is a paper that can be read with profit by the student, general practitioner and surgeon.

Prof. Kocher, of Berne, read a paper on the preparation of the surgeon's hands, the patient's skin, and the use of silk and cat-gut ligatures. Prof. Kocher claims that sterilization of the hands daily and oftener is impracticable, but that they may be so far disinfected that the clinical results will be satisfactory. He would do away with cat-

gut altogether, or only use it in septic tissue. His clinical results are so good that his methods can hardly be criticised.

G. E. A.

ANNUAL AND ANALYTICAL CYCLOPÆDIA OF PRACTICAL MEDICINE.—
By CHARLES DE M. SAJOUS, M.D., and One Hundred Associate Editors assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated with Chromolithographs, Engravings and Maps. Vol. IV. Philadelphia, New York and Chicago, The F. A. Davis Company, 1899.

The present seems quite up to the standard of excellence attained by the previous volumes. Sajous' Encyclopædia enables one to review recent literature with great rapidity and considerable satisfaction. References are given very fully and thus one is put in the way of reading the original article if one desires to do so. Of special interest are the articles on Insanity, taking up Iodicy, Imbecility; General Paralysis, Melancholia, etc., and the article on the Diarrhoeas of Infancy by Prof. A. D. Blackader. This latter is full and comprehensive, while it is, at the same time, concise and clear. The subject is of very great interest to all general practitioners and dealt with in its pathology, symptomatology, prognosis and treatment, in that thorough manner which its importance demands.

Valuable articles on Malarial Fevers, by Wilson and Ashton, and Locomotor Ataxia, by Pritchard, deserve special mention. The article on Intubation, by Waxham, comes most opportunely. The relative merits of intubation and tracheotomy are carefully compared and the indications for each clearly stated.

McPhedran contributes a very full and complete article on the Diseases of the Liver. In this article is a most comprehensive digest of the latest views on many of the unsettled questions concerning the pathological conditions of this important viscus.

The editor apologizes for writing the article on Leprosy, himself. It seems that this labour was forced upon him at the last moment, but most readers will probably feel, after reading it, that it is another evidence, that if a thing is to be well done, it must be done by a busy man.

The binding and printing are quite equal to that of the preceding volumes.

G. E. A.

SCURGERY: A Treatise for Students and Practitioners. By THOMAS PICKERING PICK, Consulting Surgeon to St. George's Hospital, Senior Surgeon to the Victoria Hospital for Children, H.M. Inspector of Anatomy in England and Wales. Longmans Green & Company, London, New York and Bombay, 1899. Royal 8vo, pp. 1176. Price 25s.

Books of this class are always in demand and the above is a good representative of its class. Students and general practitioners will find it good reading and up to date, written by a man of experience, who has opinions of his own and the ability to make them clear to his readers. On some subjects the author may have sacrificed fullness of detail to brevity, viewed from the vantage ground of the hospital sur-

geon, but, as stated on the title page, the book is intended for students and practitioners. The pathology is based on the latest researches, symptomatology and treatment are clearly defined, and the illustrations really serve their purpose.

Mr. Pick is not an enthusiastic advocate of the Murphy button, the great point in intestinal anastomosis in favour of it being the rapidity with which it can be used. He then says, "numerous unfortunate accidents have followed its use. Among them are a tendency to remain in the bowel sometimes without doing any harm, at others causing obstruction and perforation; in other cases there have been failures of union or sloughing at the line of junction and extravasation of faeces; again, a case has been recorded where the button, from its weight, caused kinking of the gut and strangulation, and in a patient under my own care the lumen of the tube became blocked by a piece of potato skin which the patient had swallowed. It would seem therefore, that it is better to join the two ends of the intestines by means of simple suturing without the use of any appliance and to reserve Murphy's button for those cases when the completion of the operation in the shortest possible time is a matter of urgent importance."

This view accords with that of Mr. J. Hutchison, Jr., who has found that in resection of the intestine for gangrenous hernia, when Murphy's button was used, there were seven per cent. of recoveries against forty per cent. after direct suture.

Mr. Pick is quite clear in his advocacy of the removal of neighbouring lymphatic glands in malignant disease but thinks that possibly in carcinoma of the breast the indication has been followed quite far enough.

In that important chapter on fractures one might wish for greater detail and fuller discussion of different methods. In fracture of the patella and of the olecranon Mr. Pick thinks that wiring of the fragments in many instances is the better plan, but should only be attempted by men operating daily and who have a perfect technique. He speaks favourably of massage in the treatment of fracture.

G. E. A.

ON THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.—The Lumleian Lectures delivered before the Royal College of Physicians, London, by SIR DOUGLAS POWELL, M.D., F.R.C.P.

As the title indicates, this little book deals chiefly with treatment but necessarily takes up a good many points in etiology and semiology.

The first lecture is devoted to the neuroses of the heart, including angina. The writer refers particularly to the large class of individuals known as neurotics, and among whom symptoms of functional cardiac diseases are so common. He dwells on the importance of excluding organic diseases as an important preliminary measure, to dispel needless fears on the part of the patient. After referring to the correction of the diet and habits of the afflicted individual, the other measures usually adopted are discussed. In the time allotted to a single lecture the treatment is necessarily rather sketchy, and we can only wish that the useful

hints thrown out could be amplified by fuller references to illustrative cases.

Cases of organic heart disease are considered in the second lecture; in the third and closing chapter the effects of exercise, the Schott treatment, and the use of antistreptococcus serum in ulcerative endocarditis, are among the subjects dealt with.

The lectures are obviously the outcome of wide experience and close observation, and the reader will find many useful hints in dealing with a class of cases which frequently come under observation.

F. G. F.

LECTURES UPON THE PRINCIPLES OF SURGERY DELIVERED AT THE UNIVERSITY OF MICHIGAN.—By CHAS. B. NANCREDE, A.M., M.D., LL.D., Emeritus Professor of General and Orthopedic Surgery, Philadelphia Polyclinic; Senior Vice-President of the American Surgical Association; Corresponding Member of the Royal Academy of Medicine of Rome; Member of the American Academy of Medicine; Late Major and Chief Surgeon, U.S.A., etc. With an appendix containing a *Résumé* of the Principle Views held concerning Inflammation. By WILLIAM A. SPITZLEY, A.B., M.D., Senior Assistant Surgeon, University of Michigan. Illustrated. Philadelphia, W. B. Saunders, 1899. Price, \$2.50.

It is always refreshing in our times to read an author, who holds strong views and has the ability to put them clearly. Prof. Nancrede has something to say, and says it. He first takes up the group of tissue changes designated by the term inflammation, and combats the view that there is an "aseptic" and an "infective" inflammation. He contends that the only logical and scientific position to assume is that inflammation is never anything but an infective process, and that the so-called aseptic inflammation is only "repair." That while certain stages of repair present clinical and histological phenomena similar to those seen in inflammation, they are not identical processes, due to the same cause. The different phenomena of inflammation are clearly discussed.

The author then deals with changes in the blood, surgical fevers, pyæmia, suppuration, gangrene, tetanus, etc., etc. The letter press is clear, the style interesting, and the illustrations good. Books of this class should be more generally read and studied. A sound and thorough knowledge of the principles of surgery are the best foundation of surgical knowledge, and we can heartily commend Nancrede's work to all students, general practitioners and surgeons. It is definite, concise, and up to date.

G. E. A.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL SOCIETY.—
Volume XV, 1899.

This volume contains a series of highly interesting papers on problems of which many come under the daily notice of the practising physician.

Dr. Gardiner, of Colorado Springs, emphasizes the importance of air

and sunlight in the treatment of tuberculosis. He urges the advantages of a properly constructed tent, and utters a warning note about a ranch life, owing to the rough character of the food. The X rays have been utilized by Williams in the early diagnosis of pulmonary tuberculosis, and in his hands have proved signally successful. He calls attention to the limited excursions of the diaphragm and to the shadow at the apex.

Babcock relates an interesting series of cases showing the effects of altitude on heart disease, and endeavours to show that all forms of heart disease do not contra-indicate sojourn in such localities. A study of effects of violent exercise on the heart by Williams and Arnold, is based on an interesting series of observations, and should be read by all interested in athletics.

Space forbids reference to other papers, many of which are valuable contributions by men of recognized eminence in the profession. A careful perusal of the transactions will repay the reader for the time devoted to them.

F. G. F.

DISEASES OF WOMEN.—A Treatise on the Principles and Practice of Gynæcology. By E. P. DUDLEY, A.M., M.D. Second Edition, Revised and Enlarged, with 450 illustrations. Lea Brothers and Company, Philadelphia and New York, 1899.

This edition retains most of the subject matter of its predecessor, but there are a few changes, and it has been enlarged by the addition of 78 pages of reading matter and between 30 and 40 illustrations.

The symptomatic diseases, such as amenorrhœa, menorrhagia, dysmenorrhœa, etc., have been given a special part of the book, in chapters LI to LIV, which arrangement will be found to be very convenient. The illustrations are excellent, being clear, instructive and not too numerous. A chapter on "Pelvic Massage" will be found useful for those who care to try this form of treatment of pelvic disease.

F. A. L. L.

DICTIONNAIRE DES TERMES DE MÉDECINE, FRANÇAIS-ANGLAIS. By H. DE MERIC, Member du Collège Royal des Chirurgiens d'Angleterre: Chirurgien de l'Hôpital Français à Londres; Membre de la Société d'Hygiène de Paris; etc., etc. London, Ballière, Tindall and Cox, 1899. Price, 4s.

This is a small octavo volume of 243 pages with double columns to the page, the French words being printed in black and the English in ordinary type. It constitutes the second part, the first volume containing the English-French. In looking through it one notices that the author in some instances has translated the French into correct but obsolete English terms, which are not found in any but the larger English lexicons, where the commonly used term would have answered equally well. For example, "apneuste" is translated "afflicted with apneustia." With this exception the book answers well the purpose for which it was designed and will be found useful to both French and English students and practitioners.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, October 23, 1899.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Pathological Specimens.

DR. A. G. NICHOLLS presented the heart and spleen from a case of Leukæmia and read the clinical notes of the case.

Monstrosity.

THE PRESIDENT, in the absence of Dr. J. J. Ross, demonstrated a fetal monstrosity, the causes for the production of which were discussed by Drs. Evans and A. D. Blackader, Dr. Adami replying.

Aneurysm of the Aorta.

DR. W. F. HAMILTON reported a case of Aneurysm of the Aorta, and Dr. Nicholls showed the specimens from the case.

Excision of Gastric Ulcer.

DR. G. E. ARMSTRONG reported this case. (See page 933 of the December, '99, Number.)

DR. F. J. Shepherd had been present during part of the operation and was convinced when he saw the ulcer that the only thing to do was to excise it. He did not understand Dr. Armstrong's reason for doing the Heineke-Mikulicz operation in this case. He thought that surgery could do more than medicine for these cases.

DR. Elder referred to the case he had reported before the society the previous session, the fatal termination of which had been due to exhaustion consequent upon the large hæmorrhages.

DR. A. E. Garrow asked regarding the curettage and cauterization plan of treatment.

DR. C. F. Martin thought it was possible that cases such as this had gone unrecognized for a long time and that they might not have come to operation if treated early.

DR. Armstrong, in reply, stated that he had performed pyloroplasty here because it was found that cases did better after it. With regard to the use of the cautery, in his first case he had cauterized the ulcer and it did equally well. It depended upon the character of the ulcer; here, with an infiltrated base, excision was the only course.

Stated Meeting, November 3, 1899.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Drs. Grace Ritchie England, H. J. Harrison and A. D. Irvine were elected ordinary members.

Uterine Myoma with Pyosalpinx.

DR. WILLIAM GARDNER read the report of this case, and DR. MAUDE ABBOTT demonstrated the pathological specimens. (See page 59 of the January Number.)

Dr. F. A. L. Lockhart considered the condition very rare indeed. He had never seen anything like it before, but he remembered one case in which there was a pus tube along with a myoma, but it differed in being densely adherent to the myoma. The point Dr. Abbott had brought out regarding the fimbriæ was an important one.

The President was much interested, also, in the specimens which Dr. Abbott had shown him. The whole appearance of the specimens together with the eversion pointed to a singularly chronic, mild and long continued, catarrhal disturbance. There had been stenosis, retention, and gradually filling up with the discharges from the mucosa. The only thing of note in the sections stained by fuchsin was the presence of the so-called Russell's bodies—blastomycetec (?)—in considerable numbers. These bodies were supposed to bear some relation to chronic inflammation, or more correctly, several observers have noted their existence in cases of chronic inflammation.

Cystoscope.

DR. G. E. ARMSTRONG demonstrated on a phantom the use of the cystoscope and of the numerous attachments for it. Drs. Bell, Garrow, Springle and England described their experience with the instrument.

Electrical Burns.

DR. J. M. ELDER read a paper on this subject. (See page 18 of the January Number.)

Considerable discussion took place regarding the nature of the traumatism which acted in such a way as to cause death of some of the tissues at a considerable distance from the actual burn.

Tuberculosis of the Intestines.

DR. C. F. MARTIN reported a case of tuberculosis of the intestines, in which there had been present a supraclavicular adenitis of the right side.

Stated Meeting, November 10, 1899.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Drs. E. M. von Eberts and D. de J. White were elected ordinary members.

Removal of the Lower Half of the Rectum for Cancer.

DR. LAPHORN SMITH showed the patient the subject of a report to the society seven months previously. He had brought her before the society to show what good results were possible from this operation.

Pathological Specimens.

THE PRESIDENT showed specimens illustrating spontaneous healing of a perforated gall-bladder and a patent foramen ovale.

Cerebral Complications of Nasal Diseases.

DR. R. H. CRAIG read a paper entitled "Cerebral Complications Caused by Extension from Accessory Cavities of the Nose."

Etiology of the Nausea and Vomiting of Pregnancy.

DR. D. J. EVANS read a paper with the above title. (See page 93 of the February Number.)

DR. J. C. CAMERON thought the chief merit of the paper was that it suggested a theory which would give a physiological basis for the vomiting of pregnancy. The supposed cause had been shown to be present in menstruation and to be increased in pregnancy, where it might still remain within the physiological limits or pass the borderland and become pathological. The theory had also the merit of simplicity and originality; many have recognized the rhythmic contractions of the uterus but none hitherto have associated them with pregnancy.

Many of the theories regarding the origin of the vomiting of pregnancy were reviewed by various members each of whom was inclined to hold a different one.

Inversion of the Uterus.

DR. LAPHORN SMITH reported this case.

Stated Meeting, November 24, 1899.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Pathological Specimens.

DR. D. D. MAC TAGGART showed a case of Rupture of the Diaphragm.

DRS. SCHMIDT and MARTIN exhibited the heart of an infant showing Aortic Stenosis.

DR. SHIRRES showed a case of Porencephaly in an old woman who had had no symptoms of cerebral trouble during her life time.

Obstruction of the Pancreatic and Common Bile Ducts.

DR. JAMES BELL reported this case which will be published later.

Traumatic Rupture of the Rectum in a Child.

DR. F. R. ENGLAND reported this case. (See page 107 of the February Number.)

Hammer Toe.

MR. G. A. CHARLTON, student of Medicine, read a paper entitled "On a Case of Hammer-Toe Affecting the Four Outer Digits of Either Foot." (See page 188.)

Stated Meeting, December 8, 1899.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Edema of the Hand and Arm after Amputation of the Breast.

DR. A. E. GARROW reported this case.

A Case for Diagnosis.

DR. F. J. SHEPHERD exhibited a man, 46 years of age, with two areas of ulceration, one upon the left malar eminence, involving the lower eyelid, and the other just above the eyebrow on the same side. The patient was attending the dermatological clinic of the Montreal General Hospital, and had been the subject of considerable difference of opinion as to whether the ulceration was a tertiary manifestation of syphilis or a case of lupus. Dr. Shepherd looked upon the case as syphilitic.

Dr. J. M. Elder stated that this patient had been under his care for a similar lesion, at the same site, some time previous, and treatment with large doses of iodide of potassium and mercury had brought about complete healing of the ulcers.

Dr. G. Gordon Campbell had been convinced that the case was lupus, both from the character of the lesions when first seen and from the fact that large doses of iodide of potassium had failed to produce any improvement, but, in view of Dr. Elder's previous experience of the case, he was forced to change his opinion and to regard it as syphilis.

Dr. Buller, from the appearance of the case and without any knowledge of Dr. Elder's experience with it, would have been inclined to believe it syphilitic.

Acute Suppurative Pancreatitis.

DR. D. P. ANDERSON reported this case and exhibited the pathological specimens.

The Need of an Infective Hospital for Western Montreal and Suburbs.

DR. JOHN A. HUTCHINSON read a paper with the above title.

After considerable discussion in which all the speakers were unanimously in favour of the establishment of such an institution, the following resolution was passed:—

That this society is convinced that the time has arrived for the establishment of a hospital for infectious diseases in the western part of the city, and that steps should be taken immediately to carry out the design;

That a committee be appointed by the President to obtain all information with regard to the care of patients suffering from infectious diseases (scarlatina, diphtheria, erysipelas, variola and measles) in Canadian, English and American cities; such information to consider

the management, support, isolation, transportation of patients, and all other matters pertaining to the maintenance of an infectious diseases hospital.

Removal of a Calculus from the Ureter.

DR. A. E. GARROW reported this case and exhibited the stone.

Bacillus Coli Communis in Pernicious Anæmia.

DRS. ANDERSON and FORD gave a preliminary report of the presence of the *Bacillus coli communis* in the stomach contents and mucosa of cases of pernicious anæmia.

Stated Meeting, January 5, 1900.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Discussion on Gonorrhœa.

Dr. John McCrae, who was to have presented the "History of Gonorrhœa," being absent, the paper was taken as read. (See page 161.)

DR. A. E. GARROW contributed a paper upon "Acute Gonorrhœa and its Complications in the Male." (See page 164.)

Dr. Smillie limited his treatment to irrigations, using a soft rubber, pointed nozzle and a solution of permanganate of potassium, and obtained good results by this method. At first, two irrigations were given daily, then once a day, and less frequently for three weeks to a month. If commenced early, such treatment would limit the disease to the anterior urethra.

Dr. J. M. Jack believed in moderate treatment, and thought that irrigation would cut short the course of the disease.

DR. ARMSTRONG contributed a paper on "Chronic Gonorrhœa (stricture, etc.) in the Male." (See page 169.)

Dr. A. E. Garrow advocated treating stricture in the deep urethra by dilatation with section of the stricture afterwards. He believed that strictures in which the treatment ceased with dilatation, recurred in a few months. In a case of impermeable stricture, to which he referred, he had done the suprapubic operation with retrograde catheterisation. In penile strictures he thought cutting was demanded.

Dr. F. J. Shepherd agreed with Dr. Armstrong regarding treatment by gradual dilatation. If a filiform bougie was once introduced one could get in any instrument afterwards. In cases with old impermeable strictures he would cut down and dissect through the stricture. His experience was that strictures that had been cut frequently recurred and that there were no worse results after dilatation than after cutting. He agreed also with Dr. Armstrong that great care should be used in catheterisation.

Dr. Smillie approved of the method of gradual dilatation. He had seen two cases of severe hæmorrhage after cutting with the Maisonneuve instrument.

Dr. Armstrong, in reply, stated that he had never had hæmorrhage after the Maisonneuve, which he considered a most satisfactory instrument.

Dr. C. F. MARTIN discussed the "Remote Gonorrhœal Infections."

A letter was read from Dr. Conerty, of Smith's Falls, in regard to a fund which was being raised to assist him in defending himself against a suit for malpractice, and an accompanying circular setting forth the object of establishing a defence fund.

The following resolution was passed:—

That the society cannot officially assist in subscribing to the fund for Dr. Conerty, but that the individual members are invited to do so; and further, that the time is ripe for the formation of a Dominion Defense Association and the society is prepared to support such a movement.

A letter was read from a wholesale milk dealer suggesting that the society should undertake the examination of the milk supply of the city. It was referred to the Council for a report.

Stated Meeting, January 12, 1900.

F. R. ENGLAND, M.D., VICE-PRESIDENT, IN THE CHAIR.

Dr. J. Barclay was elected an ordinary member.

Continuation of the Discussion on Gonorrhœa.

DR. JAMES STEWART read a paper entitled "Gonorrhœal Arthritis." (See page 174.)

DR. WILLIAM GARDNER read a paper on "Gonorrhœa in the Female."

DR. J. C. CAMERON contributed "Gonorrhœa in the Pregnant Woman." (See page 178.)

DR. FRANK BULLER read a paper entitled "Gonorrhœa in Relation to Diseases of the Eye." (See page 185.)

Stated Meeting, Jan. 26, 1900.

J. G. ADAMI, M.D., PRESIDENT, IN THE CHAIR.

Dr. F. W. Harvey was elected an ordinary member.

Report of the Council on Milk Inspection.

The following report was presented:—

The matter of milk inspection having been brought before your council, and further, it having been brought before the council that in

New York, Boston, and other large cities in the United States, the medical societies have taken up this matter; and further, seeing that at the present time in this city the status and the functions of the health department are such that that department cannot be expected to satisfactorily take up this matter:

Your Council hereby recommend that a competent bacteriologist be appointed by this society, to be known as the bacteriologist appointed by the Montreal Medico-Chirurgical Society for the inspection of milk, who, under the control of this society, shall be empowered to make bacteriological or other examination of milk for any dealer or private individual who applies for such examination and guarantees the payment of a fee of such an amount as is approved by this society, and who, further, shall issue certificates as bacteriologist of this society in regard to his findings in the different cases.

Association for Medical Defence.

The following report was submitted:—

That this society realizes that to be the subject of a suit for blackmail is both socially and pecuniarily a matter of the utmost gravity for any member of the profession:

That it is in the interests of the profession as a body to protect its individual members against such actions:

That the mere existence of a medical defence association is a strong deterrent against the bringing of such actions:

That, nevertheless, suits for blackmail are relatively and happily infrequent, and that thus, as experience in the Old Country shows, when once such an association is started, there is little general enthusiasm with regard to prompt payment of annual fees, (which there amount to one pound sterling):

That there is little likelihood that an association demanding an annual subscription would meet with continued support.

Your Council would, therefore, conclude that some other scheme has to be sought after and would suggest a scheme somewhat of the following nature, to wit:—

That there be established a Dominion Defence Association with president and secretary-treasurer; that in each province there be established a branch of this association with provincial vice-president and secretary-treasurer and council of two or three; that the meeting of this main body be annual, to coincide with the meeting of the Canadian Medical Association; that the meetings of the local branches be called as necessity arises.

That the conditions of membership shall be the payment of an entrance fee of \$5.00, and no subsequent regular annual fees, save if it be

found at any time that the amount obtained from these entrance fees is insufficient to cover the cost of defending cases in any given year; that then the members be assessed throughout the Dominion, the sum not to exceed two dollars (\$2.00) per annum. That failure to respond to this assessment within one month shall, *ipso facto*, remove said practitioner from membership and from benefits of such association, and for renewal of such membership the consent of the central council alone shall be effectual, and payment of entrance fee with assessment in arrears shall be required.

The report of the council was adopted and a committee appointed to elaborate it further and report at a later date.

Double-headed Monster.

THE PRESIDENT exhibited a case of dicephalus tribrachius of which DR. GIRDWOOD showed stereoskiagraphs.

Disability and Disease Due to Accident.

DR. WYATT JOHNSTON read a paper on this subject which will be published in the April Number.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

EDITED BY

THOS. G. RODDICK,
A. D. BLACKADER,
GEO. E. ARMSTRONG,
WILLIAM GARDNER,
F. G. FINLEY,

JAMES STEWART,
J. GEORGE ADAMI,
G. GORDON CAMPBELL,
FRANK BULLER,
H. A. LAFLEUR,

WITH THE COLLABORATION OF

WYATT JOHNSTON.
C. F. MARTIN,
J. M. ELDER,
D. J. EVANS,
A. E. GARROW,

T. J. W. BURGESS,
J. W. STIRLING,
F. A. L. LOCKHART,
W. F. HAMILTON,
E. J. SEMPLE,

H. S. BIRKETT,
J. C. WEBSTER,
KENNETH CAMERON,
C. W. WILSON.
A. G. NICHOLLS.

VOL. XXIX.

MARCH, 1900.

No. 3.

ON THE DOMINION REGISTRATION BILL.

To us who know Dr. Roddick and who have followed step by step the evolution of his bill, the one dominant impression conveyed and, indeed, stamped upon our minds from the first moment of its inception to the present moment, has been the constant and conscientious endeavour to frame such a measure as should be acceptable to all classes of the profession in all parts of the Dominion. Whether it is possible to do this may be debatable; there are undoubted difficulties in the way, but if the object of this measure be approached in the right spirit we firmly believe it possible. We would, however, emphasize this fact, that before everything else our colleague has made this his great endeavour and kept it in the forefront with no secondary or underlying object. And what is more, if any of the clauses of the projected measure can be shown to be harmful to any vested interests or to endanger any branch of the profession, he will be the first to so modify the clause as to remove all possibility of harm or of misconstruction.

While here we may be traversing old ground, it will, we think, be well to point out that the measure originated as a consequence of the dissatisfaction which all broad-minded men feel in the present condition of our profession in Canada. There is something miserably petty and

second class—not to say ‘bourgeois’—in the trammels and regulations whereby each province shuts itself off from the rest of the Dominion, enacts its own laws bearing upon the conditions of medical practice, determines its own standard of education for a license and hinders those licensed by other provinces from setting foot within its boundaries. That same spirit which brought about confederation and which is now rapidly making Canada—as mistress in her own house and that house not divided against itself (to mix up two metaphors of very diverse origin)—a power in the world at large, that same spirit makes us of the medical profession demand that the exercise of our profession in its broader details be regulated upon national rather than upon provincial lines. Were medicine a trade, adventure, or other mercantile concern, the case might be different. It might then be defensible to organize the medical men of each province into a closed corporation and to rigorously prevent all outsiders from poaching upon the provincial preserves. But the first aim of the physician is to be of service to his fellow men; commercial conditions are of right but secondary. Ours is *par excellence* the liberal profession, and this being so, regulations regarding practice should be most liberal.

How absurd it would seem were any religious body in any province to exact that no outsider could exercise religion in that province save under pains and penalties, that no one could minister to the mind diseased save and except he had passed each and all of the examinations of the provincial Bishops or other court of examiners. What should we think of the provincial Presbyterian Assembly of British Columbia for example, if it refused to allow a minister to be called from Prince Edward Island, because in his student days he had not attended a course of lectures upon the doctrinal and other differences between the “Moderates,” the “Anti-burghers,” the “Auld Lights,” the “U.Ps. &c.,” or of the provincial Synod of the Province of Ontario, if it forbade the Bishops to license a former student of the Diocesan College in this city because the Montreal curriculum did not include a course of instruction upon the proper conduct of Mothers’ Meetings with attendance, and practical work at twenty of the same? We surmise that the verdict would be that the Provincial Assembly, as a body, were a set of sempiternal fools, and that (heedless of the contradiction in terms) we should hold the Synod as damned as it was divine. The one thing needful is a guarantee that all admitted to practice medicine in the Dominion have reached a certain standard of education. Remembering the great responsibility of the practitioner it is necessary that that standard be high.

At the same time in the proposed measure we are bound to take into account the provincial powers and provincial privileges already existing, and, in order to put an end to the present unworthy condition of

affairs, have to develop a scheme which, without infringing upon the powers or even the susceptibilities of provincial legislatures, shall be of general application.

To do this demands statesmanship of no mean order, demands an intimate knowledge of the conditions of the profession in all parts of the Dominion, demands the greatest care and deliberation in drawing up each individual clause of the projected act, and demands, lastly, complete disinterestedness and absence of *parti pris* on the part of the framer. If any one has the capacity and has endeavoured to fulfil all these demands, it is our colleague; and if anything appears on the face of the projected measure to contradict these aims, it certainly has not been inserted with intent to cause strife or dissatisfaction.

As a consequence, we think that the measure, a draft of which we here print, will be found generally acceptable. Nay more, it only appears in its present form after having been subjected to the leading members of the profession from one end of the Dominion to the other. Still, despite all the care that has been taken, we are sorry to find that, in this province particularly, it has been subjected to very vigorous criticism, and what is more, that criticism, while largely we think unmerited and not germane, does contain certain elements that have force and cannot be passed over. In other words we think that certain clauses should be revised so as to show with absolute precision, both that the aim of the promoters is in no sense to infringe upon provincial and racial privileges, and to guard against the Bill, if passed, being employed by politicians as a lever to undermine the aforesaid privileges.

We would, however, assure the *Bulletin Medical* and our Quebec confrères that the first and only object in the projected bill is to improve the status and benefit the profession from one end of the Dominion to the other, and that there is no thought of the projected federal council interfering in the medical education in the various provinces, save and except in connection with the federal license, and no thought of so wording the measure as to make it subserve political ends. It is because this idea so filled the minds of the framers that the wording, which we admit is defective, of Section 4, Clause a. (not Clause c as stated in the *Bulletin Medical*), comes to be what it is. The defective nature of that paragraph has already been pointed out, for instance, at a recent meeting of the Montreal Medico-Chirurgical Society. In what is practically the preamble to the Bill, it was distinctly a mistake not to state first and foremost, the main object of the Council, which main object is to provide a means whereby students of medicine in the various provinces can obtain a license which will permit them to present themselves before the provincial councils and obtain the provincial license to practice without further examination.

“The assimilation and unification of the various standards of qualifications established by the several provinces of Canada as conditions of admission to the study and practice of medicine,” surely only refers to the proposed Dominion license and the course of study necessary before the student is admitted to the examinations of the federal council. Certainly it is altogether no part of the proposed powers of the Dominion medical council to determine what shall be the standard of matriculation of candidates presenting themselves before the different provincial medical councils.

Paragraph h, of Section 10, which bears upon the powers of the council and reads, “that the council may from time to time make, repeal, alter and amend rules, orders and regulations *not contrary to law or to the provisions of this Act*, for or with reference to the following purposes :—The admission, enrolment, registration of practitioners and students of the medical profession, etc.,...” clearly only refers to admission, enrolment and registration of those qualified under this act, and does not give the Dominion Council any power to regulate the qualifications of medical students in general. And similarly in paragraph i, “the qualifications to be required from all persons desirous of being registered either as practitioners or students *under the authority of this Act*, including the establishment, maintenance and effective conduct of examinations for ascertaining whether such persons possess the qualifications required, etc.,” most clearly only refers to the qualifications to be exacted from those applying for the Dominion license and does not in any sense refer to qualifications to be exacted by the various provincial bodies. All that is demanded for the Dominion Council is that it shall have powers to enforce and to ensure that those applying for its license shall have undergone a course and passed examinations satisfactory to the council. Failing this, the applicant, if he still wishes to practice in the Dominion is not by this law prevented from applying to any province to obtain its provincial license.

It is, we think, unfortunate that Dr. Simard so refers to these last two paragraphs, by leaving out the clause we have italicised, as to give the impression to those who do not carefully follow up his argument, that power is asked to control these matters of education generally. His argument is to prove that power is asked to obtain control over matters strictly educational in the different provinces—certainly so far as regards a Dominion license, control is asked, but no farther. Dr Simard must see that to this extent control is absolutely essential and that the writer in the *Union Medicale* necessarily took this for granted. But, also, Dr. Simard must acknowledge that if the law be carried out along the lines laid down there will be no interference or chance of interference in the general course of education of those taking

a provincial license. Yet if any wording can make it more clear that the provincial rights are not to be infringed upon by the federal body, it would be well that those words be inserted.

One of the strong points in the Bill, however, is that it clearly ensures that the standard demanded of those presenting themselves for the Dominion examination shall in no case be lower than that demanded by any individual province. Clause i of Section 10, reads:—"....; provided, however, that the requirements of the curriculum shall not at any time be lower than the requirements of the most comprehensive curriculum established at the same time for the like purpose in any province, nor shall the standards of examinations either preliminary or professional be lower than the highest standard for the like purpose established at the same time for the purpose of ascertaining qualification for registration within any province." That, certainly, is the object of the promoters, and thereby another of the objections taken to the Bill is removed; as again is the idea that the Bill is but a plot leading quietly but surely to the attainment of legislative union and imperialism. There is no endeavour in the Bill to do away with provincial autonomy, and indeed the very success and the benefits which have followed from political confederation should now follow the medical confederation which is proposed.

Dr. Simard may speak slightly of the benefit to be obtained by allowing a few physicians to cross the Ottawa and Beaudette rivers with impunity; we should have thought that the wider view would have appealed to him; namely, that recognizing the increasing settlement of French Canadians in Eastern Ontario and Manitoba and elsewhere, he would have seen the distinct benefit offered by this Bill to those of his race. Under present conditions a French physician desiring to practice in Ontario has to pass the examination, in English, of the Ontario Board. If this Bill passes, all that he will have to do will be to present himself before the Dominion Council and ask for an examination in his own language; is not this a very definite gain?

The council would be bound to take into account the educational traditions of the two people, to recognize that the general higher education of our French speaking confrères differs in many important respects from our own, and to devise an examination accordingly. And so, also, with regard to the methods of conducting the different courses of the medical curriculum; here again the different modes of procedure will have to be taken into account.

If these considerations be taken into account, we fail to see how our French colleagues can see in this Bill anything but what is of direct benefit to them and nothing which will detract from their privileges.

J. G. Adami.

DRAFT OF PROPOSED
ACT TO INCORPORATE THE MEDICAL COUNCIL OF CANADA.

An Act to Incorporate the Medical Council of Canada.

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

SHORT TITLE.

1. This Act may be cited as "The Medical Act of Canada."

DEFINITIONS.

2. In this Act, unless the context otherwise requires the expression "Province" shall be held to include the North-West Territories; the expression "Provincial" shall be held to mean not only Provincial but also North-West Territorial, the expression "medicine" shall be held to include surgery and obstetrics, the expression "medical" shall be held to include surgical and obstetrical, and the expression "The Council" shall be held to mean the Medical Council of Canada.

INCORPORATION AND PURPOSES.

3. The persons from time to time appointed or elected or otherwise being under the provisions of this Act members of The Medical Council of Canada are hereby constituted a Corporation, under the name of "The Medical Council of Canada."

4. The purposes of the Council shall be to promote and effect :

- (a.) the assimilation and unification of the various standards of qualification established by the several Provinces of Canada as conditions of admission to the study and practice of Medicine.

- (b.) the establishment of a Register for Canada of Medical practitioners and students, and the compilation, publication and revision from time to time of such register.

- (c.) the determination and fixing of the qualifications and conditions necessary for registration, including the courses of study to be pursued, the examinations to be undergone, and generally the requisites for registration.

- (d.) the establishment and maintenance of a Board of Examiners for the examination of such persons and for the granting of certificates of qualification.

- (e.) the establishment of such a status of the Medical profession in Canada as shall insure recognition thereof in the United Kingdom of Great Britain and Ireland and enable Canadian practitioners to acquire the right to registration under the Acts of the Imperial Parliament known as the "Medical Acts."

- (f.) the enactment by the consent and at the instance of the Medical

Councils or Boards of the various Provinces of Canada, of such Provincial legislation as may be necessary to supplement the provisions of this Act and to effect all or any of the foregoing purposes.

(g.) the encouragement of study and research in Medical literature, the establishment of a uniform standard of Pharmacopœia, the publication of transactions and other documents, including the collection and publication of Vital Statistics, the formation of a Canadian Medical Museum, and generally the advancement of Medical science and practice and all matters tending to promote public health throughout Canada.

5. The Council may acquire and hold such real estate and personal property as may be necessary or expedient for the purposes of the Council or of providing a revenue therefor and may sell, lease or otherwise dispose of the same, but the annual value of the real estate owned by the Council and held for the purposes of revenue only shall not at any time exceed the sum of one hundred thousand dollars.

COMPOSITION OF COUNCIL.

6. The Council shall be composed of three members from each Province now or hereafter being a Province of Canada, who shall be chosen as follows, viz.:—one from each such Province shall be appointed by the Governor-General in Council, one from each such Province shall be elected by the Medical Council of such Province, and the President of each Provincial Medical Council shall be *ex officio* a member of the Council.

Provided, however, that no one shall be appointed, elected or *ex officio* a member of the Council or continue in office as such member unless he

(a.) reside in the Province for which he is an appointed, elected or *ex officio* member ;

(b.) be a duly registered member of the Medical Profession according to the law of the Province which he represents ;

(c.) be duly registered as a Medical practitioner in the register to be established under the provisions of this Act, but this latter qualification shall not be required of any of the members originally composing the Council.

(d.) Provided, however, that no Province shall be represented upon the Council either by appointed, elected, or *ex officio* members until the Legislature of that Province shall have enacted in effect that students and medical practitioners duly registered as such by the Council, may, without further study, be registered as students or duly qualified medical practitioners within and under the laws of such Province.

7. The term of office for appointed members shall be four years.

1. Elected members shall remain in office until the expiration of the

term of office of the members of the Provincial Medical Council by whom they are elected.

2. *Ex officio* members shall be members of the Council so long as they continue to hold the office in virtue of which they become such members.

3. Any member may at any time tender resignation of his membership by written notice thereof to the President or to the Secretary of the Council. Upon acceptance of such resignation by the Council the Council shall forthwith give notice in writing thereof, in case of an appointed member to the Secretary of State for Canada, and in case of an elected or *ex officio* member to the Secretary of the Medical Council for the Province which such member represents.

4. Any person who is or has been a member of whatever class may, if properly qualified, become an *ex-officio* member or be re-appointed or re-elected, but no person shall at one time serve as a member in more than one capacity.

5. In the case of members of the Council who have been appointed or elected and whose term of office is about to expire successors may be appointed or elected at any time within three months before the expiration of such term, provided that where any vacancy exists in the membership of the Council by reason of any term of office having expired or otherwise such vacancy may be filled at any time.

6. If the proper Provincial authority to elect a member of the Council fail to do so, or fail to elect a properly qualified member, or fail to cause the name of the member elected to be certified to the Secretary of the Council within a reasonable time after such election might have been made, then, after due notice from the Council requiring such Provincial authority to make and certify such election, the Council may thereupon, in case the default continue, itself elect such member in lieu of the proper Provincial authority.

7. A member appointed or elected to fill a vacancy caused by death or resignation shall hold office in all respects as the person in whose place he is appointed or elected would have held office and for the remainder of the term for which that person was appointed or elected.

8. In case of any doubt or dispute as to the qualification or the validity of the election of any member the Council may enquire into and decide such doubt or dispute and the decision of the Council shall be final.

OFFICERS.

8. The Council may from time to time

(a.) elect among its members a President, a Vice-President and an Executive Committee.

(b.) appoint a Registrar who may also if deemed expedient act as Secretary and Treasurer.

(c.) appoint or engage such other officers and employees as the Council deems necessary to carry out the objects and provisions of this Act.

(d.) require and take from the Registrar, or from any other officer, or employee, such security for the due performance of his duty as the Council deems necessary.

(e.) fix the allowances, remuneration or salaries to be paid to the President, Vice-President, members, officers and employees of the Council.

MEETINGS.

9. The Council shall hold its first meeting at the City of Ottawa at such time and place as may be appointed by the Minister of Agriculture; and thereafter an annual meeting of the Council shall be held at such time and place as may from time to time be appointed by the Council.

1. Until otherwise provided by order or regulation of the Council, seven members of the Council shall form a quorum, and all acts of the Council shall be decided by a majority of the members present.

2. The President, or Vice-President, when in the chair, and the Chairman of any meeting of the Council or of any Committee of the Council shall have a casting vote in addition to his vote as a member of the Council or of the Committee.

RULES, ORDERS AND REGULATIONS.

10. The Council may from time to time, make, repeal, alter and amend rules, orders and regulations not contrary to law or to the provisions of this Act for or with reference to the following purposes, or any of them :

(a.) The purposes mentioned in section 8 of this Act.

(b.) The direction, conduct and management of the Council, and of its property, real and personal.

(c.) The summoning and holding of meetings of the Council, the times and places where such meetings are to be held, the conduct of business thereat, and the number of members necessary to constitute a quorum.

(d.) The powers and duties of the President and Vice-President and the selection of substitutes for them if unable to act for any cause at any time.

(e.) The tenure of office, powers and duties of the Registrar and of all other officers and employees.

(f.) The election and appointment of the Executive Committee and other committees for general or special purposes, the definition of their powers and duties, the summoning and holding of their meetings and the conduct of business by such committees.

(g.) Generally all fees to be required, paid or taken under this Act.

(h.) The admission, enrolment and registration of practitioners and students of the medical profession.

(i.) The qualifications to be required from all persons desirous of being registered either as practitioners or students under the authority of this Act, including the establishment, maintenance and effective conduct of examinations for ascertaining whether such persons possess the qualifications required; the number, nature, times and modes of such examinations; the appointment of examiners; the terms upon which matriculation and other certificates from universities, colleges and other educational institutions, or from the governing bodies of other professions, shall be received as evidence of qualification; the recognition of degrees or diplomas granted by any British, Canadian, colonial or foreign school, college or university; the arranging and bringing into effect of any scheme or schemes of reciprocity as to registration with any British, Colonial or foreign medical licensing body or authority; the dispensation of candidates from undergoing examinations either wholly or partially and generally all matters incident to such examinations or necessary or expedient to effect the objects thereof; provided, however, that the requirements of the curriculum shall not at any time be lower than the requirements of the most comprehensive curriculum established at the same time for the like purpose in any Province, nor shall the standards of examinations either preliminary or professional be lower than the highest standard for the like purpose established at the same time for the purpose of ascertaining qualification for registration within any Province.

(j.) The terms, conditions and circumstances under which medical practitioners shall be entitled to registration under this Act in cases where such medical practitioners are duly registered or licensed under the Medical Acts of the United Kingdom or under the laws of any British possession other than Canada or under the laws of any foreign country which British possession or foreign country extends reciprocal advantages to Canada.

(k.) Generally all matters which it may be necessary or expedient to provide for or regulate in pursuance of the purpose of this Act and in furtherance of its general intention.

11. A copy of any such rule, regulation or order certified by the Registrar or Secretary under his hand and the seal of the Corporation may be received in evidence in any court of justice without proof other than the production of a copy purporting to be so certified.

BOARD OF EXAMINERS.

12. At each annual meeting of the Council, the Council shall ap-

point a board of examiners, to be known as "The Medical Council of Canada Examination Board," whose duty it shall be to hold the examinations prescribed by the Council.

2. The members of the board of examiners shall be eligible for re-appointment.

EXAMINATIONS.

13. There shall be two classes of examinations to be held under this Act, namely, the preliminary or matriculation examination, and the professional examinations.

1. The subjects of these examinations shall be decided by the Council, and candidates for examination may elect to be examined in the English or French language.

2. All practical and clinical examinations shall until otherwise decided by the Council be held in the cities of Montreal and Toronto alternately.

REGISTRATION.

14. The Council shall cause to be kept by the Registrar under the direction of the Council a book or register to be known as "The Canadian Medical Register," in which shall be entered in such manner and with such particulars as the Council may direct the names of all persons who have complied with the requirements of this Act and with the rules, orders and regulations made by the Council respecting registration under this Act and who apply to the Registrar to have their names so entered.

15. Except as otherwise provided by this Act every one shall, upon payment of the fees prescribed by the Council in that behalf, be entitled to be registered either as a medical practitioner or student as the case may be who passes the examinations duly prescribed by the Council and otherwise complies with all the conditions and regulations requisite for such registration as prescribed by this Act and by the Council under the authority of this Act.

1. Any person who has been registered as a medical practitioner in any Province in Canada for the full term of ten years next preceding the date of his application for registration under this Act shall be entitled to be registered under this Act as a medical practitioner without examination upon payment of the fees and upon compliance with the other conditions and regulations for such cases prescribed by the Council.

2. Any person coming within any of the classes of registered or licensed practitioners to which paragraph (j) of section 10 of this Act applies shall be entitled to be registered upon complying with the orders and regulations established by the Council in that behalf.

16. Any entry in the register may be cancelled or corrected upon the ground of fraud, accident or mistake.

17. In any case of an application for registration or for correcting or amending any entry upon the register the applicant, if aggrieved by the decision of the registrar, may appeal to the Council and the Council shall hear and determine the matter; but all applications to cancel or strike off entries from the register made adversely to the person whose registration it is desired to affect shall be by the registrar referred to the Council and the Council shall after due notice hear and determine all such applications.

1. The decision of the Council in all matters affecting the register, the entries made or to be made therein, and the right to registration, whether upon appeal or otherwise, shall be final and conclusive.

18. If it is made to appear to the Council that any person registered under this Act has been convicted either in any part of Her Majesty's possessions or elsewhere of an offence which if committed in Canada would be an indictable offence under "The Criminal Code, 1892," or that he has been guilty of any infamous or disgraceful conduct in a professional respect, then, whether such offence shall have been committed or such conviction shall have taken place or whether such infamous or disgraceful conduct shall have occurred either before or after the passing of this Act or either before or after the registration of such person, the Council shall direct the Registrar to erase the name of such person from the register. Provided, however, that if a person registered under this Act shall likewise have been registered under the laws of any Province and such Provincial registration shall have been cancelled for any of the causes aforesaid by the authority of the Medical Council for the Province where he shall have been so registered, it shall then be competent to the Council without further enquiry to direct the registration of such person under this Act to be likewise cancelled.

1. The name of a person shall not be erased under this section

(a.) because of his adopting or refraining to adopt the practice of any particular theory of medicine or surgery; or

(b.) because of his conviction out of Her Majesty's possessions of a political offence against the laws of any foreign country; or

(c.) because of his conviction for any offence, which, though coming within the provisions of this section, is, in the opinion of the Council, either from the trivial nature of the offence or from the circumstances in which it was committed insufficient to disqualify a person from being registered under this Act.