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THE TREATMENT OF CYSTITIS.*

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Miscere utile cum dulci, to impart useful information in an entertaining manner in general addresses of the character I am asked to deliver, seems to be a custom as old as, and closely akin to, the use of excipients to carry a drug which is not pleasing if taken in its naked strength. Who does not recall with pleasure the "elegant" mixtures, the electuaries, and the compound syrups of our forefathers?

I have tried to meet our expectations, by bringing before this large audience, representative of the advanced medical thought of our day, one of the oldest and most rebellious of the enemies of our race, namely, cystitis, bound in chains; and I trust that you will find no small satisfaction as you note that one more step has thus been taken in the path of therapeutic progress.

The *résumé* I shall give you embraces over eighteen years of a personal experience, largely devoted to this particular subject.

In order not to raise too great expectations, let me declare at the outset that, as is often the case in that difficult art which we profess, I have no single drug or method to propose by which all cases can be cured. It is only by a painstaking study of all the conditions, and by persistent patient efforts that cystitis can be understood and successfully combated. The therapeutic side of the subject in which your interest naturally focuses, is so large

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that I cannot do more than touch upon its history, etiology, pathology, chemical history and diagnosis.

HISTORY.

The names of two of our great fellow-countrymen stand pre-eminent in the history of the treatment of cystitis, and to them alone will I refer in this brief *résumé*, as they are in danger of being passed over in the hurry which characterizes the progress of to-day. One of these is Willard Parker, of New York, who, in 1850, at the Bellevue Hospital, operated upon a case of chronic cystitis in the male, stating that, "The object in view was to open a channel by which the urine could drain off as fast as secreted, and thus afford rest to the bladder, the first essential indication in the treatment of inflammation." This case was reported in the *New York Medical Journal* for July, 1851.

The other name is that of T. A. Emmet, who, in 1858, operated for a vesical calculus, and by the advice of Marion Sims left an opening in the vesico-vaginal septum, in order to afford greater facility in the treatment designed to restore the organ to a healthy state. Subsequently to this, Emmet "made an artificial vesico-vaginal fistula, with a view of giving rest to the organ by the free escape of urine." (*Amer. Pract.*, for Feb., 1872.) Emmet records several cases of cystitis treated by this plan in his classical work on vesico-vaginal fistula, published in 1868, while Parker also presented at the New York State Medical Society, in 1867, a paper on "Cystitis and Rupture of the Bladder Treated by Cystotomy."

One of Emmet's most rebellious cases, a woman who had suffered for three years, was examined "endoscopically," after cystotomy and irrigations of the bladder, by Dr. Newman, June 1st, 1869, and the bladder found free from disease, whereupon Emmet closed the fistula, and with some further slight treatments, she fully recovered.

I mention these facts, because I am sure we are too prone to forget the skilful labors of our predecessors, upon which all that we are successful in doing to-day rests as a sure foundation. All honor to these noble painstaking pioneers in this most difficult corner of our field of labor.

ETIOLOGY.

Again, I turn with no little pleasure to our clear-sighted Emmet, who, writing in 1872, says: "Neglect during labor to keep the bladder empty, exposure to cold, violence, and the habit of long retaining the urine, are the chief exciting causes of the most serious forms of cystitis." In investigating this, as in other inflammatory affections, we have to consider two factors—the predisposing causes which prepare the ground for the cystitis to

which we have but little to add to what Emmet has said, and the exciting cause, the particular living organism, which is the immediate agent in setting up and in maintaining the disease. It is the establishment of this last important factor which has given us a new conception of the subject, and served to modify and direct our treatments.

Contrary to the opinions of some ten years ago, we now know that the mere presence of organisms is not of itself sufficient to excite a cystitis. This is seen in cases of bacteriurea, where, although the urine is loaded with organisms, there is but a nominal lesion, or no lesion at all, in the bladder.

The following predisposing factors are important :

1. Localized congestion.
2. Traumatism.
3. Retention of urine.
4. Reduced health.
5. Two or more of these factors combined.

Congestion may result from "catching cold" and from exposure; or from the action of toxins or chemical irritants on the bladder, excreted by the kidneys; or from a hyperacidity of the urine; or, again, from the presence of tumors in the pelvis.

Traumatisms arise from labor, especially where the forceps are used with the bladder not emptied, from the use of the catheter, and, most important, from surgical operations on the uterus, involving the detachment of the bladder, and from stones lodged in the bladder.

Retention of the urine from faulty innervation of the bladder, as in tabes or after labor, and retention from a sense of modesty followed by the use of the catheter is a prolific cause.

Ill-health renders the whole body liable to the invasion of organisms, and coupled with any of the preceding factors renders the bladder a *locus minimae resistentiae*.

What are the organisms, then, which serve in the presence of such predisposing conditions, to bring about and maintain a cystitis?

I turn to answer this question to an admirable summary of my own cases, made by Dr. T. R. Brown, and published in the Johns Hopkins Hospital Reports, Vol. X., Nos. 1 and 2, for 1904.

There were twenty-five cases of acute cystitis, which revealed the presence of—

<i>B. coli communis</i>	15 times
<i>Staph. pyogenes albus</i>	5 times
<i>Staph. pyog. aureus</i>	2 times
<i>B. pyocyaneus</i>	1 time
<i>B. typhosus</i>	1 time
<i>Proteus vulg.</i>	1 time

And in 22 cases of chronic cystitis, Dr. Brown found—

<i>B. coli communis</i>	11 times
<i>Staphyloc. pyogenes aureus</i>	3 times
“ “ <i>albus</i>	2 times
<i>B. coli communis</i> (with tub. bac.)	1 time
Unidentified (possibly a variety of <i>B. coli</i>)	1 time
<i>Pyuria sterile</i>	2 times
A <i>staphyloc. albus</i> (which, decomposed in urea, was pyogenic, but either did not liquefy gelatine or did so extremely slowly)	2 times

There were also six cases of tuberculous cystitis.

Compare these findings with those of Melchior, and you will find the similarity is in some respects a striking one. (Fr. VIII., 291.)

Melchior examined 36 cases of cystitis (17 women) and found—

<i>B. coli communis</i>	25—17	pure cultures.
<i>Streptococ. pyogenes</i>	5—3	“
<i>Proteus Hauser</i>	4—1	“
<i>B. tuberculosis</i>	3—2	“
<i>Diplococ. ureæ liquef.</i>	3—2	“
<i>Staphyloc. “ “ Lundstrom</i>	3—1	“
<i>Streptobac. anthracoides</i>	3	“
<i>Gonococ. Neisser</i>	1	“
<i>B. typhus</i>	1	“

The great importance to be attached to a study of the etiology of cystitis is the discovery of several factors easily within our control, notably the traumata. By recognizing this fact we can do much, in many instances, to prevent a cystitis.

The most important group opened up by bacteriological study of the urine is that of the tubercular cases, which, as a rule, call for the more aggressive plans of treatment.

I will pass over the pathology, simply noting two important facts which bear powerfully on the treatment of cystitis.

First, that the disease is sometimes purely superficial, being seated only in the mucosa, while at other times it extends deep down, even into the muscularis.

Second, the disease is often localized in a few well-defined patches; it is rarely universal.

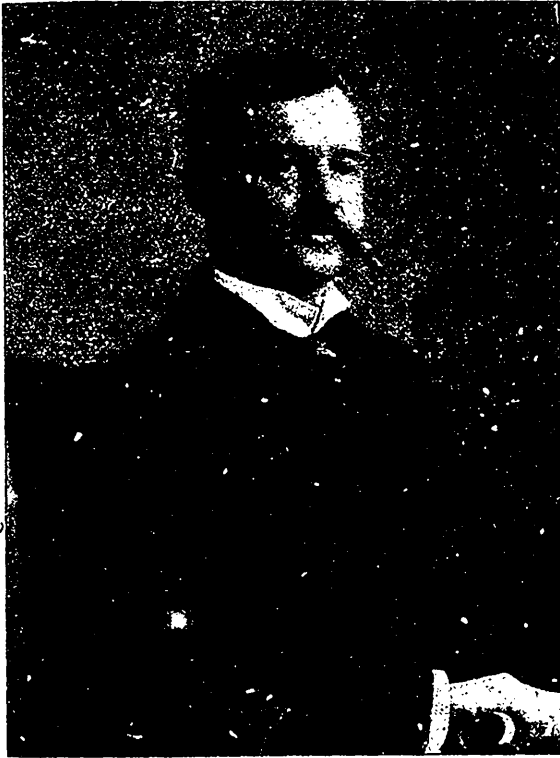
The following clinical forms may be recognized, apart from the determination of the infecting organism or organisms:

1. Catarrhal, involving the superficial mucosa.
2. Desquamative.
3. Ulcerative.
4. Granular.
5. Papillary.
6. Bullous edema.

The important divisions of cystitis into acute and chronic separate the cases according to duration and intensity of symptoms.

DIAGNOSIS.

A diagnosis of cystitis may be made when pus is found in the urine, in association with an inflamed area in the bladder; the latter may be inferred by such symptoms as pain and fre-



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quent urination, or by a direct visual examination of the interior of the bladder.

I must bear in mind that my remarks may fall into the hands of some busy practitioners who find it hard to get time to use the microscope. I would, therefore, utter the caution not to mistake a pollakuria (frequent urination) for a cystitis. In my experience this has often been done, and then the active measures of

treatment instituted have converted the innocent but annoying disease into a dangerous one.

Again, a dysuria from hyperacidity of the urine is likely to be mistaken for a true cystitis, unless some other test than the subjective symptoms is applied.

Yet another caution: A little affection in the vesical trigonum, by the intensity of the symptoms it provokes, may hide a much graver and more advanced latent affection in one of the kidneys.

The diagnosis, to be sure and satisfactory, should ascertain not only the existence of a cystitis, but its extent as well.

A diagnosis which begins and ends with the word "cystitis" is as accurate as the statement that a patient has thoracic disease.

Again, even though the nature of the infecting organism is determined, the diagnosis is still no more accurate than it would be to say that the patient has pulmonary tuberculosis. In the latter case you see readily enough how vital are the questions, Where is the disease located? and, How extensive is it? Apply like questions to the bladder.

Let the man who is willing to go carefully into his cases rest his diagnosis on these factors:

1. History, including symptomatology.
2. Examinations of the urine, microscopic and bacteriologic.
3. A direct inspection of the interior of the bladder.

I cannot urge too forcibly the ease with which the examination is made through the open cystoscope, without any intervening medium of lenses or water, nor can I sufficiently declare the importance of the results thus obtained, in clearing up and giving precision to the diagnosis.

With such examinations, cases of "bacteriurea" become much rarer, as some infection of the vesical mucosa is almost always found, even though there is a remarkable disproportion between the local disease and the numbers of the bacteria.

TREATMENT.

I am especially glad to address you on the subject of the treatment of cystitis, as I have now had an experience of over five hundred cases, which have been carefully collated from my records by Dr. G. J. Campbell, of this city.

I think we have gone as far as we can under existing conditions, and must now await some fresh and important discovery before changing our present methods materially; and now when the specialist feels that he has pretty well threshed a subject out, it is time to hand his work over to the general practitioner, to see how much of it he is ready and able to appropriate.

Three important factors enter into the successful treatment of cystitis:

1. A full, carefully written analysis of the case, including a description of the lesions seen in the bladder.

2. A well-defined campaign against the disease, progressive in character.

3. Untiring patience.

All preliminary discussions as to history, etiology, and pathology lead up to the two great practical issues: How to prevent the disease, and How to get rid of it.

Prophylaxis.—I am convinced that if we pay closer attention to prophylaxis there will be a prompt and a large percentage



ONE OF THE LOG CABINS AT INDIAN POINT, MAGNETAWAN RIVER—DR. KELLY'S SUMMER RESORT.

reduction in the cases of cystitis. Many of the cases seen nowadays follow some abdominal surgical operation.

A potent factor in the prophylaxis is the proper use of the catheter, which I may summarize as follows:

A sterilized catheter; cleansing of the external genitalia and urethral orifice before introduction. The introduction of the catheter without touching the end introduced.

The bladder must not be permitted to become over-distended.

It is also important to remember that a patient, unaccustomed to lying on her back, often empties the bladder very imperfectly. If the urine tends to stagnate in the bladder, some

warm boric acid solution should be thrown in to wash it out, every time the catheter is used.

In abdominal hysterectomies, the bladder should be rubbed, touched, and bruised as little as possible. I have looked into the bladder after a hysterectomy for myomata, and seen large transverse striæ of submucous hemorrhages on the posterior wall.

In another case, in which I recently reopened the abdominal wound, the bruised bladder was at first mistaken for a large, fresh blood clot.

Further, where there is reason to fear cystitis, and always when the catheter is used, it is well to give urotropin for a few days, in 5 or 10 gr. doses t. d., as a prophylactic. The consensus is that cystitis will but rarely occur if this precaution is taken.

Remove the Obvious Cause.—The sister of one of our ablest practitioners got up from her lying-in bed with a bad cystitis, which numerous treatments failed to ameliorate in the least degree.

She entered my cystoscopic room for the first time; I put her in the knee-chest posture and looked into the bladder, and, lo! there was a white calculus as big as a pigeon's egg lying in the vertex. With the removal of the calculus she made a prompt recovery.

Take nothing for granted; if you can look at a sore throat, you can also, with a reflected light and the small amount of patience necessary to acquire a little more dexterity, look into an inflamed bladder.

Make also a searching examination of every contiguous pelvic organ. If there is a large myoma, or an ovarian tumor, or a pelvic inflammatory mass pressing on the bladder and interfering with its proper evacuation, take the tumor or the mass out.

In the case of another patient with a bad pyuria, whose kidney was about to be taken out, I found a small suppurating dermoid cyst opening into the bladder by a sinus; the removal of the tumor and the closure of the orifice cured the disease and saved her from a serious mutilation.

In any obstinate case, especially if it is one of lesser degree, always remember that the source of constant reinfection may reside above in the pelvis of the kidney. If you find tubercle bacilli associated with a cystitis you may be sure that in nineteen cases out of twenty the primary focus is in the kidney.

As we consider the active treatment of a cystitis, let me urge two important factors, which serve as controls in testing progress towards recovery:

1. A careful preliminary examination and description of the local condition, as seen through the speculum, on the interior of

the hollow vesical sphere. If there is any marked improvement, examinations from time to time will show it by the variations in color, and in the extent of the lesions.

2. The taking of a measured quantity of fresh urine, say three platinum loops, spreading this on the slant agar, and then counting the colonies which grow out, as a means of testing the reduction of the amount of infection. These individual foci will often be found to diminish progressively from countless to discrete, to, perhaps, 100 to 15 or 20 to 2 or 3, to finally none at all. Several sterile cultures ought to be secured before the case is considered free of any risk of relapse.

Let us now consider our resources in dealing with a particular case. They are: Rest and dietetic treatment, medicines by the mouth, injections into bladder, direct topical treatments of the vesical walls, surgical treatment, including incision of the bladder, and excision of the disease area.

Rest in bed is of the most importance. I can always do far better for a case if I can get her into my hospital, where she has rest associated with regulated diet, tonics, the due regulation of the bowels, massage and baths.

Medication by the Mouth.—Large quantities of bland water is a valuable remedy here as in pyelitis. The virtue, I think, in the various lauded waters resides in the pure *aqua potabilis*, which they contain, and not in the various salts shown in the analysis. Some patients will take, however, with better grace, three or four pints daily of a water which is imported in a big bottle with a sounding name, than the simple, but equally efficacious spring water from a home source. It is the old tale of the bread pill and the placebo.

Urotropin in 5 to 10 gr. doses is of value in the more recent cases.

The citrate of potash is valuable where the urine is too acid, while boric acid is of use to correct an alkaline urine.

There is some advantage in reversing the chemical reaction of the urine under which the organisms are flourishing, though not so great as one would have anticipated.

Cantharadin has been used by Freudenberg with the greatest benefit, in a series of 56 cases, curing 32 rapidly. The formula is Canth. (Merck), 0.001 in 1.0 alcohol, dissolved in 100 water. Take three or four times a day, teaspoonful doses.

I use also fluid extract of corn silk (*Zea mais*), in teaspoonful doses, with advantage in the amelioration of the symptoms.

Irrigations form, perhaps, the most important means of treatment at our command, and with irrigation it is well to combine distention of the bladder.

The simple daily cleansing of the bladder in this way is of

the utmost value, and many cases would recover rapidly, if only bland fluids were used.

The two most efficient drugs for this purpose are the nitrate of silver, 1:1500 to 1:500 or stronger, and mercuric sublimate, 1:1000.

As good a plan of administration as any is to connect a rubber tube with a funnel attachment to the catheter, and then slowly elevate the funnel two or three feet above the level of the pelvis. By the amount borne and the height, the progress of the more difficult cases towards recovery can be pretty well estimated. The quality of great importance here for both patient and practitioner is patience. It sometimes takes weeks or months to secure the first decided step in advance, with many apparent back-sets in the interim.

I must confess to you right here that in several of my cases, which we have worked over for one, or two, or even more years, securing a recovery in the end, I would never have had the courage to persevere had it not been for the unflagging interest and zeal of Miss Cook, my chief nurse, who has personally conducted almost all of the treatments.

Direct Topical Treatments.—When a cystitis is in the chronic stage, and is, furthermore, localized in a small area in the bladder, one, for example, which could be covered by the last joint of the thumb, direct topical treatments often hasten the improvement and even effect a cure. The bladder is emptied and the patient put in the knee-chest posture, then through an open cystoscope, using a head mirror or other suitable illumination, the patch of inflammation is exposed and treated just as a chronic sore throat is handled, making a direct strong application by means of an applicator and a pledget of cotton. Nitrate of silver is best here, too, used over a small area, as strong as 50 p.c. For larger areas use 10 or 5 p.c., taking care that there is no excess of the solution to run down over the sound mucosa. I also use freely a 50 p.c. solution of argyrol. Subsequent treatments must be milder, and at intervals of from three to seven days. A 1 and a 2 p.c. solution is often valuable in trigonal inflammation (trigonitis).

An admirable and effective combination is formed by associating occasional topical treatments with daily injections and distentions.

Surgical Treatment of Cystitis.—It is in the surgical treatment of cystitis that the greatest difference is found between our practice and that of our immediate predecessors, of even a decade ago. And it is here that I have some fresh additions to make, bringing some utterly rebellious cases entirely within the scope of successful treatment.

There are two kinds of vesical surgery, minor and major.

Minor cystic surgery consists in the use of a sharp or serrated curette, or a wire brush, or a bunch of fine wire needles. I expected great help from these instruments when I began to use them, but I must confess to disappointment in the issue. The tissue removed is of value in differentiating a tubercular bladder, but I cannot see that the recovery is hastened, while harm may be done, as Sampson has shown, if the ureteral orifices are injured, by favoring an ascending infection.

Major Surgery.—When I receive a case of intense vesical inflammation, where all local treatments, even the mildest, are impossible on account of the pain produced, I, without loss of time, resort to major surgery, and propose at the outset to put the bladder at rest by making the Parker-Emmet incision, in order to secure good continuous drainage. I do this in a few seconds, often by putting the patient in the knee-chest posture and letting air into the bladder through the urethra; then lifting up the perineum the anterior vaginal wall is exposed and lifted a little on a pair of curved artery forceps, introduced through the urethra and slightly opened. A knife is plunged through the septum at this point, and the opening enlarged fore and aft until it is at least an inch long. I wipe out the bladder thoroughly with dry gauze, and sew the vesical mucosa to the vaginal at about six points, to prevent too rapid closure of the wound. All this takes about the same time to do as it does to describe the operation.

Such an opening ought to be left, as a rule, for from three to six months. The bladder and vagina should be irrigated every day either *per urethram*, if not too sensitive, or *per vaginam*. A continuous daily hot water bath, as recommended by Hunner, leaving the patient immersed for hours, is a most valuable adjuvant in the worst cases. In due time the bladder will be found to have cleared up, perhaps wholly, when the fistula is closed and the patient discharged. On the other hand, many cases clear up only to a certain point and go no further, and of these I wish to speak somewhat particularly, for this is that large residual group of our worst cases of cystitis, generally looked upon as hopeless.

Let me briefly outline the treatment of such a case. In the first place, given one of these intensely inflamed old cases of cystitis in a patient worn out with vigils and suffering, mild courses of treatment are worse than useless, serving only to increase the distress. To avoid discouragement, tell the patient, who has suffered for years, that she must be content to give a few months or, perhaps, a year or more to getting well. Then begin by opening and draining the bladder, then when you find the organ cleared up to one spot, you may try for a few weeks to heal

that by direct applications of nitrate of silver or argyrol, and in this you may succeed. If you fail and there is a tendency to relapse, make a suprapubic opening and cut out a crescentic piece, including the entire thickness of the bladder wall, and sew it up with catgut sutures on the inside and fine silk on the outer surface.

If you have to open the peritoneal cavity, and the bladder is a foul one, you can sequestrate the entire vesical region by suturing the round ligaments and the uterus to the abdominal wall from side to side, converting the peritoneal cavity behind the symphysis into a closed pouch, which is then drained over the symphysis. In a bad case which I treated in this way and had to open later for an ovarian trouble, there was no trace of the pouch left.

I have not found great help from the making of a small suprapubic opening in association with a vaginal opening for through and through drainage. If, however, worst comes to worst, I would make a big suprapubic opening, partially detach the recti, and put the patient in the hot tub for as many hours daily as she could stand.

Let me illustrate the group of difficult cases by giving you a brief outline history of seven of my patients. In two the disease was tuberculous, in the others the organism was a colon bacillus.

CASE 1.—Mrs. R., aged 55, came to me in October, 1899, with a chronic cystitis, which had persisted for fourteen years in spite of being several times "cured." I found the entire vesical mucosa covered with scattered foci of ulceration pouring out a curdy pus. The urine was alkaline, containing a short organism, probably the bacillus colon.

She received under my care the following treatments: A borax and soda solution by irrigations, applications of the nitrate of silver (2 to 4 p.c.), insufflations of boric acid powder against the diseased vesical wall, formalin irrigations (1:15000 to 1:2000), irrigations of silver nitrate from $\frac{1}{2}$ to 1 p.c. strength.

Under these treatments there was a steady improvement, the organisms decreased, and the capacity of the bladder increased from 60 to 280 c.c. She was cured in forty-one days. I tested the efficiency of the treatment by making cultures on several successive occasions and noting that there was no growth. So since this cure there has been no relapse.

CASE 2.—Miss J. MacD., aged 33, came to me in 1899 suffering from frequent urinations with a slight pyuria and hematuria.

Examinations showed an area of intense cystitis at the vesical vertex; as she had suffered for four years I proceeded at once to surgery and opened the abdomen, excising an ulcerated area of

the bladder at the vertex $3 \times 2\frac{1}{2} \times 1\frac{1}{2}$ cm. in size. This was closed without drainage, using sixteen catgut sutures in the first, and ten in the second layer. She recovered at once and has been in the best of health ever since.

The pathological examination of the greatly hypertrophied bladder wall showed granulation tissue and inflammatory infiltration.

CASE 3.—Miss J. R., aged 29, came to me in March, 1900. She had been suffering with her bladder for five years. It is probable that the frightful cystitis from which she suffered was induced by catheterization in a hyperacid bladder in a nervous woman. She was in a wretched mental state from the suffering night and day, emptying her bladder every few minutes.

The urine was full of pus and contained blood; cultures showed that the infectious organism was the colon bacillus.

Cystoscopically, the bladder was of an intense angry red color, with extensive areas of ulceration; there was not even a small area of sound tissue seen at any point. She simply screamed whenever she was touched.

She was about three years under treatment, and her recovery is largely due to the untiring efforts of my chief nurse.

The following treatments were used:

1. Curettage and the use of the wire brush over the whole inner surface of the bladder, followed by a 10 p.c. solution of silver nitrate.

2. Fourteen days later another curettage.

3. Ten days later I was able to catheterize the left kidney and demonstrate a left pyonephrosis, which was opened and drained. At the same time a suprapubic cystotomy was done to facilitate irrigating the sensitive bladder. I left a mushroom catheter in the kidney wound and a ureteral catheter in the ureter, to facilitate washing out the kidney.

4. Dilatation of the renal and suprapubic openings.

5. Left nephrectomy (intracapsular enucleation) by morcellation. Closure of the suprapubic opening.

6. Plastic operation narrowing the urethra, which had been over-stretched before she came to me.

7. Plastic operation repeated.

The bladder was so small when I began to treat her that she could not hold as much as 10 c.c. of fluid, and even under extreme anesthesia she strained and forced the fluid out if more was thrown in.

During all the time of the above treatments she received 135 irrigations of either boric acid or nitrate silver with boric acid.

Under this regimen the bladder recovered its capacity and

normal appearance. To-day she is in perfect health and suffers no pain. The only remaining discomfort is that she urinates often, and this I have been unable to overcome, although I can now put 400 c.c. into her bladder.

CASE 4.—Miss C. P., aged 52, came to me in October, 1902. I saw her first in bed, a hopeless invalid, in intense pain, with spasmodic exacerbations day and night. I never saw a sadder picture. She lay moaning like a suffering animal in a constant state of apprehension of pain, and screamed when the vagina was touched, even for the purpose of making the gentlest examination. The entire bladder was the seat of intense inflammation and ulcerations from the vertex to the left ureter. Its capacity was two-thirds of an ounce (20 c.c.).

She has made a perfect recovery and has remained well, under the following treatments:

1. October, 1902, a vesico-vaginal fistula was made for drainage.

2. November, 1902, a suprapubic fistula was made to wash through and through; at the same time I enlarged the vesico-vaginal fistula. A plastic operation was necessary to open the vulvar orifice, which acted like a sphincter, retaining the foul urine in the vagina and bladder.

3. January, 1903, dilatation of suprapubic fistula with Hegar's dilators and introduction of a self-retaining catheter.

4. February, 1903, left nephroureterectomy, removing a tubercular kidney and ureter.

5. April, 1903, closure of the vesico-vaginal fistula.

Irrigations of a half-saturated solution of boric acid were given from one to six hours daily, amounting in all to 1,000 hours of treatment.

The result has been an absolute recovery, and she is now stout, robust and able to attend to all her household duties in town and country.

CASE 5.—Miss L. M., aged 24, came to me in January, 1900. She had had a vesico-vaginal fistula made to drain an intensely inflamed bladder three years before.

After trying various palliative measures, I opened the bladder above the pubis and trimmed off numerous granulations from the posterior vesical wall and then drained the bladder with iodoform gauze.

In November, 1902, I excised the entire diseased area, including all the bladder wall, removing a triangular area from the vertex to the base of the bladder 1 cm. in thickness, and closing the opening with interrupted catgut sutures tied within the bladder. This is the case in which the whole bladder area was excluded from the peritoneal cavity by sewing the round liga-

ments and fundus of the uterus to the anterior abdominal wall. (See *Johns Hopkins Bulletin*, 1903, p. 96.)

All of the disease was not removed at this time, and I had subsequently, on account of repeated hemorrhages, to open the bladder again (November, 1903), and excise three pieces, one in front, one at the vertex, and one at the posterior wall.

The wounds were again closed with interrupted catgut sutures tied on the inside of the bladder. It was wonderful to see how little traces were left of the sequestration operation; there were only a few adhesions between the bladder and the tubes and ovaries.

Remarkable features in this case were, first, the fact that giant cells were found in the tissues excised, when we had been utterly unable to discover any tubercle bacilli in curettages or in the urine, examined repeatedly over periods of months' duration; second, that the disease was primary, as far as the urinary organs were concerned. In the bladder, there was no renal disease.

CASE 7.—Mrs. H. M., aged 34, came to me in May, 1901. She was an utter wreck from nine years of suffering, extremely emaciated, and abandoned to die of an advanced tuberculosis of both kidneys and bladder. The bladder was ulcerated from vertex to urethral orifice and there was not a sound spot to be seen.

I began, May 4th, by draining the bladder by the vagina and giving rest from the constant suffering.

May 18th, a left nephrotomy was done.

June 15th, left nephrectomy and a ureterectomy as far as the pelvic brim.

October 14th, closure of the vesico-vaginal fistula.

October 22nd, 1902, extirpation of the lower end of the ureter.

February 24th, 1903, suprapubic resection of the bladder, taking away about one-half of the bladder, including the left ureteral orifice.

April 9th, 1903, closure of the vesico-vaginal fistula.

With these surgical measures were associated irrigation and distention treatments, as well as topical treatments with silver nitrate.

From holding nothing at all, the bladder has increased to an almost normal capacity in spite of the extensive resection: in October, 1903, it held 225 c.c.

She is now practically a well woman, stout, hearty and attending to all manner of household and social duties.

I trust, in conclusion, gentlemen, that I have demonstrated that, granted the important elements, skill and patience, practically all cases of cystitis, even the worst, can be cured.

The first important step is to make a correct diagnosis, so as to treat as a cystitis a case of irritable bladder.

The next step is to determine the grade of the disease and the character of the infection, and, most important, to differentiate tuberculosis.

Again, the kidney must be borne in mind as a possible source of reinfection in cases very slow to clear up.

After a thorough study of the field begin an aggressive campaign on the lines indicated, well-defined and progressive until the patient is cured.

THE TREATMENT OF SOME FORMS OF EMBRYONIC GROWTHS BY ELECTROLYSIS.

BY CHARLES R. DICKSON, M.D., TORONTO,

Electrologist to Toronto General Hospital, Hospital for Sick Children, St. Michael's Hospital; Fellow and ex-President of American Electro-Therapeutic Association.

THE growths to be considered in this brief paper are some of those "congenital, circumscribed, cutaneous anomalies" termed nevi, and more particularly nevus pigmentosus and nevus vasculosus.

In nevus pigmentosus or pigmentary mole the hypertrophy may be confined to an excessive circumscribed deposit of pigment in the skin, or one or more of the constituent elements of the skin may be involved as well. Moles may be of any shade of color from light fawn to jet black, and from a pin head to a fetal head in size—the smaller the size the more regular the outline of the mole, as a rule; they may be single or multiple, covering the surface of the body with hundreds of spots in reported cases. There are several varieties of moles; for example, nevus spilus, of smooth surface, slightly elevated above or level with the surrounding skin; nevus verrucosus, of rough, uneven and warty surface; nevus lipomatodes, thick, soft, connective-tissue growths, usually subcutaneous; nevus pilosus, covered more or less with hair.

In nevus vasculosus, or nevus flammeus, the blood vessels of the skin and subcutaneous tissue are the elements involved. The capillary form is the one most frequently met with, the venous least so. Vascular nevi may be of any color from the faintest blush to the deepest purple, fading temporarily under pressure, and vary from the size of a pin point to the extent of an extremity, or even half of the body; they may appear as a mere stain, as punctate spots, as a tortuous vessel barely below the surface, or as small or large tumors. Hutchison reports a case of a child which had over one hundred vascular nevi, all distinct and superficial. Varieties of vascular nevi are nevus simplex and angioma cavernosum. Nevus vasculosus simplex or simple angioma is known to the laity as "port wine stain," "strawberry mark," "mother's mark" and occurs in smooth, flat, non-elevated or very slightly raised, well-defined or faint patches. Angioma cavernosum, tumour erectile or cavernous nevus is met with as a prominent, turgescient, erectile or even pulsating, tumor-like growth, enlarging during crying or other emotional disturbance. The classification is that of Van Harlingen.

Primarily nevi are benign growths and frequently give rise to no inconvenience or may disappear spontaneously, but such is not

* Macleod.

always the case. Thus the pigmentary form when irritated by friction of the clothing, or otherwise, may become inflamed or ulcerated, or alarming hemorrhage may occur from them, or they may undergo cystic or colloid degeneration, or may become sarcomatous, or even carcinomatous. Vascular nevi may enlarge to such an extent as to endanger surrounding tissue or organs, causing deformity, if not actual destruction; they are subject to ulcerative or suppurative changes, may bleed profusely on slight provocation, may undergo cystic or other degeneration, or develop into malignant growths. Thrombosis may also occur.

For these reasons, apart from the cosmetic standpoint, no nevus, however apparently insignificant, should be considered as being beneath our attention. All new-born infants should be carefully examined at or within a few days of birth, and at frequent intervals thereafter, for nevi frequently escape detection during the early months of life. Should any nevus or suspicious spot be discovered on the skin it should be examined from time to time, and if it shows no signs of disappearing by involution by the third month, it is advisable that means be taken at once to check or remove the growth.

Examples are met with all too frequently which bear out this contention for early operation in cases of nevus. A case very much to the point was recently seen: A child, five years of age, had a cavernous angioma involving almost the entire extent of each buttock and extending beneath the surface to the depth of about two and a half inches in each, with a very offensive purulent discharge from the ulcerated surfaces, and a history of several alarming hemorrhages; the right buttock considerably larger than the left, and hanging an inch and a half lower than it was when the child was erect; the inguinal glands on each side enlarged, and many evidences that the angioma had become sarcomatous. A spot "like a splash of red paint" had been noticed upon each buttock about ten days after birth, but the mother had been told that it was "only a birth mark" and would disappear of itself.

The majority of the various forms of nevus are amenable to treatment by means of electrolysis, and when properly employed in suitable cases this method is preferable to any other; but, as has been well said by Hayes,* "in no other operation do experience and judgment play a more important part than in electrolysis of nevi." Electrolysis affords better results with less scar than any other method at present known.

An early resort to electrolysis is preferable for many reasons; the case is more amenable to treatment then than when the tissues are more matured, the operation is shorter, repetition is less

* International System of Electro-Therapeutics.

necessary, more tissue may be saved, sloughing and resultant disfiguring cicatrices are less liable to occur, for the resistance of the tissues being lower, a lower voltage will suffice, and should a scar result it is more likely to disappear as the child grows.

Catarrhal conditions of mucous membranes, eruptions, or an irritable condition of the skin contra-indicate operation, and if present must receive attention before operation as they retard healing, and may set up and prolong suppuration. The better the health of the child the more successful the result. Apart from this nothing is to be gained and much lost by deferring operation beyond the third month of life.

Unless in the case of adults, general anesthesia is imperative. A sudden movement might start a troublesome hemorrhage, crying might have the same result, and it is very desirable that the patient be perfectly quiescent until not only is the operation complete, but also all dressings in place as well.

No hard and fast rules can be laid down as to technique, but in general terms it may be said that when the removal of redundant tissue is aimed at, the positive pole is the one we employ in the growth, both for its direct destructive action and for the production of an artificial thrombosis by coagulation. Where we desire to promote absorption, or to block up capillary vessels by bubbles of hydrogen, thereby causing atrophy, or where a scar is particularly to be avoided the negative pole is attached to our active electrode.

The monopolar method is usually preferable with platinum-iridium needles for positive pole puncture, gold needles for negative pole puncture, and for the indifferent electrode the perforated brass plaque or brass wire gauze, faced with absorbent felt (piano-maker's) and backed with rubber sheeting. The gold needles are convenient in that they may be bent to desired curves very readily. Zinc needles amalgamated with mercury are sometimes of service as positive active electrodes, especially in cavernous angiomas. Collodion affords an excellent extemporaneous insulation for all needles to prevent electrolytic action at the surface of the skin.

The indifferent electrode is generally placed at the shoulders, a convenient size being 4 1-2 by 7 inches.

In dealing with nevus pigmentosus, if hairs are present they must first be removed by electrolysis in the usual manner before the nevus proper is attacked, else they may grow up through the cicatrix. The active electrode is attached to the negative pole. In the smaller nevi the needle is introduced parallel with the surface, and as near it as possible, and just sufficient current used to blanch the part. This being accomplished, the needle is withdrawn and reinserted in different portions until the whole nevus

has been blanched. In some cases it is possible to attack all portions through the one external opening, especially if the needle be curved; a smaller cicatrix will be the result. It will not be necessary to cut the current down at each withdrawal of the needle as your meter should show only from one to five m.a., but in dealing with the larger nevi where greater current strength is necessary it is advisable that no current be on either at introduction or withdrawal of needle, and all changes in current strength must be very gradual and not abrupt. In the larger nevi, and especially in the warty variety it may be necessary to employ sufficient current to mummify the growth, but caution must be exercised, lest a depressed cicatrix result from too great destruction of tissue.

The nevus vasculosus simplex will tax one's skill and patience as only a very limited portion should be treated at one time. The mark should be attacked from the edges, the multiple needle devices are undesirable, a single fine needle should be used connected with the negative pole, left in position no longer than absolutely necessary, and only current sufficient to blanch. The punctures may be closer together in such cases, but not so close as to coalesce. Where the nevus consists of small dilated vessels just below the surface it is often possible to tranfix the vessel and block it with bubbles of hydrogen, and so cut off the blood supply to the part; current just sufficient to do this is all that is required; several spots may be treated at the one operation. In angioma cavernosum either the monopolar method is employed with a platinum-iridium needle in the growth and attached to the positive pole, or an amalgamated zinc needle used in the same manner, or the bipolar method with both needles, positive and negative in the growth may be found preferable, especially where there is much hypertrophy. In the latter case the aim should be to insert the negative needle into or tranfix the supply vessel while the positive is in the redundant tissue. Greater current strength will be necessary in the case of cavernous nevus, but rarely should our meter register up to fifty m.a.

In no condition is the superiority of the electrolytic to other methods more forcibly demonstrated than in the treatment of cavernous angiomata of the orbit, eyelids, cheeks, nose or lips.

Hemorrhage is not usual after electrolysis; should it occur pressure will usually suffice to arrest it. After operation a flexile collodion dressing will usually be found the most convenient. A second operation when necessary should not be performed until healing of the preceding is complete.

The temptation is usually in the line of too vigorous attack, but with electrolysis a good motto is, "Better do too little and repeat than too much and repent."

192 Bloor Street West.

A CASE OF PRIMARY MUSCULO-SPIRAL PARALYSIS WITH NERVE SUTURE.*

BY WM. HESSERT, M.D.,

Professor of Surgery, Chicago Polyclinic; Attending Surgeon Cook County, St. Francis and Polyclinic Hospitals, Chicago.

Gentlemen,—The patient upon whom I shall operate to-day presents an unusually interesting condition. He is a painter, forty-five years old. His previous health has always been good. Six months ago he fell twelve feet from a scaffold and suffered a fracture of his left humerus. He was taken to one of our large hospitals and his arm was dressed in the usual manner. Now here comes an important point, which will be dwelt on later, viz.: The patient claims that immediately following the accident his left fore-arm was paralyzed to the extent that he could not extend the hand. After about six weeks his dressing was removed. Bony union had taken place, but he suffered great disability. His elbow was stiff, as was also the wrist joint, but more particularly did he notice an absolute inability to extend the left hand and fingers. In fact, he had very little motion in wrist or elbow at first.

I first saw him three months ago, which was three months after his injury. His condition at that time was as follows: The fracture was firmly united and the bones were in perfect relative position. At the junction of the lower and middle thirds of the left humerus a somewhat fusiform thickening could be felt corresponding with the seat of fracture. The elbow was freely movable.

I will say that the stiffness of elbow first complained of was the usual one following retention in splints. The left wrist seemed to be somewhat enlarged and free motion was somewhat restricted, especially complete extension. There was a typical wrist drop and much atrophy of the muscles above and below the elbow. There was an area of anesthesia of outer side of left fore-arm, involving the upper two-thirds. At that time, three months ago, a diagnosis of primary musculo-spiral paralysis following fracture of the humerus was made. The question arose as to treatment. Here was a case three months after injury, with absolutely no signs of any improvement. Was there any hope, after this lapse of time, of regeneration? What could be accomplished by operation?

At this point, I will refer to the causation of musculo-spiral paralysis after fracture of the humerus. The nerve as it passes down in the musculo-spiral groove is especially liable to be in-

* A Clinical lecture delivered at the Chicago Polyclinic, March 8, 1905.

volved in fractures located as in this case, namely, at the junction of the lower and middle thirds of the shaft, or in the middle third. These paralyzes are classed as primary and secondary. The primary are those in which, at the time of the accident, a complete interruption of continuity occurs. Either the nerve is completely cut across, or is so badly crushed that only the connective tissue is left at point of injury. The primary paralyzes are evident immediately after the accident.

The secondary paralyzes are such as become apparent about the time the dressings are removed, namely, after four or six weeks. How are they produced? They are explained on the basis of nerve pressure by callus and scar formation, stretching of the nerve over a sharp border of bone, partial laceration of the nerves by spiculæ of bone or possibly pressure on the nerve by one of the fragments.

You recall that the patient claims to have had the paralysis immediately after the injury. I therefore took it for granted that he had a "primary paralysis." If that be true, he probably had a serious nerve injury, or possibly complete division. Why? Because three months after injury his paralysis had not improved in the least, whereas, were it merely a contusion there would be, in all probability, some signs of repair after three months. Three months ago I advised an operation. He would not consent at that time. He was later advised by some excellent surgeons to wait. He did so, and I lost sight of him for a long time. He finally presented himself again, tired of waiting for improvement which did not begin, and ready now for an operation.

How long should one wait in these cases before resorting to operation? If the nerve involvement seems to be secondary, namely, appearing after four or six weeks—if there is only a paresis—if there soon develops evidence of improvement, then one should wait three months or more, as long as there is steady improvement. Don't operate while the condition is getting better.

However, if there is a primary paralysis, evident at the time of injury, which does not improve as weeks and months elapse, which after three months shows absolutely no sign of improvement from a complete paralysis—in such cases I would not advise waiting longer than three or four months (from the time of injury).

This case is one of the latter variety; in fact, it is a question whether the favorable time for operation has not been passed, it being now six months after the primary injury. He now displays a complete wrist drop—he has no extensor function of the forearm and fingers. There is considerable muscular atrophy. An area of anesthesia involves the outer aspect of forearm.

One of the essentials to the success of the operation is asepsis.

Even with a perfect technique, if this wound becomes infected the whole operation will be a failure and a future operation will offer very little hope. You realize the importance of this feature of asepsis as relating to this man. We hope to restore his arm to functional activity, and that means much to a laboring man. One misstep in cleanliness will jeopardize the success of the whole operation. We must be even more careful here than in an ordinary laparotomy; whatever infection gets into this wound is going to start trouble; there is no tolerant peritoneum to carry much of it away.

Operation.—A longitudinal incision is made three inches long at outer aspect of arm over the seat of fracture. The soft parts are separated along the inter-muscular septum and the bone is soon encountered, owing to the great atrophy of the soft parts. I will look for the distal end of the nerve first and trace it up to the callus. It is readily found and traced upwards until it reaches this point, where it seems to be firmly implanted in the callus. I will now chisel away the callus in the endeavor to follow the nerve up, and will try to preserve as much of it as possible. I find, however, on chiselling, that the nerve ends abruptly, just within the callus. I am now satisfied that the nerve has been completely severed, and we must look for the proximal end. We will start above and now work downwards towards the callus. It seems to have taken considerable more searching to find the upper end than the lower, but here we finally have it, and will follow it down. I am carefully dissecting it free from the normal groove and the surrounding tissues. One must be careful not to handle it roughly. Now we are arrived at the callus, and you will observe that the nerve enters a foramen in the callus, just like a nutrient artery. I will now chisel away the roof of this bony canal and see how far the nerve passes in. Great care is necessary, for if the chisel should slip I might sever the nerve, and we are anxious to preserve as much of it as possible. I have now uncovered about an inch of bony canal, and have arrived at a point where the nerve seems to terminate. The latter is not adherent to this canal, as you see I am able to carefully lift it from its bed with a probe. The end of the nerve tapers to a point.

Now that we have found the nerve to have been completely severed and have liberated its buried ends, what next? How far are the ends separated from one another? With the arm extended, the ends approximate within one-half inch, without being drawn together. On flexing arm to right angle, however, the ends can be made to touch without being held together.

However, in order to suture, we must resect the ends so as to obtain a fresh section for apposition. I will, therefore, remove

one-eighth of an inch from the distal end and one-quarter inch from the proximal, it being necessary to remove the tapering end. This trimming, of course, separates the ends somewhat more, but with the arm bent, you see they can be brought together without any tension. We will now suture the ends together, using two through and through fine catgut sutures and a fine round needle. We tie the sutures just tight enough to bring the cut sections together without tension or overlapping. You see that the approximation is nice and even. We will now have the constrictor removed and see if there is any bleeding. Some oozing occurs, which is controlled by pressure. The wound will be repaired by uniting the muscles with a few buried catgut sutures, and the skin with silkworm-gut. The arm will be immobilized and dressed at right angles. I wish to thank my friend, Dr. Hosmer, for his valuable assistance and advice during this operation.

Now, to recapitulate. It is evident that we were justified in advising an operation when the patient was first seen. There is no doubt that this is one of those rare cases of complete division of the nerve at the time of injury. The patient stated that he had the wrist drop immediately following the accident. After three months and after six months there was absolutely no sign of improvement, and from the condition we found there never would have been any, because the ends of the divided nerve were separated by at least a centimetre of callus. It has thus been shown that nerve suture was the only thing that could possibly have offered any hope of restored function.

How long should the arm be dressed in a flexed position? Theoretically, long enough for the divided end to have united by fibrous tissue and be capable of resisting slight traction. I would say about one month.

What have been the results following operative treatment of musculo-spiral paralysis? The results, as seen from published cases, have been generally good, and justify the operation in cases where there is no improvement after a reasonable time, or in cases which are getting worse, as regards paralysis, instead of better.

How long does it take for function to be restored? In those cases where healing has been perfect, we may look for signs of improvement after a few months, but it may take six months, or longer, before much function is regained.

Post-Operative History.—The wound healed by primary union, without any reaction or swelling. Sutures removed at end of one week. The arm was dressed flexed at a right angle for four weeks and then gradually allowed to resume its extended position and slight motion allowed. Massage was also employed. Two months after the operation there seemed to be some slight restoration of motion.

The Canadian Journal of Medicine and Surgery

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NO. 2.

Editorials.

THE DIATHESIS OF AUTO-INFECTION.

In an article entitled "The Diathesis of Auto-Infection," A. Gilbert, Professor of Therapeutics in the Paris Faculty of Medicine, discusses the important question of auto-infection. He shows the great number of microbes which inhabit the small intestines, stomach and colon. Though less infected than the

small intestine, the colon contains so many microbes that the number eliminated with the feces every day amounts to twelve or fifteen billions (a billion, according to the French and American method of numeration, being a thousand millions). Infection of digestive origin is not limited to the intestinal canal, properly so called; it extends to the little channels which open into its cavity. Thus Steno's duct is invaded from end to end by the microbes of the mouth. All the extra hepatic biliary passages, the hepatic and cystic ducts, the gall-bladder and ductus choledochus are inhabited by duodenal microbes.

The exit of the pancreatic duct is similarly deflowered. The appendix vermiformis is tenanted by the microbes of the cecum. In these different conduits multiple species of microbes are present at the same time. The aerobic ones do not last very long; the anaerobic microbes, on the contrary, penetrate deeply, and are the only ones discovered at a great depth. The innumerable germs which inhabit the digestive tube and the canals which open into it, are a double source of danger to the health and life of man through the poisons which they elaborate (auto-intoxication), and the infections which they are ever ready to cause.

Professor Gilbert next discusses the question of auto-infection. We shall not follow him entirely in his learned *exposé* of the question, but shall content ourselves with a presentation of the chief points of his argument.

He premises by stating that no one can tell in what the diathesis of auto-infection consists, any more than one can say in what the predisposition to infection by an exogenous microbe, the bacillus tuberculosis, consists. It is certain, however, that a predisposition to family and hereditary complaints exists, and that, outside of this influence, we can find no cause sufficient to explain the genesis of primary auto-infections.

Referring to the appendix vermiformis, he says that the close relation existing between the appendix and the peritoneum gives special importance to the cavity of the appendix. As a habitation for microbes and a factor in the production of peritonitis, it bears an analogy to the Fallopian tube; unlike it, however, it is a channel without a gland, and may be obliterated without serious consequences to the owner.

The list of disorders and morbid conditions attached to the

diathesis of auto-infection, directly or indirectly, is long: mucomembranous enteritis, appendicitis, hyperpeptic gastritis, diabetes mellitus, diseases of the biliary organs, hereditary jaundice, biliary lithiasis, biliary cirrhosis, acute and chronic jaundice, biliary flux, etc., gout and uric acid lithiasis, neurasthenia, melancholy, hypochondria, hysteria, asthma, megrim, hemorrhoids, ulcer of the stomach, splenomegaly, epistaxis of adolescence, hemorrhages and hemophilia, continued and intermittent albuminuria, melanoderma, xanthoma, vascular nevi (capillary and arterial), prurigo and urticaria, stomatitis, angina, articular rheumatism and acute and chronic muscular rheumatism.

He is careful to say, however, that the diathesis of auto-infection is not the only cause capable of producing these pathological conditions and morbid troubles. Thus, appendicitis may be of tubercular origin; diabetic sclerosis of the pancreas may be of tubercular or syphilitic origin; biliary lithiasis, biliary cirrhosis, catarrhal jaundice may be started by the exogenous bacillus of Eberth; gout may arise from lead poisoning; multiple intoxications, acting on a predisposed soil, may provoke hysteria; asthma may be of uremic origin; nephritis and albuminuria have most complex origins, etc. What he does hold to is, that primary auto-infection plays a considerable, and often a preponderating, part in the production of the conditions and disorders in question. In every case it is not easy to affirm it; but, if a disorder is of spontaneous origin and hereditary, while the other possible causes are wanting, he feels justified in ascribing it to auto-infection.

Of all the diseases mentioned, appendicitis most undoubtedly springs from auto-infection. The microbes met with in this disease are just the same as those which reside normally in the appendicular canal. Professor Gilbert says: "Nothing is easier than the experimental realization of appendicitis by utilizing one of the normal hosts of the appendix, viz., the bacillus coli, on condition that the organ has been previously subjected to a preparatory treatment which favors infection."

The auto-infectious origin of biliary lithiasis is equally well established. From a study of biliary calculi taken from seventy patients who had gall-stone disease, Gilbert has shown that in over a third of the cases the calculi contained micro-organisms in

their centres, dead when the concretions were old, living when they were recent. Moreover, the germs found in the calculi were those which normally inhabit the bile. The study of bovine lithiasis has furnished identical conclusions. Co-operating with Fournier the author has reproduced the disease in bovines, that is to say, by the injection of the bacillus coli into the gall-bladder of a bovine, he has succeeded in obtaining perfectly formed biliary calculi, thus establishing the auto-infectious nature of biliary lithiasis. Gilbert considers biliary calculi as an expression of a defensive reaction on the part of the economy, analogous to thrombosis, the object and effect of which are the seizing and englobing of the pathogenic agent.

Gilbert claims to have proved the *direct* pathogenic action of digestive germs in the causation of biliary lithiasis, biliary cirrhosis, sclerous angiopancreatitis and appendicitis. To this list should be added, he thinks, most probably, muco-membranous enteritis, acute or chronic jaundice, hereditary cholemia, reactive biliary fluxes, stomatitis, anginas, and acute articular rheumatism. Other pathological conditions flow *indirectly* from the action of the same germs. Thus hemorrhoids, ulcer of the stomach and splenomegaly are consequences of portal hypertension; gout, diabetes, albuminuria, hemorrhages, prurigo, urticaria, nervous disorders, neurasthenia, melancholia, hysteria, asthma, megrim are connected with functional hepato-pancreatic disorders, with jaundice or other form of intoxication.

Although the pathological physiology of these diseases is obscure, Professor Gilbert is confident that the different diseases which he traces to primary auto-infection present a close relationship, and that they form a natural family.

He thinks the arguments in favor of the existence of an auto-infectious family of diseases are just as strong as those adduced in favor of the existence of an arthritic, a bradytrophic or a herpetic family of diseases. The links uniting the different members of this immense family are more or less close or loose, according to the way one considers them; those which exist between the different diseases of the biliary passages are particularly close, and for this reason it is necessary to reserve a special place for the biliary family in the auto-infectious family of diseases.

The diathesis of auto-infection often exerts its effects broadly, in different members of the same family, or united in one member of a family we see a regular sequel of conditions or pathological disorders produced, which prove to be a simultaneous attack on the walls of the digestive tube and its different annex 'canaliculi. Muco-membranous enteritis, appendicitis, hyperpeptic gastritis, biliary lithiasis, diabetes, etc., succeed each other and evolve on the same family soil or in an individual who inherits that soil.

In other instances it appears that the diathesis of auto-infection tends to localize its effects, so much so that in certain families the appendix, or the pancreas, or the tonsil appears to be particularly vulnerable. In papers published in collaboration with Lereboulet, Gilbert has particularly insisted on the hereditary origin of biliary diseases, which recognize as anatomopathological basis, angiocholecystitis, and as pathogenic starting point, auto-infection; that is to say, the biliary diathesis and the biliary soil. Gilbert says, that this narrowing of the diathesis of auto-infection may be more apparent than real. He has examined the biliary and pancreatic passages of patients, who perished after operations for appendicitis, and has found inflammatory lesions in evolution, sometimes complication with sclerosis and sometimes not. Inversely in patients attacked by angiocholitis he has proved the existence of angiopancreatitis and appendicitis. These facts, he says, "should be compared with observations by himself and Lereboulet concerning a patient attacked by hereditary cholera, who succumbed to an attack of acute rheumatism at twenty-seven years of age. The observers found at the post-mortem lesions of chronic angiocholitis, with, at certain points, complete obliteration of the biliary passages; the pancreatic passages presented at the same time inflammatory lesions, and there existed also a peri-acinose, pancreatic cirrhosis; finally a hypertrophic, follicular appendicitis completed the picture."

Looked at from the standpoint of pure histology, such *microbic polycanaliculites* are capable of menacing life immediately, if the peritoneum should become interested, or capable of sapping the powers of life slowly, by the toxic infection which they cause, as well as by the perturbation which they produce in the functions of the two most important glands in the economy.

CASUALTY STATISTICS OF THE CANADIAN STEAM RAILWAYS.*

In the January number of this journal the casualty statistics of the United States for the year ended June 30, 1903, and the year ended June 30, 1904, were discussed. In the present article similar statistics, relative to Canadian steam railways, and covering the same periods of time, are presented.

STATISTICS OF DEATHS AND INJURIES CAUSED BY STEAM RAILWAYS IN CANADA FOR THE YEAR ENDED JUNE 30, 1903, AND THE YEAR ENDED JUNE 30, 1904.

	1903	1904	Increase per cent.
Passengers carried.....	22,148,742	23,640,765	+ 6.73
Number of employees....	?	?	+
Total deaths.....	420	395	- 6.32
Total non-fatal injuries..	1,453	1,405	- 3.41
Passengers killed.....	53	25	- 112.
Others killed.....	181	178	- 1.68
Employees killed.....	186	192	+ 3.22
Passengers injured.....	258	233	- 10.72
Others injured.....	250	259	+ 3.60
Employees injured.....	945	913	- 3.50

Passengers killed in 1903 to passengers carried as 1 to 417,900 ;
in 1904 as 1 to 945,630.

Passengers injured in 1903 to passengers carried as 1 to 85,847 ;
in 1904 as 1 to 101,462.

In reference to the first item in the table, number of passengers, it will be observed that the increase for 1904, viz., 6.73 per cent., is satisfactory. Opposite the second item, number of employees, a note of interrogation has been placed. This is intended as a question addressed to the statisticians of the Department of Railways, Ottawa, asking why they do not imitate the methods of the Interstate Commerce Commission, Washington, who in their annual reports give the number of the employees of the railways of the United States. The aggregate of deaths on Canadian railways for 1904, viz., 395, shows a decrease of 6.32 per cent, compared with the figures for 1903, and the aggregate non-fatal injuries, viz., 1,405, a decrease of 3.41 per cent. for the same period. The aggregate of passengers killed in 1904, viz., 25, shows a decrease below the figures for

* A copy of the Railway Statistics of the Dominion of Canada for the year ended June 30, 1903, and a copy of the Railway Statistics of the Dominion of Canada for the year ended June 30, 1904 were obligingly sent us by L. K. Jones, Secretary in the Department of Railways and Canals.

1903 of 112 per cent. There is also a decrease in the number of "Others" killed, amounting to 1.68 per cent. Equally favorable comment cannot be made on the fatal casualties among the employees, of whom 192 were killed, an increase of 3.22 per cent. over the figures for 1903.

Among passengers 233 persons received non-fatal injuries, a decrease of 10.72 per cent. from the figures of 1903. Among the class "Others" more were injured in 1904 than in 1903, the percentage of increase being small, viz., 3.60. Fewer employees were injured in 1904, the total number being 913, a decrease of 3.50 per cent.

These statistics of 1904 show an immense improvement over the figures of the preceding year. Only two unfavorable percentages can be noted, a small increase in the number of employees killed and a small increase in the number of "Others" injured. All the other casualties show decreased percentages. When this fact is considered, along with the associate fact that the Canadian railways did a larger passenger business in 1904 than in 1903, the very general decrease in fatal and non-fatal injuries reported as occurring in 1904 on these railways is very gratifying.

Among passengers, 8 deaths and 130 non-fatal injuries resulted from collisions. On the other hand, 7 deaths and 57 non-fatal injuries among them were caused by jumping on or off trains or engines when in motion; 5 were killed by walking, standing or lying on the track; 5 were killed and 17 injured by falling from cars or engines. It will thus be seen, that 32 per cent. of the deaths and 55 per cent. of the injuries which occurred among passengers on Canadian railways in 1904 were due to collisions—agencies over which passengers have no control.

Of the 192 deaths and 913 injuries occurring in 1904 among the employees of Canadian railways, 58 deaths and 132 non-fatal injuries resulted from collisions. On the other hand, 52 were killed and 67 injured by walking, standing, lying or being on the track; 33 deaths and 130 non-fatal injuries were caused by falling from cars or engines; 11 deaths and 164 non-fatal injuries by coupling cars; 7 deaths and 84 non-fatal injuries by jumping on or off trains or engines when in motion; 6 deaths and 30 non-fatal injuries by being struck by engines or cars at highway

crossings; 3 deaths and 50 injuries occurred when at work near the track. The responsibility for a collision may rest with the trainmen, who disobey orders, ignore or fail to see block signals, or it may be traced to the negligence or error of some other employee of a railway. No data are given, in the Canadian railway statistics, to enable the reader to fix the responsibility. A review of the other causes of death or injury among railway employees shows that most of them are inherent in the hazardous nature of their occupations. In most cases the railway companies are not responsible for death or injury caused to employees by falling from cars or engines. Occasionally the responsibility does rest with the railway company. Thus, we learn that a brakeman while working on a Canadian railway, fell from a freight car in front of a moving locomotive, thereby sustaining a fracture of a leg. This injury necessitated amputation of the injured leg, and owing to accumulated misfortune the poor fellow has become insane. This accident was primarily caused by the fact that one of the rungs of the ladder by which the brakeman descended from the roof of the freight car was rotten, tore away in his grasp and allowed him to fall on the track in front of a moving locomotive. Again, jumping on or off a train or engine may cause a death or injury for which the killed or injured employee is responsible; but, on the other hand, jumping off a train may be compulsory, as when it is done to escape a worse alternative, viz., collision, for which the trainman is not responsible.

The deaths of "Others" numbered 178, the injured of this class, 259. Of these 106 were killed and 93 injured when walking, standing, lying, or being on the track. The great majority of these were probably trespassers or wanderers. Nine deaths and 14 injuries occurring from collisions or by trains thrown from the track; 7 deaths and 30 injuries by jumping on or off trains in motion; 8 deaths and 14 injuries by falling from cars or engines were in the majority of instances referable to the same classes. On the other hand, 36 deaths and 20 injuries among "Others" caused by being struck by engines or cars, at highway crossings, probably, occurred among non-trespassers.

The following table compiled from data in the official reports exhibits some features of the relative proportions of the railways

of the United States and Canada for the year ended June 30, 1904, with the casualties for that year:

	Total Passengers	Total mileage includ- ing Sidings, Double Tracks, etc.	Total Passengers Killed	Total Passengers Injured
United States Railways.	715,419,684	297,073.34	441	9,111
Canadian Railways.....	23,640,765	23,701.00	25	233

Thus during 1904 the United States had 12.53 times as many miles of track, double track and siding as Canadian railways; 30.26 times as many passengers; caused 17.64 times as many deaths, and 39.10 times as many injuries to passengers as the Canadian railways.

J. J. C.

TO SUPPRESS SMALLPOX IN ONTARIO.

THAT smallpox will not spread among a vaccinated population may be regarded as a truism. Witness Germany, in which no epidemic of smallpox has occurred since 1871, when the disease was brought in by French prisoners, although a few scattered cases have appeared occasionally. That smallpox will spread rapidly among a population, many of whom have not been vaccinated, is equally true. Witness the frequent outbreaks of smallpox in Ontario.

The public vaccination Acts of Ontario and the smallpox regulations issued by the Provincial Board of Health are good on paper, but, practically, are inefficient. A health law which is not enforced should be repealed or amended.

We would suggest the following law respecting vaccination in Ontario:

(1) The parents or guardians of any infant born in any city, town, incorporated village, or township in Ontario shall, within four months after the birth of the child, procure the vaccination of the child by some legally qualified physician.

(a) This section shall apply to all children under the age of four months becoming resident in a municipality, and such children shall, for the purpose of the said section, be considered as children born in the municipality at the date that they become resident within it.

(2) Eight days after the child has been vaccinated its par-

ents or guardians shall procure from the vaccinator a certificate that the vaccination has been successful, or that it has failed to take.

(a) If the primary vaccination has failed to take, it shall be incumbent on the parents or guardians of the said child to present the child within three months to a legally qualified physician to be vaccinated.

(b) If, after a second or a third trial, the said child proves to be insusceptible to the vaccine disease, it shall be the duty of the vaccinator to issue to its parents or guardians a certificate stating the facts of the case.

(3) In all cases in which a certificate of such vaccination (successful or unsuccessful), is issued by a physician, he shall also send a duplicate copy of the same to the clerk of the city, town, incorporated village or township, in which the parents or guardians of the vaccinated child reside.

(4) It shall be the duty of the said clerk, on receipt of the said duplicate copy of a vaccination certificate, to record the name and address of the parents or guardians of the said child, and also the condition of the child as to vaccination.

(5) Any person residing in Ontario, who has reached the age of twenty-one years, whether previously vaccinated or not vaccinated, shall be vaccinated by a properly qualified physician.

(6) Eight days after vaccination he shall procure a certificate from the physician who vaccinated him, showing that the operation has been successful, or that it has been unsuccessful.

(7) It shall be the duty of any physician, practising in Ontario, who has vaccinated, successfully or unsuccessfully, any adult of twenty-one years of age or over that age, to send a duplicate copy of the certificate of vaccination to the clerk of the city, town, village or township in which the vaccinated person resides.

(8) It shall be the duty of the said clerk to record the name, address and condition as to vaccination of every adult person, the certificate of whose vaccination is sent him by the physician who has performed the operation.

(9) It shall also be the duty of every clerk of a city, town, incorporated village or township in Ontario to send, by registered letter, every year to the County Crown Attorney of the county in which he has jurisdiction, a report showing the names

and addresses and the conditions as to vaccination of all infants or adults residing in the municipality in which he has jurisdiction.

(10) It shall be the duty of the County Crown Attorney in every county in Ontario to take cognizance of all vaccination reports from the clerks of cities, towns, incorporated villages and townships in the county for which he has jurisdiction, and also to take action before the police magistrate or other magistrates of the municipality against delinquent parents or guardians of infants, or against adults, who have violated the requirements of this vaccination Act, a fine of not less than \$5 being imposed on conviction.

Speaking generally, in providing for the vaccination of the people of Ontario, the Act will very necessarily have to make it possible that the poor shall receive free vaccination at the cost either of the municipality or the State. This could be done, through the hospitals of the Province, by way of increasing their subsidy, or by the setting apart of a special vaccination station, the former being preferable in the cities and towns.

Again, the question of providing vaccine of a guaranteed purity by the State is a factor to be considered in the drawing up of the Act, for the State which compels vaccination should provide a guaranteed and standard article for the use of the medical profession, and in Ontario some provision could be made at the Agricultural College, Guelph, for the production of the article.

Some sanitarians prefer to have the secondary vaccination performed before the wage-earning period of life is reached, as objections are raised, by both employers and employees, to the performance of the operation, from the fact that there is a possibility of the employees having to give up work. The objection has some force; but, if vaccinating were to go on systematically as the period of majority is reached, a large number of persons would not require to be vaccinated at the same time, such as occurs when an outbreak of smallpox happens.

It has also been suggested that it should be obligatory on the local Board of Health to furnish the Crown Attorney with the necessary information, and that it should then be obligatory upon him to forthwith prosecute, and failing this, he should inform the provincial authorities of the negligence of the local board, and

he then should receive instructions from the central health authorities to make the necessary prosecutions.

Owing to the remissness of local boards of health in dealing with ordinary matters of hygiene, we think that the duty of reporting the condition of a municipality as to vaccination should be left in the hands of the municipal clerk. He should certainly receive fees for the additional work required of him. J. J. C.

BRITISH MEDICAL ASSOCIATION.

ON the afternoon of January 3rd, 1906, a large number of Toronto physicians availed themselves of the kindly invitation given by the president-elect of the British Medical Association, Dr. R. A. Reeve, to meet Prof. Wm. Osler at a five o'clock tea, in the Ontario Medical Library Building. At the request of the host, Prof. Osler made a few remarks anent the coming Toronto meeting of the British Medical Association, indicating that the main divisions of the work of the meeting would be under the heads of physiology, pathology and pharmacology, the place of honor being given to physiology.

Alluding to the financial obligations which would fall on the Toronto physicians, who would be called on to subscribe to a guarantee fund to support the meeting, he expressed the view that the younger men would, no doubt, wish to contribute, but would be unable to do so as freely as others, who were in the hey-day of practice and receiving large fees.

Referring to the social side of the meeting, he thought it would be *apropos*, if invitations to accept private hospitality (*viz.*, to stop at one's house) were sent directly by a lady and gentleman in Toronto to a lady and gentleman in London, or other part of the British Isles, rather than that the invitation should be sent through the Toronto local committee. In his opinion, it was likely that three or four hundred members, some of whom would be accompanied by ladies, would cross the ocean to attend the meeting. He thought that everything indicated, as far as one could judge in advance, that the coming Toronto meeting would be one of the most important in the annals of the British Medical Association.

J. J. C.

TORONTO'S NEW MORGUE.

For years, since the old morgue has been uninhabitable for either the living or the dead, Toronto has grown accustomed to seeing a weary coroner with his jury of "good men and true" wandering about, looking for rest for the soles of their feet. They knocked almost in vain even at the doors of the big City Hall. All dignity was left behind, and soon, except for the courtesy afforded them of an up-stairs room in "the nearest hostelry," or the same courtesy at the hands of an undertaking establishment, their sessions would have had to be held possibly on a street corner!!! And this is Toronto the Good, forsooth!! However, the tide has at last turned, and this state of affairs will soon be remedied. A suitable site has been purchased on Lombard Street, we understand, near the fire hall. Plans are being drawn by the city architect which promise a very fine morgue. Also, it is intended that suitable stabling accommodation will be provided there for the city ambulances and wagons for carrying the dead. The cost, it is estimated, will be \$20,000. But surely the Board of Control will not in this instance pursue a picayune policy. As we have waited for a number of years for a new morgue, rather than spoil a building which should be a credit to our city, it is better that even now there be sufficient delay to get out plans, on the completion of which there will be no cause for regret a few years hence. The city architect should consult the coroners of Toronto, and be prepared to take suggestions from them as to what will constitute a thoroughly equipped morgue, and suitable for a city of now over 300,000 people. The building must provide not only for two or three inquests to be conducted simultaneously, but of sufficient size to permit of coroners' private rooms and lavatories, more than one court room, two autopsy rooms, one or two identification rooms, and a thoroughly sanitary morgue room with slabs for not less than twelve bodies. The latter must have a most complete system of ventilation and drainage, spraying apparatus, hot and cold water, washrooms, cupboards for keeping aprons, rubber gloves, post-mortem operating cases, disinfecting solutions, etc. Particular attention should be given to facilities for the reception of corpses which are in an advanced

state of putrefaction, as frequently occurs when bodies are found in Toronto bay during the hot weather. They should be brought there in an air-tight, wooden shell, which on arrival would at once be submitted to a deodorizing process by, say, formalin gas, after which they would be placed in the identification room to await the autopsy, that room being kept at a sufficiently low temperature to prevent the condition of mortification going any further. Another suggestion would be that the coroners' rooms and court rooms be placed in, if possible, a separate wing, and away from the autopsy and identification rooms, the odor of which at the best may not be very agreeable. We look forward to the new morgue being similar to the one Paris used to boast of, but of course fully equipped with every new idea incorporated in the architectural and scientific arrangement, and suitable for Toronto's needs, no matter if the population were to double in number.

W. A. Y.

THE NEW "NERVOUS WARDS" AT TORONTO GENERAL HOSPITAL.

WE are pleased to notice that the work of transformation of Dr. O'Reilly's late residence at the General Hospital into nervous wards is being rapidly pushed forward. In this way a modest beginning will be made to a work which is already advanced in other countries, and will, it is hoped, lead to more extensive accommodation for the treatment of these cases when the plans for the new hospital are completed. To the trustees of the General Hospital belongs much credit for their generosity in providing the building, and their broadmindedness in establishing the first wards for the purpose in Canada. The liberality of the present Government in placing the necessary funds for the alterations at the disposal of the trustees is an evidence of the active interest taken by the Honorable the Provincial Secretary in all matters pertaining to the welfare and advancement of all branches of his department. The able assistance given by the profession of Toronto to this good work, as shown by the large deputation which waited on the Government in July last, in support of the suggestion of Dr. Campbell Meyers to introduce these wards into all general hospitals, has already borne excellent fruit. It is hoped

that in another month these wards will be thrown open to the poor, and that every facility will thus be offered to those who are unable to pay, to procure such treatment as can now be obtained only by those in better circumstances.

To the medical students the opening of these wards will be a great boon, as they will allow clinical instruction on this class of cases to be given in a manner which is at present impossible.

The Government, the Trustees of the Hospital, and also the profession are to be congratulated on the successful inauguration of this first step, the effects of which will continue to increase and multiply as long as the poor are with us. W. A. Y.

THE MEDICINAL VALUE OF SURROUNDINGS.

“All things in earth and air
“Bound were by magic spell
“Never to do him harm;—”

Music, “Heavenly Maid,” has charmed since the world began, but perhaps only during the last decade have her possibilities been realized in the world of medicine. In the United States it is a custom now in some of the asylums for the insane to have a band give matinee and evening performances twice a week, and many alienists agree that, especially in the case of nervous subjects, the effect of good music is very beneficial. Upon those mentally sound, but imprisoned in hospitals owing to bodily infirmities or as the result of severe surgical operations, “a low, sweet voice” in an attendant has a soothing tendency that to one in pain is a great comfort. A year ago, Dr. Allan Baines, in his address to the graduating nurses of the training school of the Toronto General Hospital, laid great emphasis upon the nurses using every means to cultivate well modulated voices, and to their paying particular attention to expression in reading aloud. Speaking of the average modern voice the *Queen* says: “At present the voice is relied upon to such an extent that gesture has become a lost art. The uplifted arm creates astonishment; nobody is startled by the uplifted voice. People go about speaking in tones that would be useful for warning ships on foggy nights; they discuss private matters in the tones adopted by some tropical

bird at the Zoological Gardens; they give details of their health in the manner of the lecturer at Colonel Cody's entertainments."

From the human or speaking voice to the voice divine uplifted in song is not a far cry. The voice perfectly attuned, expressing itself in song, preferably in a sweet ballad with hardly a minor note in it, is beyond a doubt commendable, soothing and elevating to all classes of patients, and was tried with wonderful success in our city during the Yuletide season. The profession at large have heard many expressions of gratefulness from the medical men attendant upon the several hospitals in Toronto, for the kindly thought that prompted four ladies, perfect in their art, to offer their services as a quartette and charm away a weary hour in melody divine. Each song as it floated out over the long wards brought healing in its wings. In this day when the putting up of medicine is almost as artistic as the arrangement of bonbons in a fancy box, the incense arising from the perfume of a flower and the therapeutic value of color have been recognized, perchance the medical men of to-morrow may see "the half that has never been told" in environment, and Belasco-like, add to their medical and surgical skill the wizard's touch of atmosphere.

W. A. Y.

THIS TIME A DOWIEITE.

AGAIN has come before the public the story of a life sacrificed by the absurd fanaticism of a member of a faith-healing cult. At the Whitby (Ont.) Assizes on January 9th, "for aiding, counseling and abetting one Marshall Harmon, of Victoria Corners, township of Brock, in neglect in securing medical assistance during his wife's illness, Eugene Brooks, of Toronto, a Dowieite leader, was sentenced by Judge McCrimmon to six months in the Central Prison with hard labor. Harmon's wife died last summer of acute dropsy after confinement. Harmon would not let the neighbors help her, but sent for High Apostle Brooks from Toronto. Brooks prayed for a while with the unfortunate woman, and was then driven to the station ten miles distant by Harmon, the woman being left alone in the meantime. While Harmon was absent Mrs. Harmon's brother and sister chanced to visit her. They at once sent for a doctor, but it was too late.

Harmon was sentenced to a year's imprisonment and when Brooks came up for sentence he admitted telling Harmon that if he depended on the arm of flesh the Almighty would not help him. Brooks delivered a half hour's address to the court. He was scathingly rebuked by the judge, who remarked that Brooks had retained a counsel in the flesh to defend him."

This judgment, meting out to the husband one year's imprisonment and to the one who aided and abetted his crime a six months' term, is interesting, as it is, we think, one of but six convictions as yet recorded under subsection 2, section 210 of the Criminal Code, as follows: "Everyone who is under a legal duty to provide necessaries for his wife, is criminally responsible for omitting without lawful excuse so to do, if the death of his wife is caused, or if her life is endangered, or her health is or is likely to be permanently injured by such omission." W. A. Y.

**"ONE OF THE MOST IMPORTANT CONVENTIONS EVER
ASSEMBLED IN TORONTO."**

THE following editorial, under the caption, "The British Medical Association," in the *Globe*, Toronto, so tersely and well expresses the sentiment regarding the approaching meeting of the British Medical Association, that we reprint it in full:

"During the third week of August this year will take place one of the most interesting and important conventions ever assembled in Toronto. The time-honored and far-famed 'British Medical Association' will hold here its next annual meeting. The society is nearly half a century old, and during that long interval it has met outside of the United Kingdom only once, namely, eight years ago in Montreal. Whatever the reasons that prompted it to accept an invitation to Toronto, nothing but good can be the outcome on either side of the Atlantic. Certainly the occasion will be one of deep and widespread interest in Canada.

"Much of the success of the coming convention depends on the number in attendance. The membership of the association is very large, probably not less than twenty thousand, but only a limited percentage of the members ever attend the annual gatherings at home, and the proportion will probably be no larger here,

unless special attractions are offered. These are easily within our power if there is intelligent co-operation between the Government of the Dominion, the Government of Ontario, and the Corporation of Toronto. Success implies both work and expenditure, and far too much of each for a few to assume the whole burden. There must be an effective organization of all available forces to secure a creditable result, but that result will be easily worth both the effort and the cost.

“One obvious advantage accruing to this country from such a meeting will be the stimulus it is certain to give to the healing art and to preventive medicine. A very prevalent impression to the contrary notwithstanding, medicine is one of the more progressive sciences. New theories suggest new remedies, and very wide publicity is through a numerous array of medical journals given to every interesting case of treatment. Medicine is in fact cosmopolitan, and therefore we may expect the discussion at the coming convention to be more than ordinarily helpful and suggestive. Of greater importance than even the cure of disease is its prevention, and the meeting cannot fail to aid effectively in the promotion of sanitary science, which has already done much, and will yet do more, to alleviate human misery by diffusing among the masses a trustworthy knowledge of the conditions that propagate disease.

“An advantage of a more tangible, if not more practical character, will be the incidental advertisement this country will receive as the result of the convention. The members of the association are men of scientific habit and trained intelligence. They are accustomed to observe closely and reason accurately. Most of those who come will see Canada for the first time, though for not a few of them this will no doubt be a second or a third visit. In any case they will find material progress on every hand, and a concomitant improvement in social and educational conditions. We are extending old lines of railway and constructing new ones rapidly but intelligently. Our towns and cities are growing in population, but are taking better care of those who live in them. In both the older and the newer provinces agricultural operations are becoming every year more varied and more successful. We are beginning to give very serious and general attention to the preservation and propagation of valuable forest

trees. Our mineral deposits are becoming yearly more extensively known and more thoroughly worked. This great industrial development is sure to impress men characterized by the aptitudes and attainments of the veteran and successful medical and surgical practitioners of Great Britain.

"To no other class of visitors may we look with more assured confidence for intelligent appreciation and favorable mention. Medical practitioners enjoy to an exceptional extent the confidence of the whole community in which they practice their profession. What they have to say on their return home of our resources, our climate, our prosperity, our enterprise, our culture, our domestic life, our public spirit, and our social conditions, will be generally believed, and it will be easily worth more for propagandist purposes than months of hard work by paid Government agents and pecuniarily interested railway and steamship bookers. The opportunity is one that we cannot afford to ignore or even depreciate."

EDITORIAL NOTES.

Killed at Football.—That more young men are not killed or injured when playing Rugby football appears to result from some happy chance, or else it may be due in part to the natural elasticity of youthful tissues. One who watches a number of young athletes tumbling over one another, sitting forcibly on one another and generally subjecting each other to very rough usage, may well wonder that so few cases of severe injury are reported after the games. The physical training received by the players may count for something, as a protective against injury. It may be also that the Rugby players do not try to hurt each other in the sport as boxers and wrestlers do, but strive to get possession of the ball, their muscular efforts being only indirectly spent on the bodies of their opponents. A good many minor injuries do occur, however, among football players, as doctors know, though the record rarely reaches the press. Occasionally a fatal injury is inflicted, as, for instance, the death of "Leo McNally, 24 years of age, who was injured in a game of football at Bridgeport, Conn., on Thanksgiving Day, and died December 7, 1905. McNally's back was broken in a mass play

and he became paralyzed from the waist down." In view of such severe injury and its fatal termination, favorable comment on the game is impossible. Rugby football is a brutal sport and should be denounced by physicians. Young men who go to college to become scholars and gentlemen should find some more elegant and less strenuous method of strengthening their physique than by engaging in uncouth struggles, which remind an on-looker of a "rough and tumble" fight at a lumbermen's dance. There is a tendency among all young animals to assault one another when they first meet. It is common in public schools and is rampant in colleges. At the University of Toronto the freshmen are "hustled" by the second year men and in more advanced years sporadic outbreaks of this anxiety to overthrow your neighbor are occasionally noted. Football teams from different colleges are not placed exactly in this situation, for they may have never met, until they join issue over the ball. However, the natural love of a struggle inherent in young men gains impetus, and mutual jealousy becomes inflamed to a high degree when rival football teams engage on the field of mimic war.

Deaths and Injuries Occurring on American Railways.—An editorial devoted to statistics of deaths and injuries occurring on the railways of the United States appeared in the January number of this journal. The large increase in casualties on these roads, during 1904, was thought to be due, in some instances to under-manning and overworking of the trainmen, or in other instances to an insufficient force of trackmen whose business it is to keep the road in good repair. This explanation throws the responsibility on the railway companies. It is only fair to add that railway casualties occur for which trainmen are directly responsible, because they first disobey orders, and then having caused the mischief try to shelter themselves behind some paltry excuse. Thus ten employees were killed and eleven train employees and eight passengers injured in the wreck of the "Overland Limited" on the Union Pacific Railway, five miles west of Rock Springs, Wyoming, December 7, 1905. The passenger train was run into head-on by a freight train. This freight train (an extra) was given an order before it left Rock Springs to meet four east-bound passenger trains, of which the "Over-

land Limited" was the last one at Ahsay, a siding five miles west of Rock Springs. The freight took the siding, waited until three trains had passed eastward, and then pulled out. When a mile and a half west of Ahsay it met the "Overland Limited." W. L. Park, General Superintendent of the Union Pacific Railway, stated that Conductor Roy Darrell and Engineer Brink of the freight train were responsible for the wreck, and that Conductor Darrell had admitted that he became confused as to the number of trains that had passed Ahsay. Possibly these employees and some of the crew may have slept at Ahsay, while the others may have been engaged in some absorbing pastime. To get over the tendency of overworked freight-train crews to go to sleep at sidings, it should be obligatory, under a heavy penalty, for the conductor to set a watch at a siding just as is done in military camps.

Temper Powders.—It is stated, in a London cable to the *New York Herald* that Sir Lauder Brunton recommends a powder of potassium bromide and other drugs for counteracting the effects of irritating occurrences or depressing news. The result of the treatment is thus described: "In place of being much worried and unable to turn attention to other things, a person feels as if he had slept over the bad news or worry, and is able to obtain relief by turning his attention to something else." It is also stated in the despatch that explosions of temper on the part of a member of the family, which may affect the health or happiness of the other members of the family, may be successfully treated by the administration of temper powders. This seems to be an easy way to prevent explosions of wrath, and may be tried as a temporary expedient, but is not radical enough. With all due submission to Sir Lauder Brunton, the best way to control bad temper, or preferably to prevent the temper from becoming bad in a considerable number of persons, is to prevent or relieve indigestion. Nervous exhaustion, overwork, pain are all well-known causes of outbreaks of temper. These latter causes are often so apparent, and the physical unfitness of the bad-tempered person so suggestive to those in his environment, that rest, good food, a glass of wine, or perhaps an opiate, are given with the happiest results. Explosions of bad temper in an arthritic

man often depend on another cause, and call for very different treatment. An arthritic man looks well, feels well, is an active worker, and consumes large quantities of meat; but at certain times, when he is beset with uric acid toxemia, gloom and despondence, seize him, or he gives way to unreasoning and un-called-for bursts of temper, and makes everyone in his immediate neighborhood uncomfortable. Instead of ordering temper powders for such a man, a physician should advise him to eat little or no meat, drink no wine, beer or liquor, eschew tea and coffee, and take muscular exercise regularly on an empty stomach. The patient may not bless the doctor at first; but, if he sticks to the anti-uric-acid regimen, he will recognize unmistakable signs of the soundness of the advice regarding abstention from certain foods and drinks—a sweeter temper, more complete self-control, even under trying circumstances, greater working power with less fret. His family and friends will recognize the change in the bad-tempered man, but will be loath to ascribe the happy result to the real cause, probably because the doctor's advice would go against the grain, if given to themselves. There are other forms of bad temper, for which moral treatment is necessary.

Thiosinamine in Cicatricial Conditions.—This substance is chemically allyl-sulpho-carbamide ($C_4H_8N_2S$), and is made by heating together allyl mustard oil, absolute alcohol and solution of ammonia. It was first brought into notice in 1893 by Dr. Hans von Hebra, who used it hypodermically for lupus. F. Juliusberg, who used it with good results in lupus and in scleroderma, said that it sometimes produced malaise, fever, or a morbilliform eruption of the skin accompanied by itching. Lengeman (*Deut. Med. Woch.*, No. 13, 1904) reports two cases of palmar contraction which have been cured by it. In a third case of contraction of a finger of ten years' standing, a course of forty injections, combined with baths, massage and passive movements, resulted in great improvement. Hartz (*Deut. Med. Woch.*, Feb. 18, 1904) has noted an extraordinary action of this preparation in a case of fibrous stricture of the pylorus, with secondary dilatation of the stomach and motor insufficiency. Ernst (*Centr. f. Chir.*, April 9, 1904) observed a favorable influence on lympho-sarcomatous growths. These had occurred in the neck, and after removal had

grown again, and the scars became keloid. Thiosinamine was used hypodermically in 10 per cent. strength at first in doses of 1 c.c., every second day rising to 2 and finally 3 c.c. The injections caused rapid disappearance, not only of the keloid formation, but also of the sarcomatous growths. After twenty-four injections the growths on one side of the neck had entirely disappeared, while elsewhere they had shrunk to three-quarters of their original size. Baumstark (*Berl. Klin. Woch.*, June 13, 1904) saw no good effect in five cases of carcinoma of the gastrointestinal tract. Similarly in seven cases of benign stricture the results by hypodermic treatment with thiosinamine were almost negative. The method employed by most writers is hypodermic injection of a 10 or 15 per cent. solution, the amount used being $\frac{1}{2}$ to 1 c.c. twice a week, when a 15 per cent. solution is used. When a 10 per cent. strength is used, it may be injected at first in doses of 1 c.c., every second day rising to 2 and finally 3 c.c. A solution of thiosinamine in glycerine and water is preferred to an alcoholic solution, the injection of which is painful. The 10 per cent. formula used by Klemperer is: Thiosinamine, 10 parts; glycerine, 20 parts; distilled water, 70 parts.

Massage of the Nerves.—Whatever the theory of the relief afforded in nerve pains by massage may be, it is generally recognized that the skillful application of a human hand is a fine agent for the relief of painful conditions of the nerves. Cornelius says on this subject, in *Therap. Monatsh.*, May, 1905, p. 227, that nervous influence circulates in the body along a closed circuit; that only at certain nodal points of the circuit can nervous impressions originate, which are thence transmitted to the circuit itself; and that a nervous impression once started from a nodal point always terminates in another nodal point. The nervous impression, which is first exciting and afterwards sedative in its effect, travels in the form of a wave. A mechanical action exercised at a painful point is capable of freeing it from pain for a certain time. Massage of the nerves by the finger is practised without the intervention of fatty bodies, so as not to blunt the tactile sensitiveness of the operator's finger. He seeks for all the nodal points of the painful area either by superficial or deep digital pressure. All these points, particularly the most sensi-

tive ones, are then massaged. At first the pain is increased by massage, but, afterwards, a progressive decrease of sensibility in the painful spot ensues. If some of the painful spots are not touched during the rubbing, they afterwards become more painful than they were before. It is to be noted that nervous impressions bear a relation to the tension of the general circuit, and this tension is under the influence of congenital and acquired factors. The exciting or sedative reactions produced by massage of the nerves are either cerebral or peripheral (sensory, motor, secretory, vasomotor). If the nodal points are situated at a depth so great that they cannot be reached by the finger, massage of the painful nerves is inefficacious; if the disease is too far advanced the reactions following massage become particularly intense. This form of massage requires much patience and practice, and should not be attempted except by physicians who make a specialty of it. Without neglecting general treatment massage of the nerves has been found useful in painful conditions of the nerves, arising from tuberculosis, diabetes, cancer, neurasthenia, hysteria; it is also said to be useful in sea-sickness.

Massage by the Blind.—It is said that the Japanese, who believe strongly in the beneficial effects of massage for the relief of painful affections, have for many generations employed the blind as masseurs. With proper instruction the blind become skilled in the art, their delicacy of touch rendering their ministrations pleasing to the afflicted. Their blindness may also be a recommendation to sensitive or susceptible patients. In St. Petersburg a regular course of two years' instruction in anatomy and physiology is given to blind pupils to fit them for this occupation, and it is said that much of the massage done in the Russian capital is in the hands of those thus trained. In Philadelphia there is a school for the training of the blind in massage. A training in massage might with advantage be given to some of the pupils of the Ontario Institute for the Blind at Belleville, Ont. Properly trained the pupils of this institute could render excellent service to the public, their art being exercised in the interests of medical science and in co-operation with the work of the medical practitioner.

J. J. C.

PERSONALS.

ERRATUM.—Page 41, footnote, January number. For “Surgeon-General Hyman,” M.H.S., Washington, D.C., read “Surgeon-General Wyman.”

DR. ROGERS, of Fergus, has sold his residence and practice to Dr. A. Groves, and will move to Asheville, North Carolina, where he accepts the position of medical superintendent of the Industrial School for Boys.

DR. LOUIS MERCK, member of the firm of E. Merck, Darmstadt, Germany, has had conferred upon him by the Grand Duke of Hesse, the honor of a life membership in the First Chamber of Deputies. This is quite a high distinction.

DR. GEORGE BADGEROW, who for years practiced at the corner of Adelaide and John Streets, in this city, and who has been taking a special course in England for three years past, returned to Toronto about a month ago, and intends to settle again in this city.

A MOST DESIRABLE HOUSE FOR A PHYSICIAN.—Any physician desiring to procure one of the handsomest houses in Toronto can do so on the first of next month. It is situated on the south side of College Street, within a block of where the new General Hospital is to be erected. The house is new from top to bottom, having just been rebuilt. It contains fifteen rooms and two bathrooms, hot water heating, electric lighting and gas, brick mantels, concrete cellar, butler's and kitchen pantry, magnificent billiard room, square hall, in fact everything that goes to make up an absolutely modern dwelling. *The rooms on the ground floor are laid out specially for a physician.* Full particulars can be obtained at 145 College Street, any time before ten o'clock in the morning.

News of the Month.

GOVERNMENT OF NEW HOSPITAL.

EXCELLENT progress was made at the meeting of the committee having in hand the framing of a constitution for the proposed new Toronto General Hospital held in the reception-room of the Parliament Buildings on January 10th. The committee, which includes, of course, the trustees of the present hospital, well represents all the interests concerned—the donors, the university, the city, the Government, and the medical profession. The new constitution, in the shape of a draft bill, submitted by a sub-committee, of which Mr. M. J. Haney, one of the hospital trustees, is chairman, was adopted, with an amendment increasing the Board of Trustees from a proposed strength of twenty-one to twenty-five, of which number five, instead of the three proposed, will be appointed by the Toronto City Council. The recommendation of the sub-committee, that the site of the new hospital should be on College Street, with a frontage from the Hospital for Sick Children to University Avenue, and extending south to Hayter and Christopher Streets, was approved.

The meeting did not, however, favor the committee's recommendation that Messrs. Sproat & Rolph be chosen as architects of the new hospital, with Mr. S. G. Currie as associate architect. This was opposed by Aldermen McGhie and Noble, who favored the offering of substantial prizes to be awarded to architects submitting in open competition plans selected by experts appointed by the committee as being the best. Messrs. J. M. Lyle, W. Ford Howland, and J. P. Hynes, local architects, on behalf of the profession also urged this plan. Finally the matter was referred back to the sub-committee, which will report at another meeting to be held in the near future.

The longest debate was on the question of the strength of and representation on the Board of Trustees. The draft bill provided for six trustees to be appointed by the Government, five by the university, three by the city of Toronto, and seven by the subscribers. Aldermen Harrison, Noble, and McGhie, supported by Mayor Coatsworth, strongly contended for increased representation for the city, the three former holding that the representation of the university might be cut

down to enable that to be done. Mr. J. W. Flavelle, in reply to various criticisms and questions, said it was desirable that the Government should continue to hold the control of the hospital, which originated and had remained as a Crown trust, although the Government had never interfered in its affairs, except to aid it, and he did not think it would interfere in the future, save in an acceptable manner. The vindication of the Government in granting aid to the project was in the hospital's connection, through the university, with the educational work of the province. The Government's control would be obtained by its own representation and that of the university.

Mr. E. B. Osler, M.P., did not think it was a wise thing that the Government should control. While he had every confidence in the present Government, the feeling of the people was that the less the Government had to do with these things the better. The tendency of men who had wealth was not to give it to institutions under political management. Mr. Byron E. Walker held that a new era had dawned for the hospital and the university. When men in Toronto had concluded the constructive periods of their fortunes they would be found to be giving to those institutions as freely as wealthy Montreal men were now giving to McGill University. Mr. Fred. Nicholls, Mr. Cameron, Dr. McPhedran, Dean Reeve of the Medical Faculty, and Dr. John Hoskin supported Government control on the basis of the bill. The educational features of the new hospital and its benefits thereby to the whole province were emphasized by all.

Hon. Mr. Hanna expressed as his personal view the opinion that it would be unfortunate if the present balance was not maintained. Outside of the city it was the educational feature of the project that appealed most strongly for support, and that made it easier for the Government to do what it was doing, and what it was right for it to do.

Finally it was agreed to amend the measure to provide that the Trustee Board should be composed of seven appointed by the subscribers, five by the city, five by the university, and eight by the Government.

The other clauses of the bill, which have been foreshadowed previously, were passed with but little discussion. They provide, among other less important things, that the Trustee Board is to be invested with the powers held by the present board in respect to holding lands, building, etc., and receiving the same or other gifts to the hospital or for its benefit from individuals or corporations; that no real estate or interest vested in the trustees and used for hospital purposes shall be expropriated by municipalities, corporations or persons without the consent of the trustees.

They are also empowered by the proposed Act to sell, mortgage

or lease land and premises invested in them, including the present General Hospital and land. Powers of expropriation are conferred on the trustees, as are also borrowing powers by the issue of debentures, such issues to be first approved by the Government. A section or wing of the new hospital is to be devoted to the purpose and maintained as a lying-in hospital to be known as "The Burnside Lying-in Hospital."

Everyone who up to the passing of the Act subscribes \$500 and after the passing everyone who subscribes \$1,000 to the hospital shall be called a "benefactor" and have his or her name inscribed on tablets at the principal entrance hall. Benefactors shall also be visitors of the hospital.

Only medical students of the University of Toronto shall be allowed in attendance upon the wards, these visits to be under regulations framed by the trustees.

The last clause reads: "The hospital shall be the Provincial hospital."

Until the new trustees are elected the present board, consisting of Messrs. J. W. Flavelle, M. J. Haney, P. C. Larkin, Cawthra Mulock, and the Mayor, will act.

PROPOSED NEW HOSPITAL ACT.

THE committee of the Toronto General Hospital have drawn up a document which they trust the Ontario Legislature will make the constitution of the Toronto General Hospital. The Act is not intended to create a new corporation, so that actions brought by or against the former trustees will still hold good.

There will be twenty-one persons "the Trustees of the Toronto General Hospital." Six of these will be appointed by the Lieutenant-Governor-in-Council, five by the University, and three by the city. The remaining seven will be chosen on the second Tuesday of every January by the subscribers and benefactors.* A subscription of \$100 or more entitles to a vote for one year. A gift of \$500 before the Act passes, or \$1,000 after, entitles the donor to vote each year and to have his name inscribed on a tablet in the hospital's front hall. Such benefactors shall also be visitors of the hospital.

Each year the Municipal Council appoint their three trustees. They hold office for the year.

The University appoints two to serve till January 31, 1908.

* Since the Act was drawn up appointing the representatives on the Trustee Board of the new Hospital, it has been agreed that the Board shall be composed in all of twenty-five members of which seven are to be appointed by the subscribers, five by the City, five by the University and eight by the Government.

two more to serve till January 31, 1909, while their fifth appointee holds his office till January 31, 1910. When vacancies occur, they are filled each January by trustees for three-year terms.

The six provincial representatives on the Board are appointed so that two go out each year in similar wise till January 31, 1910. Each January thereafter the vacancies are filled by men to serve three years.

The subscribers, that is, the people whose names are to be in the front hall, plus those who gave \$100 that year, elect their representatives to serve in the same dove-tail fashion.

Trustees are always eligible for re-appointment or re-election.

Members of the hospital staff are not eligible as trustees, and should a trustee become a member of the staff, he necessarily ceases to be a trustee.

Should vacancies occur at any time they are filled by the body whose representation is short.

At all meetings of the Board of Trustees nine shall form a quorum.

Six months after this proposed Act passes, and whenever a vacancy occurs in their representation on the Board of Trustees, the subscribers and benefactors receive ten days' notice from two Toronto dailies and then meet. The subscriptions are then scanned under the supervision of the solicitor of the trustees, after which those whose generosity entitles them to vote, do so either in person or by proxy. Whatever two residents of Ontario received the most votes shall be the trustees elected.

The powers of the trustees are fully laid out in clauses 10-14 of the proposed Act. They shall have, hold, possess and enjoy all the rights, powers and privileges they now have, hold, possess and enjoy. That means that they continue to hold all land and premises they now hold, and that they can still take any kind of gift from any one, alive or dead, and whether it be in land, in money, or in kind.

They can take land for hospital purposes without license of mortmain, and no municipality or corporation can expropriate this land without their consent.

The trustees can sell or mortgage any land they now hold.

The present General Hospital site they may sell on such terms as the majority deem best, or they may lease it for any period of time up to twenty-one years, with right of further renewals forever. But those lands which are charged with certain debentures shall remain subject to such charge until the same are paid.

The trustees have the right to expropriate for their purposes all necessary lands and buildings, making compensation to the owners and occupiers. Sections 437 to 467 of the Consolidated

Municipal Act, 1903, define *mutatis mutandis* the power of the trustees in this connection.

The trustees are authorized to borrow and issue debentures for the raising of loans at such interest as they deem expedient. No debenture is to be issued for longer than forty years.

All issue of debentures must be approved by the Lieutenant-Governor-in-Council. Debentures may be secured by mortgages on hospital real estate.

The trustees can sue in any court and may distrain for rents that are in arrears, and for interest upon any mortgage they hold. No action brought by the trustees in respect of any right of the trustees shall be barred by any statute respecting limitation of actions.

The trustees may invest in good securities surplus hospital money, and, in a word, control the financial affairs, all the property, real and personal, of the corporation.

If the trustees decide to abandon the present site and build elsewhere, they must also build on the same site a new "Burnside Lying-in Hospital," in conformity with the existing terms. A wing or section of the new building would do.

All official documents must be sealed and signed by the chairman or other authority and countersigned by the secretary. The signatures of chairman and secretary or their representatives will appear on all cheques.

The trustees appoint and remove the secretary, the treasurer, the medical and other superintendents, and all other officers and servants of the hospital. They fix, too, the numbers and salaries of the staff.

Medical students of the University of Toronto may, upon payment of the fee, visit the wards of the hospital. Other medical students have no right there.

Patients, if they pay for all their maintenance, may employ their own doctor, subject to the regulations of the trustees.

Accommodation will be made for patients sent into the hospital on the order of the city upon payment of such rates as may be agreed upon from time to time.

The present staff continues as it is till altered by the trustees.

Whenever the Lieut.-Governor-in-Council requires, the trustees must put in their accounts to show the state of the fund and endowment of the hospital.

Besides drawing up this bill to present at the next session of the legislature, the committee recommended Messrs. Sproat and Rolph as architects, with Mr. S. G. Curry as associate.

The site recommended for the new building will be disclosed at the full meeting of the committee.

**TECHNIQUE TO BE OBSERVED IN THE OPERATING ROOM
OF THE TORONTO GENERAL HOSPITAL.**

BEARING in mind the use to which the amphitheatre is devoted, great care should be exercised to keep the floor and seats of that part occupied by the students as free from dust as possible.

Preparation of Arena for Operations.—The floor should be scrubbed at least once daily with soap and water, and afterwards thoroughly wet with a solution of bichloride of mercury, 1-2000. The walls, seats, fixtures and all movable apparatus should be scrubbed once a day, and afterwards washed with bichloride solution, 1-2000. The operating table should be thoroughly wetted with carbolic solution, 1-20, immediately before each operation. If the table has been used for a septic case, it should have a thorough scrubbing and douching with soap and water followed by bichloride solution immediately after the operation.

Dress of Surgeons.—The operating surgeon and all assistants should be clothed in sterilized gowns with sleeves long enough to be overlapped by the gloves, and with caps provided with visors to cover the nose and mouth. Each surgeon may, and assistants shall wear rubber gloves, and care should be taken that these gloves are free from holes.

Dress of Onlookers.—All onlookers on the floor of the operating room in important operations should be clothed in gowns and caps with visors. No such onlookers are, however, to be admitted except by consent of the operating surgeon.

Dress of Nurses.—Similar to that of operating surgeons and assistants except that the cap should be of folded gauze, large enough to cover the hair. The gowns, caps and gloves of all surgeons and nurses should be put on by a nurse (sterilized) detailed for this work. This nurse should take pains to avoid touching any part of the clothing of those whom she is dressing, and, in case of such accident, she should frequently rinse her own hands in bichloride solution, 1-2000. She should not assist in this work after putting on her gloves preparatory to handling the sponges.

Sterilization.—All linen, gowns, caps, towels and dressings should be sterilized by steam at a pressure of 15 lbs. for at least half an hour.

In the case of prepared dressings, such as iodoform gauze, double cyanide gauze, or other manufactured gauzes, the receptacles containing such should be sponged off with bichloride solution, 1-2000, before being opened, and should be handled by sterilized hands and instruments, such as forceps for removing the gauze.

Tubes of sterilized catgut, silkworm gut, horse hair and silver wire should be kept completely covered in a carbolic solution, 1-20 (this solution should be changed once a week), and removed therefrom before the operation to sterilized water or an antiseptic solution. Silk or celluloid sutures or ligatures should be boiled for half an hour on first preparation, and afterwards be stored in ac. carbolic, 1-20, or in alcohol.

Rubber tubing for drainage purposes should be washed with green soap and water—where possible, inside as well as outside—then rinsed in sterilized water and afterwards scrubbed with ether, then boiled for half an hour and kept covered with carbolic acid, 1-20. This should be changed once a week.

The rubber tubing, nozzles, etc., for irrigating purposes should be kept in carbolic acid, 1-20, and after operations should be disconnected, washed and boiled.

Jars, funnels, basins and all receptacles should be thoroughly scrubbed with green soap solution or sapolio, then rinsed with sterilized water and boiled in the carbonate of soda solution.

The basins to be used in the operation should be carried in the basket covered by a towel to the operating room and placed in position by a nurse whose hands have been sterilized.

Instruments.—All scissors, scalpels and needles should be wiped with alcohol, then soaked for half an hour in carbolic solution, 1-20, and afterwards transferred to sterile water. All other instruments should be boiled in carbonate of soda solution for ten minutes immediately before the operation, and then transferred to sterilized water. To prevent discoloration of steel the instruments should not be immersed until the water is boiling.

Instruments in Emergency.—Should any instrument, not previously prepared, be called for during the progress of an operation, it should be entirely immersed in pure carbolic acid for two minutes, then seized in a pair of sterile forceps and vigorously rinsed for a moment in sterilized water before being handed to the surgeon.

List of Instruments.—A record of the number of forceps, scissors and needles used in each abdominal or thoracic operation should be kept, and the number accounted for before the wound is closed, the house surgeon in charge of the instruments being held responsible.

Care of Instruments after Operation.—(a) After clean cases, all instruments, including scalpels, scissors and needles, should be washed and scrubbed with a brush in warm (not hot) soap suds, then transferred to hot sterilized water for a few moments. This water should then be poured off and the instruments very carefully dried while still hot. (b) After septic cases, all instruments, including scalpels, scissors and needles, should be scrubbed

and washed as above, then boiled for five minutes, and afterwards dried as above.

Gloves.—(a) Before operation—Gloves should be wrapped in a towel and boiled for five minutes, totally submerged, and then placed in sterilized water or antiseptic solution. (b) After operation—Gloves should be thoroughly washed in green soap and water, then turned inside out and thoroughly washed again. While in the solution each glove should then be very carefully examined for holes and rents, and, if any be found, such gloves should be set aside for repairs. If they have been used for septic cases they must be boiled after being scrubbed. They should then be stored in bichloride solution, 1-2000 or dried and powdered.

Repair of Gloves.—The part around the hole should be wiped with gasoline or benzine, slightly roughened with fine sand-paper or emery-cloth, then smeared with rubber cement which should be allowed to become almost dry. The patch to be applied should be prepared in the same way, and when the two surfaces are nearly dry they should be pressed firmly together. The patches should be placed upon the inside of the glove. It should be recognized that the damaged glove is a menace, because not only may septic matter be pumped into the surgeon's fingers, but macerated epithelium and germs may be pumped out from the skin of the surgeon to the wound of the patient through a very small opening.

Extra Gloves.—There should be on hand, prepared, two or three pairs of extra gloves in case the operating surgeon or assistants should deem it advisable to change during the operation.

Cleansing of Hands.—The hands of all surgeons and nurses, and the forearms, including the elbows, should be thoroughly scrubbed with soap and water and a brush under running water for at least five minutes, then washed in alcohol (65 per cent.), and afterwards soaked in 1-40 carbolic, or 1-2000 bichloride solution for two minutes. After disinfection the hands should never be dried on a towel, nor allowed to dry in the air.

Gauze Sponges, Wires and Pads.—These should be of various sizes adapted to the needs of various operations. They should be made of gauze of good quality, so prepared that there are no loose edges upon the surface. They should be sterilized by steam under pressure, as above described, and should be rinsed out of sterilized water or antiseptic solution.

In quite clean cases they may be rinsed out of sterilized water and used over and over again during the operation, but in septic cases, or when contaminated with feces, urine, mucus, etc., they should be discarded after being used once.

In abdominal operations all gauze sponges should be pro-

vided with tapes, and should be carefully counted before operation and accounted for before operation is finished. A number of very large gauze sponges, say 1 foot wide by 2 feet 6 inches long, should be constantly on hand in case of abdominal operations in which large masses of viscera are necessarily exposed, as in operations for intestinal obstruction.

Sea Sponges.—Sea sponges after preparation should be kept in 1-20 carbolic acid. When required for use they should be removed from this solution to sterilized water or antiseptic solution. Sea sponges should be on hand in every operation about the mouth or throat, and in other operations when preferred by the operating surgeon.

Stock Solutions.—There should be kept on hand in very large bottles solutions of the following: Acid carbolic, 1-20; acid boracic, 1-20; hydrarg. bichloride, 1-500 and 1-1000; sterilized normal saline solution (double strength); rectified spirits; ether; turpentine; gasoline in pint bottles. In making up solutions from these stock mixtures great care should be taken that these solutions are of the designated strength, and vessels of known size should be used in compounding the solution, or the basins should be graduated by easily observed lines indicating quarts.

Spare Basins.—There should be available for the use of the surgeon during an operation (a) a basin of carbolic acid solution, 1-40, or bichloride solution, 1-2000, according to individual preference; (b) a basin of sterilized water, or normal saline solution. A similar arrangement of basins should be available for the nurses.

Number of Surgeons and Assistants.—In all major operations there should be, in addition to the operating surgeon, a first, second, and third assistant, and at operations of unusual magnitude, such as amputation at the hip joint, a fourth assistant will be required. For minor operations two assistants only may be required.

Number of Nurses.—The operating-room nurse should be sterilized, and have general supervision over all her assistants, and the general conduct of the operation and operating-room. She should not merely superintend, but be prepared to lend a hand where her judgment shows that she may be useful. For major operations she should have three assistants. The nurse who is to hand sponges may assist without gloves in preparing the operating-room and dressing the surgeons and nurses before the operation commences, but after she takes charge of the sponges and towels she should not be required to do anything else, and should take the utmost pains to prevent the accidental infection of her hands or the sponges, towels and dressings in her charge.

In case of any such accident she should rinse her gloved hand thoroughly in 1-2000 bichloride solution.

Care of Patient after Operation.—After the completion of the operation the responsibility for the proper care of the patient rests upon the senior house-surgeon, who should either accompany him to the ward himself, or instruct a competent junior to do so.

It is the duty also of the house-surgeon, on the return of patient to the ward, to acquaint the nurse in charge of the patient with the character of the operation which has just been performed, and with instructions as to the after treatment, and any emergencies which may arise owing to the peculiar nature of the operation.

Preparation of Area of Operation while Patient is in the Ward.—With regard to the area to be prepared, it is difficult to lay down any definite rules; but the general principle may be indicated by saying that, for example, when the operation is upon the trunk of the body, such as in kidney cases, an area extending at least 15 inches in all directions from the actual seat of operation should be prepared. Where possible, the preparation should be commenced the day before the operation and should be carried out as follows:

(1) The whole area should be shaved. (2) The part should be thoroughly wetted and rubbed gently for about one minute with turpentine. In case of mechanics with very much soiled and greasy hands, gasoline is an excellent solvent, and should be used before the turpentine is applied. (3) Thoroughly scrub the whole area with a soft nail brush, using soap and acid carbolie solution, 1-40. (4) Apply a wet dressing of bichloride solution, 1-2000 over night. (5) Next day, two hours before operation, repeat the wetting with turpentine. (6) Repeat scrubbing with soap and acid carbolie solution, 1-40. (7) Apply a layer of gauze, thoroughly wetted with bichloride, 1-2000, and bandage in position until the time of operation. (8) When the patient is on the table and everything ready for the operation, this gauze should be removed and the whole area thoroughly swabbed with 65 per cent. alcohol. In case of emergency operations this method of disinfection should be carried out as thoroughly as possible, using gasoline instead of turpentine, after the anesthetic is administered. The preparation should be conducted by either a competent nurse or the house surgeon.

Special Technique in Septic Cases with Pus.—Where it is known that pus will flow as the result of the operation, the surgeons and nurses should join their efforts to confine the pus and the septic products of the operation to the smallest possible area. The operating table should be entirely overlaid with rubber

sheeting covered with sterilized towels or sheets. Vessels should be provided and put into position to catch the pus as soon as it flows. Large loose tampons should also be used to mop up any escaping pus, and a receptacle for these should be provided immediately at hand, so that the pus is not passed across the operating table or to the nurses' table. These tampons and all infected sponges and gauze should of course afterwards be destroyed.

Recognizing the almost insuperable difficulties of disinfection after contact with virulent septic products, the utmost care should be observed by house surgeons and nurses not to become infected with such toxic matter. Forceps may often be used to handle infected sponges.

After such operations, any utensils or instruments known to have come in contact with the pus should be carefully kept from contact with uninfected utensils and instruments during the process of cleaning up.

ITEMS OF INTEREST.

New Hospital Staff.—The members of the "outgoing" staff of the Toronto General Hospital were tendered, on January 4th, a banquet at the King Edward Hotel by the remaining members of the staff. The members of the "outgoing" staff are Dr. Hendry, Dr. Caulfield, Dr. Embree, Dr. Hair, Dr. Greenway, Dr. Sutton and Dr. Fawn. The "remaining" staff is composed of Dr. Caulfield, Dr. McNally, Dr. Adams, Dr. Burson, Dr. Burr, Dr. Davies, Dr. Biddy. Dr. Hendry, senior house surgeon of the outgoing staff, presided. For the usual six months' term the following have been appointed to the staff of the Toronto General Hospital: In Surgery—Dr. T. D. Archer, Campbellford; Dr. J. H. Soady, Toronto, and Dr. J. H. Kidd, Peterboro'. In Medicine—Dr. K. H. VanNorman, Toronto; Dr. F. W. Rolph, Markham, and Dr. F. J. Buller, Toronto.

A Most Generous Donation to the New General Hospital.—The Medical Faculty of the University of Toronto announced three weeks ago their donation of the splendid sum of no less than \$50,000 towards the new hospital scheme in this city. With their usual modesty no names were mentioned or publicity given as to who the active participants in the magnificent contribution were; but we learn that it was all subscribed in about half an hour at a meeting called for the purpose. We congratulate the Faculty upon their action, and feel that their generosity will be doubly appreciated owing to its being so spontaneous, proving at the same time their keen sympathy with the object in view.

This amount is entirely separate from the subscription given by the University itself. At the date of writing, but \$400,000 more is required before the entire amount necessary to build the new hospital is subscribed in full.

The Ontario Medical Association.—The attention of the profession throughout the province is called to the annual meeting of the Ontario Medical Association for 1906, under the presidency of Dr. George A. Bingham, of Toronto, and with Drs. D. J. Gibb Wishart and H. J. Hamilton, as chairmen, respectively, of the Committees on Papers and Business and of Arrangements. By vote of the members at the last meeting, that of this year will take the form of a business session to precede the meeting of the British Medical Association, which will begin August 21st. Consequently our provincial meeting will be convened Monday evening, August the 20th at eight o'clock. We will thus avoid conflicting with the necessary sessions of the Canadian Medical Association, and the members will arrive none too early to participate in the Imperial meeting of the next day. Members are particularly requested to remember this announcement. Notification of the various committees will be made at the accustomed date.—CHAS. P. LUSK, *General Secretary.*

An Hygienic Institute for London, Ontario.—If an hygienic institute is to be established by the Ontario Government, London wants it, and a deputation of most prominent residents of the Forest City were introduced to Premier Whitney and the Cabinet on January 18th by Hon. Adam Beck. The deputation arrived the night previous, and most of its members registered at the Queen's. It included Mayor J. C. Judd, ex-Mayor Dr. J. D. Wilson, ex-Mayor Campbell, Dr. W. F. Roome, ex-M.P.; Ald. John Forestal, Ald. William Geary, Ald. R. F. Matthews, Arthur White, president London Board of Trade; Samuel Sreaton, chairman of the hospital trust; J. Mattinson, hospital trust; Dr. W. J. Stevenson, Dr. F. P. Drake, Dr. Moorehouse, Dr. English, Dr. Waugh, Dr. McCallum, Dr. MacArthur, Dr. Graham and several others. Hon. Mr. Whitney met the deputation at 11 o'clock. It was urged that London has not in the past been treated over-generously with public institutions. The hygienic institute is counted on to cost some \$75,000, and be for subjects of higher education, bacteriology, pathology, modern researches. Its students would be from all over the Province, it was claimed. So far there is no such institution as the one proposed in Canada, but there are several in Germany and Austria. The late Government rather turned the proposal down, but the present administration has already expressed favor of the idea, and the gentlemen from London went away sanguine that their city will get the new institution if the Government gives it to any place.

The Physician's Library.

BOOK REVIEWS.

A Text-Book of Physiological Chemistry. For Students of Medicine. By JOHN H. LONG, M.S., Sc.D., Professor of Chemistry in Northwestern University Medical School, Chicago. Illustrated. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1905. \$2.50 net.

This is a neat, handy book. It presents the important principles of physiological chemistry in a form suitable for medical students. The usual topics are considered in detail, and the various facts and theories are briefly stated and explained.

In addition to the usual subjects contained in such works, the author gives an outline of the chemical phases of the recent theories of immunity, and a short explanation of the important applications of the methods of cryoscopy and electrical conductivity and other physical processes, in the field of chemistry related to medicine.

A. E.

Practical Sanitary Science. A Hand-book for the Public Health Laboratory. By DAVID SOMERVILLE, B.A., M.D., D.P.H. (Camb.), M.R.C.P. (Lond.), Lecturer in Public Health, King's College, London; Late Demonstrator of Physiology in the Medical School of St. Thomas' Hospital. London: Bailliere, Tindall and Cox, 8 Henrietta Street, Covent Garden. 1906. (All rights reserved.)

"Practical Sanitary Science" deals with the subjects—chemical, physical, etc.—discussed at practical examinations in Sanitary Science, and contains a brief summary of the course of practical lecture demonstrations given to the D. P. H. class at King's College, London. The matters discussed are: Water, sewage, soils, air, milk, butter, meat, cheese, disinfectants, cereals, alcohol, preserved foods.

The standard solutions referred to in the book with some notes on the reactions of the more commonly occurring metals and acids are set out in the appendix. The author's views on disinfectants (chapter xxii., p. 186) are interesting. He writes: "A particular dilution of the disinfectant is made in distilled water, and to 5 c.c. of this five drops of a twenty-four hours' culture of the

organism in broth at 37 deg. C. are added. The mixture is shaken and subcultures made into broth every two and a half minutes up to fifteen minutes. These are incubated for forty-eight hours at 37 deg. C. Four different solutions of the disinfectant and one standard control may be tested on the same culture, under strictly comparable conditions, allowing thirty seconds for the manipulations necessary for each act of medication, and the same time for the making of each subculture. The efficiency of the disinfectant is expressed in terms of phenol performing the same work. In other words, that dilution of the disinfectant which performs the same work as the phenol solution is divided by the latter and a ratio is obtained, which the authors call the carbolic acid co-efficient. The subjoined table represents the manner of expressing results:

Sample		Time culture exposed to action of disinfectants—Minutes.						Subcultures.	
		2½	5	7½	10	12½	15	Period of Incubation	Temperature
Cylli	1: 700	×	·	·	·	·	·	48 hours	37° C.
"	1: 900	×	·	·	·	·	·	"	"
"	1: 1100	×	×	×	·	·	·	"	"
"	1: 1300	×	×	×	·	·	·	"	"
Phenol	1: 100	×	×	×	×	·	·	"	"

$$\therefore \text{Carbolic Acid Co-efficient} \frac{1100}{100} = 11.0$$

It is a carefully written work and should be valuable to students and practitioners who wish to familiarize themselves with reliable methods of analyzing water, sewage, air and foods.

J. J. C.

The Physicians' Visiting List.—Lindsay and Blakiston's for 1906.

Fifty-fifth year of its publication. The dose-table herein has been revised in accordance with the new U. S. Pharmacopeia (1905). Philadelphia: P. Blakiston's Son & Co. (successors to Lindsay & Blakiston), 1012 Walnut Street. Sold by all booksellers.

This list has been before the profession every year for such a number of years, and is looked upon with such general favor, that it is difficult to find anything that one can say about it that has not already been said. It is perhaps as perfect as any pocket visiting list can be made. It contains besides a calendar for 1906 and 1907, a table of signs which, perhaps, now are more generally used than any other such; a table of incompatibles condensed from Potter's "Hand-book of Materia Medica, Pharmacy and Therapeutics"; a page on the immediate treatment of poisoning, arranged in a very convenient form; a description of the metric or French decimal system of weights and measures, and a table for converting apothecary's weights and measures into grams; a

dose-table arranged both in the mètric system and in the apothecary system; hints on the immediate treatment of asphyxia and apnea; a table on the comparison of thermometers from Gould's new medical dictionary, and the usual table for calculating the period of utero gestation. In the pages arranged for the visiting list proper the value of the week's work is arranged in a special column on every page; then comes a column for the ledger page, and afterwards a good wide space for special memoranda. This is an excessively convenient arrangement.

The end of the book is taken up with pages for memoranda, addresses of patients and nurses, and four pages for bills and accounts asked for. This, in our experience, would seem rather superfluous. However, there may be patients who ask for their account, but any practitioner having sufficient of these to fill up four pages must be unusually fortunate.

Vaccination engagements, obstetric engagements, with the record of births, and ending with a very nicely arranged little cash account, completes one of the neatest physicians' visiting lists that we have seen this year. No practitioner should be without this book.

A. J. J.

Man and His Poisons. A Practical Exposition of the Causes, Symptoms and Treatment of Self-poisoning. By ALBERT ABRAMS, A.M., M.D. (Heidelberg), F.R.M.S.; Consulting Physician Denver National Hospital for Consumptives, the Mount Zion and the French Hospitals, San Francisco; President of the Emanuel Sisterhood Polyclinic; formerly Professor of Pathology and Director of the Medical Clinic Cooper Medical College, San Francisco. Illustrated. New York: E. B. Treat & Company, 241-243 West 23rd Street. 1906.

Practicians of all kinds and schools, professional and non-professional, agree that the regular evacuation of the colon is a good method of preserving health. It also helps to cure many nervous and mental diseases, which are caused by intestinal self-poisoning. Better a clean colon than many temper powders.

Dr. Abrams presents in clear language the principles of auto-intoxication. His book should be read by well-fed or over-fed people. After conning Fletcher's attenuated menu, which costs 10 cents a day, one is reminded of the words of the gormandizing preacher, who was unable to deliver an advertised sermon, because he had eaten too much mince pie. When groaning with the pangs of indigestion a friend asked him if he was afraid to die, and he had the wit to reply, "Not afraid, but ashamed to die."

Dr. Abrams claims to have obtained good results from massage and the sinusoidal current of electricity in cases of intestinal

self-poisoning. He shows the good results of massage, faradization, hydrotherapeutic procedures and respiratory exercises in pendulous abdomen. It is a book suggestive of useful thoughts.

J. J. C.

Biographic Clinics. Vol. III. Essays Concerning the Influence of Visual Function, Pathologic and Physiologic, upon the Health of Patients. By GEORGE M. GOULD, M.D., Editor of "American Medicine," author of "An Illustrated Dictionary of Medicine, Biology, etc," "Borderland Studies," "The Meaning and Method of Life," etc. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1905.

Certainly the author lays sufficient stress on the profound influence of small errors of refraction upon the general health, and as a source of a large part of the ills which occupy physicians and delay social progress. Whether we can agree to the same extent or not, there can be no doubt but that there is much neglect in this direction, and this book cannot be too strongly recommended for medical perusal as one of engrossing interest to the progressive man.

The new ophthalmology and its relations to general medicine, biology and sociology, as demonstrated by Dr. Gould, will certainly prove an "eye-opener" for the average physician, and serve to awaken thought and investigation on a much neglected and very important subject.

Therapeutics: Its Principles and Practice. By HORATIO C. WOOD, M.D., LL.D., Professor of Materia Medica and Therapeutics in the University of Pennsylvania; Member of the National Academy of Science. Twelfth edition, thoroughly revised and adapted to the eighth (1905) edition of the United States Pharmacopeia by Horatio C. Wood and Horatio C. Wood, Jr., M.D., Demonstrator of Pharmacodynamics in the University of Pennsylvania. Philadelphia and London: J. B. Lippincott Company. 1905.

This twelfth edition of Woods' "Therapeutics," though delayed in consequence of the revision of the United States Pharmacopeia, brings to its readers the latest data on the subject. The frequent changes during the past few years in the therapeutic fashions have been regarded somewhat in the light of a reproach to the profession, but the modern pharmacist has industriously inculcated the doctrine that old medical clothes will not keep out the cold no matter how well they appear in the eyes of those who use them. The author of this work, by reason of his scientific attainments and his unquestioned mastery of his subject, has skilfully avoided the criticism of unduly accentuating the import-

ance of the new remedies on the one hand, and on the other of passing lightly over the therapeutic value of the old ones.

In Part I. the author reviews briefly but clearly such subjects as massage, the feeding of the sick and various foods, the treatment of neurasthenic conditions, the uses of heat and cold, and the appropriate application of electricity as a remedial measure.

In Part II. his sub-classification of nervines, cardiants, and nutrients into families or physiological groups enables the reader at once to estimate the comparative value and special application of each remedy composing the group.

A most interesting and useful index of diseases has been introduced, by means of which the remedies in common use in any given disease may be passed before the eye of the reader in a moment.

The paper, text and binding of the book are all of first quality, and combine to present the most absorbing facts in the most pleasing form.

N. H. B.

Operative Surgery. For Students and Practitioners. By JOHN J. McGRATH, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School; Surgeon to the Harlem, Post-Graduate, and Columbus Hospitals, New York. Second edition, thoroughly revised. With 265 illustrations, including many full-page plates in colors and half-tone. 628 royal octavo pages, extra cloth, \$4.50 net; half-morocco, \$5.50 net. Sold only by subscription. Philadelphia, Pa.: F. A. Davis Company, 1914-16 Cherry Street.

In this work we observe that the publishers are not merely up-to-date, but they are fully alive to the advantage of having a 1906 book reviewed in a journal published promptly on the first of the month. Some jealous-minded people might complain that these Americans are away "ahead of the times," but who is there that will not admire such push?

The first edition of this book appeared three or four years ago, under the title of "Surgical Anatomy and Operative Surgery," but now it comes to us in its new clothes.

If we were writing a book on operative surgery we'd either not refer to anesthesia, or we'd give a fuller and more accurate account than is given here. There is no reference to the more recent methods of inducing either general or local anesthesia.

Since the first edition the illustrations have grown from 227 to 265. The material on gastro-enterostomy, etc., has been rewritten and extended, and the recent advances in the surgery of the prostate have received due consideration in the revision of the section upon the genito-urinary organs.

F. N. G. S.

Minor and Operative Surgery, Including Bandaging. By HENRY R. WHARTON, M.D., Professor of Clinical Surgery in the Woman's Medical College of Pennsylvania, Surgeon to the Presbyterian Hospital and the Children's Hospital, Consulting Surgeon to St. Christopher's Hospital, the Bryn Mawr Hospital, and Girard College, Fellow of the American Surgical Association. Sixth edition, enlarged and thoroughly revised. With 532 illustrations. Philadelphia and New York: Lea Brothers & Co. 1905.

The advantageous features of this manual are: A concise description of the various bandages, surgical dressings, the preparation and use of aseptic and antiseptic dressings, X-rays, anesthetics, trusses for hernia, catheters and bougies, sutures and ligatures, etc. These portions of the surgeon's armamentarium, which are in constant use in practice, are photographically illustrated. The author also gives, in brief treatises, details on fractures, dislocations, ligation of arteries, amputations, excisions, resections, and special operations, viz., intubation of the larynx, lithotomy, the operation for appendicitis, the operation for strangulated hernia, etc. It is a clearly written, compendious work, and will be useful to student and practitioner, enabling one and the other to obtain in a few moments useful information not so readily discovered in the pages of more elaborate books.

J. J. C.

A Manual of Organic Materia Medica and Pharmacognosy. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs. Comprising the botanical and physical characteristics, source, pharmacopeial preparations, insects injurious to drugs, and pharmacal botany. By LUCRUS E. SAYRE, B.S., PH.M., Dean of the School of Pharmacy, Professor of Materia Medica and Pharmacy in the University of Kansas; Member of the Committee of Revision of the United States Pharmacopeia. Third edition, revised, with Histology and Microtechnique, by William C. Stevens, Professor of Botany in the University of Kansas. With 377 illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1905.

Owing to the wonderful advancement in researches into the materia medica world it has been found necessary by the author to make many additions to this last issue. To the chapter on organic chemicals much has been added, and former articles much reduced in length, and present facts in materia medica and pharmacology placed in as concise a form as possible. The section written on the microscope and microtechnique will be found very useful to both practitioner and student.

A. J. H.

The Microtome's Vade-Mecum. By ARTHUR BOLLES LEE.
Sixth ed. n. Philadelphia: P. Blakiston's Son & Co. 1905.
Price, \$4.00.

A new edition of Lee's "Vade-Mecum" is always welcomed by the practical microscopist. There is no laboratory hand-book which is of such practical value as a work of reference, and the editions have appeared at such intervals of time (the fifth edition appeared in 1900) that the practical worker feels the need of purchasing them as they are published.

In regard to such a well-known work little need be said. The number of pages is practically the same as in the last edition; the additional space has been obtained by condensation and rewriting of special chapters. If attention may be called specially to portions, where all are so excellent, one may mention the chapter on the central nervous system which seems thoroughly up-to-date. We notice that in the chapter on connective tissue staining no mention is made of Mallory's more recent methods. J. J. M'K.

Military Hygiene. By ROBERT CALDWELL, F.R.C.S., D.P.H.,
Lieut.-Colonel Royal Army Medical Corps. London: Baillière,
Tindall & Cox, publishers, 8 Henrietta Street, Covent Garden.

This is a valuable addition to any military man's library, as it deals with the subject in a clear manner. Not only can much benefit be derived from it by military surgeons, but any one interested in camp-life would receive many valuable aids regarding drains, position for camps, etc.

The subject of hygiene is of such great importance that every medical man cannot but appreciate the manner in which the author has dealt with the subject. D. K. S.

Husband, Wife and Home. By CHARLES FREDERIC GOSS.
Toronto: William Briggs. Price, \$1.00 net.

Few ministers of the Gospel, if they have the knowledge, have the courage to deal with the sex question, preferring "to let sleeping dogs lie," but those who know that this is the most vital question to be dealt with in the uplifting of the race, will welcome the recent work of Charles Frederic Goss—"Husband, Wife and Home"—feeling that a better understanding of that principle which directly or indirectly accounts for every act of man, will bring about the results Mr. Goss points to—nobler husbands, better wives, and happier homes.

Apart from the good literary style, the subject is dealt with ethically and logically, and altogether in a manner to impress the reader with the author's wide knowledge of the principle that measures every man, the trinity of his own being. A. J. H.