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CANADA
MEDICAL & SURGICAL JOURNAL

DECEMBER, 1885.

Original Communications.

INNERVATION OF THE HEART OF THE SLIDER
TERRAPIN (PSEUDEMYS RUGOSA).

By T. WESLEY MILLS, M.A., M.D., L.R.C.P., ENG.
Lecturer on Physiology, McGill University.

Since the days of Darwin and the evolution hypothesis, anatomical investigations have been carried on with a vigor formerly unknown, and with the idea of producing some time a harmony of conception as to the relations of the whole science, impossible except in the light of some such theory of development as that now so generally accepted by the scientific men of every land.

But so much cannot be said of physiology. The proportion is comparatively small of those having an immediate or remote interest in physiology, who see that before there can be any degree of completeness in this science there must be done for it what is rapidly being done for morphology. That physiologists should have begun their work on heart physiology, for example, with the most complex form of heart (mammalian) instead of the simplest was a mistake, which has led to an enormous waste of energy and deferred the day when we shall have that complete and harmonious explanation of the cardiac functions for which physiologists and physicians have so long been looking in vain, and the same remark applies to other departments of physiology. Odd as it may seem, physicians have been in some degree responsible for this state of things. Physiology, as a matter of fact, has attracted little attention as a science pure

and simple, apart from its applications to medicine. So long as any science is studied only with the object of furnishing results of *immediate* practical utility, just so long will it fail in accomplishing the highest ends even in this direction. The history of all science proves this. Physiologists have been almost, without exception, recruited from the ranks of medical men connected, in most instances, with medical schools; the schools and the medical profession have asked for a "practical physiology," and asked for it so loudly that the broader conception which ought to have taken deeper root, at least since Darwin's time, has had little chance. But now we begin to see a better state of things arising; a few men are pursuing investigations on physiology purely for their own sake, free from the worry incident to the endless repetition of the question, *Quid boni?* and this spirit is spreading to the more advanced and independent teachers of physiology in the larger universities of the world.

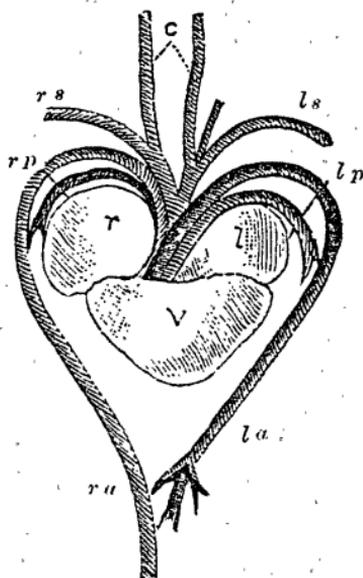
The present writer has for some time felt keenly what he has very briefly stated in this introduction. About three years ago Heidenhain in Germany and Gaskell in England began investigations on the innervation of the hearts of the cold-blooded animals, as in the natural order of things this should precede the study of the mammalian heart; while Ransom, of the same English school (Cambridge), worked out admirably the physiology of the heart of the *octopus*, a large cephalopod mollusk. Already in the light of the discoveries of workers in this field the mammalian heart is being investigated afresh, and it is safe to predict that before the lapse of another three years our notion of the innervation of the heart of man and other mammals will have been largely revolutionized, and with the result of replacing old views by others more satisfactory both to the physiologist and the physician. The explanations we have hitherto given for certain forms of heart disease seem to me too mechanical; we must introduce the nervous element more, and this conviction is founded upon my own investigations in this line of work.

For more than a year I have been engaged upon the investigation of the rhythm and innervation of the hearts of cold-blooded animals. Heidenhain's work was confined to the frog's

heart. Gaskell investigated, in addition, that of the land tortoise of England (*Testudo Græca*). McWilliam, of University College, London, has studied the heart of the eel. My own work embraces the land tortoise of America (*Pyxis*), the terrapin (living in brackish water mostly), the sea turtle, the fish, and the alligator. Of the four papers, the fruit of this work, one (terrapin) has already appeared in the *Journal of Physiology*, of Cambridge, England, and the others will probably be shortly published in that journal.

The editors of this JOURNAL, apparently sharing my views as to the scope and aims of physiology, have requested me to publish, in some form, an account of this work. This must necessarily be brief, and inasmuch as physicians are more interested in the results than the methods of investigation, in most instances the latter will not be discussed. In general terms, it may be said that the direct method of observation has been employed, and the heart has been studied *in situ*, normal conditions, as far as possible, being preserved. In the case of the fish, the heart was also studied isolated. Gaskell's and Ransom's work was done on the isolated heart in each case.

What follows may be considered as a very brief synopsis of my paper (40 pp.) on the terrapin, published in Nos. 4 and 5, Vol. VI, of the *Journal of Physiology*. Before proceeding to my own investigations proper, it may be well to remind readers that the heart of all the turtle tribe (*Chelonians*) consists of a sinus venosus, two auricles, and one ventricle. The woodcut gives at once a view of these parts and also of the vessels springing from the heart.



HEART AND ARTERIAL TRUNKS OF A CHELONIAN—(AFTER GEGENBAUR).

v	Ventricle.	l p	Left Pulmonary.
r, l	Right and left auricles.	r s	Right subclavian.
r a	Right aorta.	l s	Left subclavian.
l a	Left aorta.	c	Carotids.
r p	Right pulmonary.		

The sinus and sinus extension are concealed in this view.

The structure of the heart of the land tortoise, both muscular and nervous (ganglia), has been thoroughly studied by Gaskell, and the following quotation from his paper (*Jour. of Phys.*, Vol. III, Nos. 5 and 6) will give both the site and functions of these intra-cardiac nervous structures:—

“ We are led, therefore, to the conclusion that the heart contains two kinds of nerve centres—the one motor, the other trophic; motor nerve cells of different excitabilities, the most excitable in the sinus and at the junction of the sinus with the auricles; less excitable in the basal wall, between the auricles, and least excitable at the junction of auricles and ventricle; trophic nerve cells which regulate the formation processes in the auricular muscle at all events, and which are distributed throughout along the course of the nerve fibres from the sinus to the ventricle. The vagus acts on both classes of nerve cells—in the one case altering the rate of the motor discharges, and, therefore, the rate of rhythm; in the other, causing modifica-

tions in certain trophic discharges, and, therefore, affecting the force of the contraction power of conduction of a contraction wave, tonicity, etc.”

We may reasonably assume that a similar distribution of nerve cells exists in the hearts of all the chelonians.

I have sufficiently examined the muscular structure of the heart to be able to compare, in a general way, Gaskell's observations. In the sinus, auricles, and, to a certain extent, in the ventricle, the muscular fibres are arranged as in the frog, but the ventricle does not consist, as in that animal, wholly of spongy muscular tissue; its outer layers are firmer. It will be noticed that in the chelonian heart the auricles proper sit, as it were, upon a flattened part extending between the sinus and the ventricle. Now, as will be seen later, both in the chelonians and in fishes, this part of the heart is intermediate in function between the auricles proper and the sinus. It is also intermediate in microscopic structure between sinus and auricles proper. Gaskell has spoken of these parts as “bulged auricles,” and “flattened” portion, and “basal” wall, including all as belonging to the auricles; but it seems to me much better to speak simply of auricles and *sinus extension*, especially as this flattened portion, which is neither auricle nor sinus strictly, but more, in function at least, like the sinus than the auricle; and the more so as the case for the fish is so similar, and in this animal the auricle consists plainly of a bulged part almost wholly.

The arrangement of the valves in the heart of the chelonians was long since investigated by Brücke. He showed that the contrivances were such that the purest blood was always sent to the head, though, owing to imperfections in the circulation, no part of the body received perfectly oxidized blood. The whole mechanism is admirably described and figured by Huxley in his “Vertebrates,” p. 265.

I may now proceed to give the results of my own investigations proper, which were founded upon experiments on thirty-four terrapins.

Comparison of the Vagi—One of the great results of this recent physiological work has been the new light thrown on the

functions of the pneumogastrics. My examinations in 24 cases of the *relative* power of each over the terrapin's heart has led to the following conclusions. It is understood that the capacity of the vagus to arrest or otherwise modify the rhythm is referred to; "rhythm" will be used in this paper always in the sense of *rate* of beat:—

1. As a general rule, in the Slider terrapin the R. vagus has more influence over the rhythm than the L.

2. In a certain small proportion of cases the reverse holds true.

3. In a few cases the L. vagus has no effect whatever over the rhythm.

4. The L. vagus has sometimes an effect on the *force* of the beat when it has none on the rate. The length of time during which the beat can be inhibited by the R. vagus is much greater, as a general rule, than that of the L.

Unilateral Effects of Vagus Stimulation.—In a certain number of cases, stimulation of one vagus has caused effects on the corresponding side of the heart, either wholly confined to, or more marked on, that side—*e.g.*, one auricle has been more slowed, its beat more weakened, or there has been more dilation than on the opposite side.

This throws light on the cause of the greater influence, of an inhibitory kind, the R. vagus usually exerts, which will be referred to later.

Effects of Vagus Stimulation on the Sinus Venosus.—If all the rest of the heart be cut away, the sinus still continues to beat. If either vagus be stimulated, and especially the R., the sinus will be arrested; further, if it be divided into two longitudinal sections, each part may be inhibited by the stimulation of the corresponding vagus.

Effects of Section of the Vagi.—It has long been well known that, in the dog, section of one vagus sometimes, and of both vagi generally, gives rise to great cardiac acceleration. This was explained by the conception that the heart was held in to a certain rhythm by impulses descending the vagus from the inhibitory centre in the medulla. But the subject does not seem

to have been previously tested among the cold-blooded animals. As the results of my experiments in 18 cases, it may be stated that—1st, Section was followed by no cardiac acceleration in seven cases. 2nd, There was slowing (perhaps owing to mechanical stimulation of the nerve by the section) in four cases. 3rd, There was slight acceleration in three cases (*e.g.*, 26 to 28). 4th, Moderate acceleration followed in one case. 5th, Very marked acceleration in three cases.

The most decided acceleration (8 to 20) was in a case in which the previous R. had been slow and irregular. The true state of the case may be inferred from the following extract from the original paper:

“When the rhythm is fairly or very rapid, and the cardiac action regular, section of one or both vagi may be followed by no acceleration or only very slight acceleration; but if the rhythm be slow, and the heart's action very irregular, the acceleration may be considerable.”

The evidence for impulses *constantly* descending the vagi and retarding the heart's rhythm or keeping it slower than it would otherwise be but for the vagi, etc., it will be seen, is not, so far as the cold-blooded animals thus far examined are concerned, very strong; but, under certain circumstances, such does seem to be the case.

The general action of the vagus and the explanation of the same will be next considered.

(To be continued.)

PELVIC CELLULITIS.

By B. WHITEMAN, M.D., OF SHAKESPEARE, ONT.

(Read before the Canadian Medical Association, at Chatham, September, 1885.)

MR. PRESIDENT AND GENTLEMEN :—Were I required to state what class of diseases had given me most trouble and anxiety in the course of my practice, I should be inclined to answer, “Inflammatory affections of the parts contained in the pelvic cavity, including cellulitis and peritonitis.” It is much more frequent in the female than the male—as we would expect. We find it oftener in married than in single women, though by no means uncommon in the latter. Its causes are differently stated by different writers ; doubtless each are giving what appeared to him to be the exciting cause in the cases coming under his own observation. Its real nature is often overlooked, or set down as “womb-disease”—a term which generally satisfies the patient—that her case is serious, is well understood, and that she is to be thankful for any benefit that she may receive, or appear to receive, from treatment ; while she is to bear with all the patience she can command what has to be endured.

The causes generally given are : The puerperal state and its diseases or accidents, ill-fitting pessaries, tents, local injuries, injudicious use of caustics, also cold and fatigue. Judging from the cases that I have seen, I should say that a want of flannel underclothing was at the bottom of some of them, while overwork and a life of worry and fatigue are predisposing causes. Case II, which I shall briefly sketch, is a too common example. On another occasion it was brought on by the woman wading, during a menstrual period, through a cellar in which were about one and a-half feet of cold water. The most intractable cases with which I have had to deal were of gonorrhœal origin. And I have seen it acute and severe when no cause could be ascertained, as in Case V. In Case III it appeared to be due to erysipelas poison. As to its course, it varies greatly. Sometimes proceeding rapidly to suppuration, the abscess being evacuated by nature or art, and the patient soon recovering good health. Often terminating in subacute

inflammation, and producing marked adhesions or a chronic purulent discharge, which leave the victim an invalid for years, if not for the rest of a life-time. I shall briefly sketch a few cases, each of which is a type of its class.

CASE I.—Mrs. A., aged about 35 years; had one child 11 years old. Suffered from abdominal pains and leucorrhœa, with more or less smarting pain on micturition, for the last seven years. At different times during this period had been confined to bed for a week or two at a time. I further learned from her husband that he had been away from home, and contracted gonorrhœa shortly before the commencement of her trouble. When first called, I found her in a low fever, very tender over the pelvic region, but not much more than she was accustomed to. Pulse from 115 to 130; temperature generally 102° in the morning to 104° or 105° in the evening. She continued in this state for about three weeks, during which she lost much flesh, but febrile symptoms subsided. The vaginal walls became boggy and very tender, and the uterus fixed and apparently buried in the mass of swollen cellular tissue. Owing to her weakness and the local tenderness I delayed somewhat in opening into the abscess which had evidently formed, applying warm poultices externally, with large warm vaginal irrigations, and such internal medication as her case called for, chiefly quinine with dilute mineral acids, digitalis, and opiates or chloral hydrate as required, also giving directions as to diet, fresh air, &c. At a visit in the latter part of the third week, I found that an enormous amount of matter was discharging from the vagina, the abscess having found an outlet behind the os. I continued antiseptic vaginal injections for a few days, and then, as the parts became much less tender, I found I could pass a soft catheter about nine inches behind the uterus. I enlarged the opening slightly, and succeeded in getting in a rubber drainage-tube, and through this, thoroughly washed out the cavity until the water came clear and free from smell. The drainage-tube was only required for about ten days, after which the abscess closed and my patient soon began to put on a large amount of flesh. This improvement continued for about six months, when she again began to complain of her old symptoms. I advised her to keep in bed again, and have the poultices reapplied. Vaginal tenderness was not so acute as before, and it was my intention, as soon as the abscess should point anywhere that I could reach it, to make a free opening. Four days afterwards I was summoned in haste, as she was in great pain. I hastened to her

residence, but found her dead. Her husband informed me that when he went to work that morning she did not appear worse than usual of late, but had wandered considerably through the night. About an hour after leaving the house he was sent for, and finding her suffering so severely, he at once sent for me. Her agony was intense until a few minutes before death, which occurred in about two hours from the onset of the severe pain. I concluded that the abscess had burst into the peritoneal cavity, and that the sudden death was in a great measure due to shock. An autopsy could not be obtained.

CASE II.—M. Mc—, aged 24 years, single. I first saw this patient July 15th, 1884. She was suffering intense agony, apparently from acute general peritonitis. She had been very ill for about 48 hours. I afterwards learned that her trouble began shortly after sitting on the grass, on a cool evening, as menstruation was coming on, with but light clothes and cotton undergarments. On going into the house she was taken with a severe pain in the abdomen, then chills and fever, and menstruation ceased. As nothing would remain on her stomach, I gave morph. acet. gr. ss. hypodermically. This gave her little relief, as her sufferings were extreme. She could not endure the weight of the bedclothes. Pulse 140; temperature 105°. In about an hour I repeated the dose, after which she settled somewhat. This patient, for about three weeks, required half a grain of morphia hypodermically every two hours; often it had to be repeated before the two hours expired, so that she took from 12 to 14 grains of morphia hypodermically every 24 hours for the greater part of that time, and any attempt to diminish the frequency or amount of the drug was at once followed by an increase of pain. About the end of the first week the pain over the upper portion of the abdomen began to diminish, and she was able to take a very small quantity of food, but had to be fed chiefly per enema during the greater part of her illness. She did not appear to get relief from medicine given otherwise than hypodermically. At the suggestion of Dr. D. B. Fraser of Stratford, who saw her with me, I added, occasionally, $\frac{1}{40}$ gr. of atropine sulph. to each dose. This quieted the stomach somewhat, but not enough for food and medicine to be taken naturally.

August 10th.—I could make out a distinct tumor to the right of the uterus. There was not much tenderness in the vagina, except when the tumor was pressed, but moving the uterus gave pain. I applied poultices for some time, until one morning she took a severe attack of diarrhoea, which consisted chiefly of very

offensive pus. She then sank into a low fever, doubtless caused by absorption of pus from the rectum. The tumor disappeared with the diarrhoea, but the discharge continued for several weeks. At last I put a pad and compress over the abdomen, and had the rectum washed out twice daily with warm water, to which was added tr. iodine or emulsion of turpentine in starch. With this the fever disappeared, and she soon recovered.

CASE III.—Mrs. R., aged about 27, was confined of her first child April 27th, 1883. Her husband was just recovering from a severe attack of erysipelas in the scalp, during which she attended him, although I had her warned of her danger in doing so. When called to the confinement, I found her well on in the second stage of labor, occupying the bed from which her husband had just arisen, and without changing even the sheets. She gave as a reason for not heeding the warning I had given her that she had not expected to be confined for two months yet. She got through the confinement nicely without any appreciable laceration (and I always examine carefully in primiparæ). I had her carefully removed to a sofa, the bedding changed, the room well aired, and clothes wrung out of hot water sprinkled with carbolic acid applied to the vulva. The uterus was well contracted, and nothing abnormal appeared when I left her. All went well, and the fears which I had expressed were getting discounted all around and even in my own mind, until, on the morning of May 1st, she attempted to rise for the purpose of urinating, when she took a severe chill, lasting about one hour. I was sent for, and found her with a rapid pulse, severe thirst, and high fever. She was very much excited, and complained of severe pain limited to a small area over the region of the left ovary. I ordered large vaginal injections of dilute carbolic acid, and on passing my finger into the os uteri after the vagina had been pretty well washed out, I found an offensive smell on withdrawing it. I then passed a No. 10 gum elastic catheter with a rubber tube attached, and filled with water, up to the fundus uteri; then using the tube as a syphon, I thoroughly irrigated that organ, using hot carbolized water. I had not, at the time, seen Emmet's work where he advocates the use of hot water to contract the capilleries, but used it on account of its greater cleansing power, and after continuing it for a time, I added cold carbolized water until I brought it to the temperature most agreeable to the patient. The object of using a large quantity of the antiseptic being to remove all that we can of the offending matter, and at the same time so thoroughly saturate what we

cannot remove with the antiseptic as to disarm and render it harmless. And I may here state that I have never seen any evil or inconvenience result to the patient from intra-uterine irrigation so employed. At this examination I could detect considerable condensation of tissue around the left ovary. The more serious symptoms subsided under treatment, but tenderness persisted and the uterus became somewhat fixed. On May 10th the tumor was quite distinct in outline from the outside, and as there was indistinct fluctuation, I concluded to pass an aspirator needle and see what was in it. I ran a small needle about $2\frac{1}{2}$ inches directly towards the centre of the tumor, but got nothing. I continued poulticing for some time, and it disappeared gradually, and my patient was up doing light work and only taking an iron tonic by the first of June, since which she has enjoyed good health, though her full strength did not return for many weeks.

CASE IV.—Mrs. B. This patient was an old invalid. My first treatment of her was in the fall of 1882. The history was that she was married when about 22 years of age; in a little over one year from that time she had one child, a boy, still living, and then 15 years old. About a year after the birth of her son she imagined, for about three months, that she was pregnant again. Then she was taken seriously ill with severe flooding, and was for several months confined to her bed. During this illness she “suffered many things of many physicians,” who exhibited great ingenuity in contriving to differ from each other. One said she was pregnant, another that she was not; one discovered a tumor, another laughed at the idea; and one stated that she had caught the fever. However, either in consequence or in spite of all the treatment she received, she, in time, made a partial recovery. But from this time she was a great sufferer. She had severe pain on defecation. This caused her to postpone the act as long as possible, with injury to her digestion. At each menstruation her suffering was more than an ordinary labor, and added to this, she was never free from a gnawing pain and sense of weight in the pelvis. When she called on me I made an examination, and found the uterus fixed and tender, with a tumor behind it, which suggested a retroflexed fundus. In order to settle this I passed a sound, and notwithstanding that it was passed with all the tact and gentleness that I was capable of, and without any force, it gave her a good deal of pain, and brought on hemorrhage. But whilst the sound passed up properly to the fundus, the tumor still remained.

This troubled me, for I could arrive at no definite conclusion as to the nature of the growth. Had consultations, but without getting any new light, further than that it was most probably inflammatory. On the 11th April, '83, after a fright, she took ill and I was sent for. I found the whole pelvis, with its peritoneum, inflamed. The tumor was buried almost out of reach by the indurated and swollen cellular tissue. She sank into a low fever, with delirium, lasting through the months of April and May, during which a large gathering formed and emptied through the bowels. Her condition was so bad that there were four weeks of this time of which subsequently she had no recollection. I was in hopes that the tumor would slough away, but with the subsidence of the swelling the old enemy reappeared; and when she began to get up, the same old gnawing pain troubled her.

About the first of October she came with her husband to my office, stating that she wanted the tumor removed. I explained to her the dangers of an operation, especially in her weakly condition, also stating that what caused me to hesitate most was my ignorance of the nature of the growth. Her reply was that she would be satisfied with the result, and that she would prefer that I should operate to any one else. I then explained that I would cut into the tumor, and if I could not safely remove it, I would retreat with as little damage as possible, after getting all the information I could. Dr. Rankin of Tavistock was engaged to assist. When the patient was under the anæsthetic, he remarked that it was not a very promising operation, a suggestion in which I fully concurred. I proceeded to operate with the patient in lithotomy position, keeping a finger in the rectum so as to avoid wounding it. As I cut through the mucous membrane, I got at the body of the lump, which felt like muscular fibres, easily separated by the finger or handle of the scalpel. Using the latter, with a finger still in the rectum, I came upon something hard; then taking a finger of the right hand I passed it through the opening I had made into a large open space, which we soon found was filled with foetal bones. These I removed with a good deal of care, and found them to consist of spinal bones and some of the scalp. After washing out the vagina with a syringe, the patient was removed to bed still under the anæsthetic. When she awoke, and recognized her husband, her first remark was that the pain was away now. The medicinal treatment from this time consisted of quinine, mineral acids, and iron; very little quinine was required. For local treatment, I had her placed on a fracture bed, so that by raising it and placing a pail under

her I could thoroughly irrigate the wound every day. This I did by passing the nozzle of a fountain syringe into the wound and thoroughly irrigating with tr. iodine or carbolic acid diluted. Here I found something that I have not seen mentioned by any writer. When I first went to irrigate the wound, I found that the water did not return, and she stated that it was going into her bowel. I withdrew the instrument, fearing very much that in spite of all my care I had opened the rectum, but the water would not come out. Then passing a tube into the rectum, it ran out freely. I now injected the rectum as full as it could hold, but not a drop came from the vagina, and the water was retained until she passed it. From this I concluded that a valvular opening had existed previously between the cyst where the bones were and the rectum, and that there had been a chronic abscess here discharging pus into the rectum, but excluding the fæces from its cavity. For a week or two, after each washing of the wound, she would have a discharge from the bowels, but this gradually ceased, and all healed perfectly, the patient making a good recovery, without, I am happy to say, any fistula resulting. In this case, the cause of the abscess was doubtless an extra-uterine gestation, in which, during the long period of her illness, the greater portion of the fœtus was removed by suppuration. I might mention that the operation was performed on the 11th October; my last visit was on the 6th November, thus terminating an illness of nearly 14 years' duration, since which she has enjoyed good health.

CASE V.—Mrs. M., aged 51; menstruated until about three months ago. I was called to this patient November 27th, '84, and found her suffering from severe general peritonitis. I gave gr. ss. morph. acet. hypodermically, and remained for awhile to see the result. She was very weakly, not being a strong woman before. This gave some relief, so I left a number gr. ss. powders, directing one to be given in wafer paper every two hours until relieved, when she should have one every four hours while awake, and if sleeping, not to awaken her. Further, should she vomit the powders, to send me word; and in any case I would see her the next day. Next day I found her easier, but pulse rapid and compressible, with temperature 104.5°. I added gr. ss. digitalis with gr. iii quinine, to be given with each powder. I notified the family that she was in a dangerous condition, and intimated that should they want further advice I should be pleased to meet any regular practitioner they might select. She continued very ill, requiring gr. ss. morph. every two or three hours

for the greater part of the first three weeks. About the end of the second week I began to find the pain most severe in the left inguinal region, but could not yet make any further examination. Gradually the pain diminished in other parts, but continued in this until the end of the third week. I could make out a large tumor, which came down to the left of the uterus, and was very painful on any attempt to move that organ. She could not endure the weight of a poultice, so I kept on cloths wrung out of hot water. This patient suffered much from blood poisoning, her pulse being seldom under 120, often 140; temperature 102 to 104. The abscess burst into the rectum, the matter was expelled with the fæces, and the tumor disappeared four different times, each time only to fill up again, with a return of all the old symptoms. She began spitting a frothy mucus in large quantities, which troubled her a great deal. About the end of May '85, when the abscess had filled for the fifth time, I began to fear that this process must soon wear my patient out, so I ran a small aspirator needle into the tumor and removed about 3 ss. of intensely fætid pus. I withdrew the needle rapidly, and held my finger over the spot for a few minutes, so as not to allow any of the pus to escape between the coverings of the tumor, as they did not appear to be adherent. I concluded to leave her for a couple of days, and then make an opening into the abscess. This I did on April 3rd, '85, in the following manner: After satisfying myself as well as I could that there was not a coil of intestine over the abscess, I made a slight cut through the integument at the point where I had inserted the aspirator needle, then taking a large-sized trocar and canula, I drove it right to the centre of the tumor. This was pretty painful, but it only lasted a moment. Then withdrawing the trocar, I left the canula in the abscess, and after thoroughly washing out the abscess with dilute tr. iodine, I covered the whole with antiseptic marine lint, applying a binder to keep it in position. The canula I left in for 48 hours, so as to set up adhesive inflammation of the coverings of the abscess. When removed, I put in a decalcified bone drainage-tube, directing a fresh one after each washing. At the opening of the abscess, there came out about one pint of pus so offensive that I had to leave the room as soon as I could get out, but after the first washing it was never so offensive again. This soon terminated the trouble, so that my last visit was made May 5th, since which time she is able to come to my office. She is now in fair health, taking no medicine except a tonic occasionally.

Treatment.—With regard to treatment, I will be brief. First,

in chronic cases, treat as far as possible without opiates. Instruct the patient to avoid fatigue and anxiety; have fresh air as much as possible without exertion. Keep the digestive organs and kidneys in the best possible order. Most cases are benefited by large, pretty warm vaginal injections. In acute cases, on the other hand, opiates should be given, either by the mouth or hypodermically, so as to relieve pain and quiet the patient. Quinine should be given in doses of from five to ten grains, at intervals, making about twenty grains per day, until the temperature reaches 102°F. or under. I generally, where the stomach will bear it, have powders made consisting of one grain each of opium, quinine and digitalis; of these I order one every three hours, in wafer paper, while the patient is awake, adding ten grains of quinine to the powder once or twice in the 24 hours, with such additional quantity of opium as the comfort of the patient requires. With regard to the use of aconite and veratrum viride in this disease, I have never used either drug, nor have I seen any indication for their use. As the tendency of the disease is to asthenia, and it is, above all things, necessary to support and sustain the patient through the low hectic fever that accompanies it, I only know of one thing to be said in their favor, and that is, the more frequent opportunities that those who use them have for observing the pathological changes produced by the disease. In puerperal cases, it is nearly always, if not always, produced by septicæmia, and the first and most important part of the treatment is to cut off the supply of septic material. This can be done by large and frequent vaginal or intra-uterine irrigations with antiseptic fluid. Stimulants are often required. I mostly give them in the form of egg-nogg, when the stomach will retain it. Warm poultices over the abdomen are generally comforting to the patient, if not too heavy, and while they are likely to hasten resolution or suppuration, I see no objection to their use. Formerly, if I saw the patient at the outset, and the fever was of a sthenic type, I applied cold compresses to the abdomen with good results. The bowels should be kept open by rectal injections—warm water in as large quantities as can be borne answers very well; but if

there be much tympanites, an injection containing half an ounce of turpentine and eight ounces of castor oil made into an emulsion with starch, and retained while the patient can bear it, has given me good satisfaction. Where vomiting is troublesome, I give quinine, food, etc., per rectum. I always treat these patients where the peritonitis is severe on a fracture bed. The irrigation of the parts and injections can be better carried out, and there is less disturbance to the patient in attending to the calls of nature.

QUARTERLY RETROSPECT OF SURGERY.

By FRANCIS J. SHEPHERD, M.D., C.M., M.R.C.S, Eng.,

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Surgery of the Intestines.—Although I have, in several of my recent Retrospects, devoted considerable space to the surgery of the intestines, yet I feel compelled, by the immense quantity of new information which is constantly presenting itself in this comparatively new department of surgery, to again treat of it at some length. We are still in the dark on many points, and much work is yet necessary before the surgeon can determine the best mode of treatment in the many accidents, diseases and injuries to which the intestines are subject.

Laparotomy in Cases of Perforative Peritonitis.—Prof. M. Oberst of Halle, in a paper on a case of perforative peritonitis treated by laparotomy (*Centralblatt für Chirurg.*, No. 20, '85), states, with regard to the operative treatment of acute septic peritonitis, that a favorable result from incision, antiseptic drainage, and cleansing can be expected only in cases in which either the infective focus has been localized through adhesive inflammation and a more or less circumscribed abscess has been formed, or, when with diffuse peritonitis operative treatment has been applied early, and before the formation of extensive adhesions between the various coils of intestines. In most cases, however, of acute septic peritonitis, it is difficult to make out whether the inflammation be diffused or circumscribed. In the latter case there would be a risk, in the performance of laparotomy, of

breaking down the adhesions by which the infective material is confined. In acute peritonitis due to intestinal perforation, the diagnosis is not, as a rule, attended with any special difficulty. Acute peritonitis sets in with unmistakable symptoms, and experience teaches that with expectant treatment death almost invariably ensues as a result of diffused inflammation of serous membrane. It is thought that by performing an early laparotomy in cases of this kind, and by washing out the peritoneal cavity and closing the wound in the intestine, many a life might be saved that otherwise would be doomed. Prof. Oberst has recorded a case, in which he operated, which commenced by strangulation of an old scrotal hernia. The patient was admitted into hospital on the fourth day, much collapsed and presenting symptoms of intense peritonitis. Herniotomy was at once performed, when it was found that the sac contained no intestine, but was distended with turbid and fætid fluid. The abdomen was then opened, and a considerable quantity of fætid fluid escaped; the intestines were found much distended and covered by a deposit of recent lymph which glued the coils together. After a long search a small orifice, from which exuded fæcal fluid, was found in a loop of intestine deeply secluded in the abdominal cavity. The intestine was completely divided at the seat of lesion, and the two ends fixed by sutures to the margin of the external wound to form an artificial anus. The cavity was washed out with a warm solution of salicylic acid, and the inflammatory lymph was scraped off from the intestines. Several drainage-tubes were introduced, and the wound closed by sutures. The patient recovered rapidly from the collapse, and did well for two weeks; afterwards he became weak, and died on the ninth week, the fatal result being hastened by a hypostatic pneumonia.—(*Lond. Med. Record*, Aug. 15, 1885.)

Milculicz's successful case of laparotomy for perforation has already been noticed in the *Retrospect* for June.

The Operative Treatment of Intestinal Obstruction.—At the recent meeting of the British Medical Association, a discussion was held on the above subject. (*Brit. Med. Jour.*, Aug. 24, '85.) Mr. F. Treves opened the discussion by a paper, in which he

said that the operative treatment of intestinal obstruction might be classed under three heads : 1, The treatment of acute obstruction. 2, The treatment of chronic obstruction. 3, The treatment of chronic cases that have become acute. He, however, limited his paper to a consideration of the acute form, and ascribed the symptoms to three anatomical conditions : 1, To a hernia—like strangulation of the bowel ; 2, To volvulus of the sigmoid flexure ; 3, To acute invagination.

Under *Hernia—like strangulation of the bowel*, Mr. Treves places strangulation by peritoneal bands of all kinds ; strangulation by omental ligaments or cords ; strangulation by Meckel's diverticulum or by an adherent appendix or Fallopian tube ; and lastly, strangulation through slits and apertures. Under the last head is classed internal herniæ. The treatment he proposes is as follows : The patient should be put to bed and kept absolutely at rest. No food should be given, and thirst should be relieved by sucking ice or sipping hot tea. The intestines should be kept perfectly at rest by hypodermic injections of morphia, and hot applications may be used over the abdomen. The colon should be emptied by enemata, and when once the bowel is stilled by opium, thirst may be relieved by copious enemata of hot water without increasing the intestinal disturbance. The next step should be an attempt at relief of the obstruction by laparotomy. Mr. Treves advises that laparotomy be performed within twenty-four hours when possible, provided, of course, the diagnosis is clear, for the course of the malady is rapid, its average duration six days, and its termination is fatal. The surgeon's attention should be directed to the speedy relief of the dying intestine. Mr. Treves, although he thinks spontaneous cure is not impossible, says he has been unable to find any recorded case or museum specimen that affords an instance of it. He says laparotomy, in itself, is not a serious undertaking, and the high mortality of the operation is due to it being undertaken at too late a period. The same rule, he says, should be carried out in these cases as is strangulated hernia where taxis has failed. He condemns massage and the use of the aspirator as entirely empirical proceedings. With regard to the operation, he advocates an

incision in the median line, below the umbilicus, large enough to admit the entire hand at once. The operation should be done under the spray, with strict Listerian precautions. The intestines should be prevented from protruding by flat warm sponges. The cæcum should be first examined, and if it be found flaccid and empty, it may be assumed the obstruction is in the small intestines. The right iliac region should then be examined, and if the affected loop be not readily found, the collapsed coils below the obstruction should be searched for. These are generally found hanging in the pelvis; by passing them through the fingers the constriction can be reached without loss of time. The author strongly objects to the practice of allowing intestinal loops to protrude and then examining them in detail. He advises the placing a large warm carbolized sponge deep in the pelvic cavity, it saves much manipulation of the pelvic viscera and intestines by sponging. Should the bowels protrude, he thinks puncture should not be resorted to. When the obstruction has been found, small bands may be torn across and large ones divided between catgut ligatures. An appendix or diverticulum may be excised, and the bowel closed by Lembert's suture, so as to bring the serous surfaces in contact. If the bowel be of good color, it should be returned; but if gangrenous, should be excised, and an artificial anus established. He condemns the immediate suture of the divided bowel for several reasons: it prolongs the operation, and it does not relieve the obstruction and distension completely. Again, it is difficult to define the limits of the gangrenous action, and, lastly, there is great mechanical difficulty in uniting a large distended bowel above with a shrunken, collapsed segment below. The abdominal wound should be closed in the usual way, and unless there is peritonitis no drainage-tubes are required. If there be peritonitis, the abdominal cavity should be washed out with a weak carbolized solution of a temperature of 98°F., and the sac should be drained. He condemns the after use of a supporting bandage as unnecessary, and likely to perpetuate the very condition it seeks to avoid.

In *acute volvulus of the sigmoid flexure*, the treatment should be rest and starvation; opium should be given and the rectum

emptied by enemata. These cases are not so hopeful as the foregoing. Laparotomy should be performed in the middle line, the gut punctured by a capillary trocar, and reduction attempted; if this fail, then the gut should be evacuated in the summit of the flexure and an artificial anus established.

In *acute intussusception*, if no benefit follows the treatment by opium, belladonna, starvation and rest in twelve hours, it will be expedient to attempt reduction by means of insufflation or forcible enemata; if this fails, laparotomy should be resorted to and the invagination reduced if possible, if not, the bowel should be resected and an artificial anus established.

Mr. J. Greig Smith, F.R.C.S. (Bristol), also read a paper on *The Operative Treatment of Acute Intestinal Obstruction*, which is published in the same number of the *British Medical Journal*. He agreed with the general principles which ought to guide us in the operative treatment of intestinal obstruction as laid down by Mr. Treves, but differed from him in two points of operative procedure. (1), As to the method of finding the cause of the obstruction, he considers that the best guide to the seat of obstruction is not manual exploration, but visual examination, assisted, if necessary, by extrusion of the bowel. (2), As to the treatment of the bowel after the obstructing cause has been removed. He is strongly of opinion that no case of operation for intestinal obstruction is properly concluded until the over-distended bowels are relieved of their contents. He would, in searching for the obstruction, in the first instance, ignore the cæcum, substitute the finger for the hand, and supplement both by sight. He would permit the bowel to extrude, and if this were any help to finding the obstruction, would encourage it to do so; he would do all this before he inserted his hand to grope for the cause. Mr. Smith considers the condemnation of extrusion of the gut in these cases as a remnant of the pre-abdominal era of surgery, when exposure of the peritoneum and extrusion of the gut was considered to be almost certain death. If, when extruded, the bowel be protected by warm carbolized sponges, it will come to no harm. He considers the search for the points of obstruction in an abdomen filled with distended intestines one

of the most difficult undertakings in surgery. On opening the abdomen, the presenting bowel should be keenly observed, and as the most dilated portion of the bowel rises to the surface there is a strong chance of its being near the abdominal opening, move the bowels up and down, to the right and to the left, and fix upon the most dilated and congested portion. Using this portion as a guide, and running the forefinger along one side of the mesentery, the seat of the obstruction will probably be met with; if the distended bowel is with difficulty kept in the abdomen, let it escape, as its escape will help us to find the cause of obstruction. With regard to the second objection, Mr. Greig Smith holds that the presence of an excess of intestinal contents is in itself a cause of obstruction, and mere drainage of the intestinal contents should be frequently successful in saving life, although the obstruction may not have been overcome. If drainage can be accomplished by incision and immediate suturing, all the better; if not, Mr. Smith thinks it our duty to establish for a short time an artificial anus.

Mr. Mayo Robson, F.R.C.S., read a paper at the same meeting on *The Treatment of Intestinal Obstruction* (*Brit. Med. Jour.*, Aug. 29, 1885). He said that in regard to intestinal obstruction exact diagnosis is often impossible. He divides cases as follows: (*a*) Cases of obstruction as a rule chronic, the obstruction being the prominent symptom, acute troubles only coming on at a later period; (*b*) Acute cases, which may be roughly divided into three classes: (1) those of internal strangulation, as intussusception, volvulus, bands, etc.; (2) enteritis or other cases of purely functional obstruction; (3) perforation attended with acute peritonitis. Mr. Robson went on to say that the post-mortem records of our large hospitals show us that in many cases surgical interference might have failed, whilst in others a timely laparotomy would have proved beneficial. The following conclusions are based on Mr. Robson's own experience, on post-mortem records, on recorded cases, and on cases which he mentions in his paper:

1. In chronic cases—that is, where obstruction is a prominent symptom—medical treatment, such as injection, belladonna, mas-

sage, galvanism, etc., will often relieve or cure ; or colotomy or laparotomy, or some other operation, will be so plainly indicated as to leave no doubt as to what should be done.

2. In acute symptoms supervening on chronic, medical treatment—*e.g.*, starvation, rest, opium—may still often bring about a cure ; but laparotomy, as a means of diagnosis and possibly of treatment, may be demanded.

3. In initially acute cases, delay is often as dangerous as it would be to wait for an external hernia to reduce itself by its own efforts. Laparotomy should be performed early (*a*) as a means of making a diagnosis ; (*b*) as removing the cause of strangulation, if such be discovered ; (*c*) as a means of giving relief, if no cause can be found, by opening the bowel above the point of obstruction and carefully suturing it to the surface.

These three papers are well worth reading in the original. I have merely given as full a synopsis as I had space for. With regard to the operation, surgeons are now convinced that it ought to be performed early, if only for purposes of diagnosis. As a rule, these cases are handed over to the surgeon by the attending physician at too late a period, simply because the diagnosis was not accurately made out and the fear that a useless operation would bring discredit on the medical attendants. The diagnosis is impossible to make in many cases, and difficult in all. It is very easy on paper to put the causes of acute obstruction under different heads and give the treatment of each, but in actual practice it is difficult to make out more than that there is obstruction with or without peritonitis. I have seen several post-mortems where death has occurred with symptoms of acute obstruction which had been caused by peritonitis ; others where the symptoms were not urgent till a few hours before death, and where operative interference would have been of no avail ; others, again, where the disease was chronic, though latent, and acute symptoms rapidly developed. The profession is not yet educated up to early operative interference, but the time is rapidly approaching when laparotomy will be undertaken for intestinal obstruction as readily as tracheotomy is for laryngeal diphtheria. The danger of the operation *per se* is not great,

and soon will be performed as a means of diagnosis in most cases and permanent relief in many. In obscure abdominal cases, it is better, as, I think, Mr. Lawson Tait has remarked, to "get inside and find out."

In the same number of the *British Medical Journal* is a paper by Mr. R. N. Pughe on a successful case of abdominal section for *Intestinal Obstruction caused by the Vermiform Appendix*. In this case the congested and distended bowel was easily found, and the constricting band, which was found to be an abnormal appendix, ligatured in two places and divided. The recovery was uninterrupted.

In the same journal is an interesting paper on *Enteroraphy, with a description of a new form of suture*, by E. S. Bishop, F.R.C.S. I have space merely to mention this paper for reference.

Mr. Mayo Robson also reports a case of *Enterectomy for Acute Intussusception* in the *Brit. Med. Jour.* for October 3rd. More than four feet of bowel was removed. The patient only lived a few hours, dying apparently from shock.

Dr. Joseph B. Heald (*Boston Med. & Surg. Journal*, Sept. 3rd, 1885,) reports a successful case of *Laparotomy for Intestinal Obstruction from Intussusception*, in a man 25 years old, operated on by Dr. John C. Irish. The symptoms had lasted three days, and were attributed to a fall. The abdomen was opened in the median line, but nothing could be learned by inspection, owing to extreme distension of intestines, so about 15 feet of the gut were carefully drawn out, when some resistance being felt, the hand was introduced and a piece of invaginated gut drawn out. The invagination was relieved and the extended intestines replaced without difficulty; as soon as the obstruction was relieved, the patient passed per rectum a quantity of thin fæces and a large amount of gas. During the manipulation of the intestines, and after, there was profound shock, but the patient rapidly recovered without a bad symptom, and was sitting up on the fourteenth day.

Laparotomy as an Aid to Herniotomy.—E. Hury Fenwick, F.R.C.S. (*Lancet*, Sept. 26, 1885), reports a case of left inguinal hernia which had become strangulated, and taxis failing, henni-

otomy was performed, but he failed to reduce the bowel, even after opening the sac. He then made a two-inch median incision into the abdomen, above the pubis, introduced the finger into the peritoneal cavity, and pulled back the extruded gut with ease. The patient, after several days, gradually sank and died. No explanation of the cause of death could be made out at the autopsy. The abdominal incision appeared to have no share in the fatal result.

Colotomy with delayed opening of the Intestine.—Mr. Davies Colley (*Lancet*, March 21, '85), at a meeting of the Clinical Society of London, read a paper on the above subject, based on three successful cases of left lumbar colotomy, in which the opening of the intestines had been delayed for one, four, and six days respectively. The object in dividing the operation into two stages was to allow the wound to heal before risk of contamination by bowel contents, and so prevent peritonitis, suppuration, etc. To prevent the protrusion of the bowel, Mr. Davies-Colley uses a clamp devised by himself.

Dr. Charles B. Kelsey, in an article on the *Limitations of Colotomy in Diseases of the Rectum* (*American Journal of the Med. Sciences*, Oct., '85), concludes a valuable and interesting paper by giving the following indications for colotomy:

1. In congenital malformations of the rectum or anus in children, in which a tentative operation in the perineum has failed to reach the rectal pouch.

2. In intestino-vesical fistulæ.

3. In tumors occluding the rectum, which cannot be relieved by any other means—as dilatation, division, hot water, or electrolysis.

4. In non-cancerous, simple, or specific stricture and ulceration of the rectum (with or without fistulæ), where the disease cannot be relieved by proctotomy or dilatation.

5. In cancer, where the disease can neither be removed nor the passage re-established; and where death is probable from obstruction,—except in cases where the immediate dangers of the operation more than counterbalance any good likely to be derived from it.

6. In volvulus or intussusception of the colon or sigmoid flexure, where reduction by aid of laparotomy has been found impossible.

Hip-Joint Disease and its Early Treatment.—Mr. John Croft (*Lancet*, June 6th, 1885), in a paper on the above subject, after having briefly commented on the four allied subjects of (1) the often tubercular nature of this chronic disease, (2) the frequency of the occurrence of necrosis and sequestra in the later stages of it, (3) the less frequent, but not uncommon, result of shortening of the limb found in cases of the first stage of the disease, and (4) the too much overlooked symptoms of reflex muscular spasm and rigidity, went on to speak of the early treatment. This consists in absolute physiological rest, which is ensured by recumbent posture, a long, suitable splint, and a certain amount of extension or traction on the limb. Weight only sufficient to steady the limb should be employed. He is not in favor of local applications, as irritants, setons, issues and the like. Leeching he has found useful in relieving acute sensitiveness and pain in acute attacks of inflammation. Poultices and soothing fomentations are occasionally useful, but their habitual use is not desirable. The whole limb should be kept warm and scrupulously clean by washing, and it should be systematically rubbed to maintain the suppleness of the muscles and joints below the hip.

The splint employed by Mr. Croft is a modification of Thomas's back splint. He prefers the parallel outside splints six inches longer than the limb, with a chest girdle. A stirrup is applied to the foot and leg, and this stirrup is fixed to the end of the splint by a strong elastic band or cord. Counter extension is provided for by the pelvic girdle, to which the ends of a perineal band are attached.

Excision of the Hip.—Dr. Wm. Alexander of Liverpool, at the close of an interesting paper on excision of the hip, summarises as follows :

1. That hip disease should, in the earlier stages, be treated by that absolute and perfect rest obtained by means of Thomas's splint.

2. That this treatment, thoroughly and persistently carried out for a long period, will cure a large percentage of joint diseases.

3. Unfortunately, this treatment cannot and is not persistently carried out amongst the poor.

4. Many of these patients could be saved by excising the joint when a decided second stage of hip disease had been reached. Excision is best performed by severing the femur above the trochanter, clearing out the acetabulum, and maintaining the opposing bones so far apart that their surfaces can resume a healthy condition and the aperture be filled up with fibrous tissue. By this means an excellent false joint is formed, or, if the adhesions become too firm, a good stiff joint.

5. That the advent of the stage of this disease suitable for excision is indicated by repeated formations of abscesses around the joints.

6. That when the supra-trochanteric mode of excision cannot be performed with any chance of success, then the alternative is either continued expectancy or amputation.

7. That it is a great mistake to imagine that all softened bone or infiltrated tissue should be cleared away by the operator. All he has got to do is to clear a space, where the operations of nature, in dealing with diseased or disabled tissues, can be carried out as easily and expeditious as possible. The operator should remove all manifestly dead tissue, but the doubtful should be left alone to be dealt with by nature.—(*Liverpool Medico-Chirurgical Journal*, July 1885, quoted in *Medical News*, 22nd August, 1885.)

Spina Bifida.—The report of the committee on spina bifida was presented to the Clinical Society of London by Mr. R. W. Parker. The following portion treats of the *Clinical course and Treatment of Spina Bifida*. (*Lancet*, May 30th, 1885.) As regarded the natural history of the deformity, the Registrar-General's report for 1882 showed 649 deaths from spina bifida, of which 612 died under one year old. The committee held that, though a certain number of these deaths were due to local causes, rupture of the sac, draining away of the cerebro-spinal fluid, and subsequent septic meningitis, yet in a large proportion of cases

death ensued from the marasmus and general defective nutrition so frequently associated with the deformity, and which could not be remedied by local or other treatment. The tables next dealt with the treatment by injection with simple solutions of iodine, and showed a considerable amount of success. Then ligature of the sac was considered, and here, again, good results were obtained. Excision likewise had a considerable proportion of success. The plan of repeated tapping and pressure gave the least successful results of any. The injection of Morton's fluid showed a percentage success of between 50 and 60. The high mortality was thought to be due largely to the treatment having been adopted in unsuitable cases on account of its simplicity and supposed safety. In spite of the favorable results of ligature and excision of the tumor, as shown in the tables, the committee felt themselves compelled to report against these methods of treatment. There was reason to think that the reported cases might be misleading, owing to some cases of failure not being reported, while all the successes being regarded as surgical triumphs were almost certain to have been recorded. Moreover, it seemed probable that a careful selection of cases had been made. The committee, therefore, advocated the plan of treatment by injection of Morton's fluid.

[Dr. J. Morton's fluid is made by dissolving 10 grs. of iodine and 30 grs. of iodide of potassium in one ounce of glycerine. Half a drachm is injected after the withdrawal of a small quantity of the spinal fluid.]

Treatment of Cephalocele and Spina Bifida.—Prof. Schatz of Rostock, in a paper in the *Berlin Klin. Wochensh.*, No. 28, 1885, and quoted in *Medical Times*, says that of 105 cases of cephalocele, 59 were occipital and 46 frontal in position. Of the former, 24 were left untreated and only 3 recovered; 35 were operated upon by incision, injection of iodine, or ligature, with six recoveries. Of the frontal encephaloceles, 6 out of 32 survived without treatment, and only 3 out of 14 after operation. Prof. Lorimer is quoted as stating that no operative interference should be attempted when it can be clearly shown that a communication exists between the sac and the vertebral canal. Prof.

Schatz considers the operation only justifiable when there is no such communication, and when the tumor is covered with healthy skin, is fully transparent, and not painful. In other cases, he would endeavor to secure isolation of the tumor from the arachnoid cavity by means of graduated constriction or pressure calculated to set up a process of plastic adhesion, when applied to the base or pedicle (if there be one) of the tumor. He relates particulars of three cases in which he operated by emptying and removing the sac, the base or pedicle of which was firmly secured by means of a long clamp. All the cases were severe. Two recovered and one, a case of spina bifida, died. Compression of the sac by clamps may be found of use in those cases where there is a pedicle and the case is a simple one.

Wrist Ganglion.—Dr. R. Falkson (*Archiv für Klin Chir.*, Bd. 32, Hft. 1, 1885) gives 15 cases of total extirpation of wrist ganglions. Removed with antiseptic precautions, perfect preservation of function was secured, and primary union took place in all but two cases. These ganglia often dip under the carpal ligament, and in 13 of Dr. Falkson's cases extended to the joint capsule, but did not communicate with the joint. Volar ganglia always occur on the radial side, and in extirpating them it is sometimes necessary to tie the radial.—(*Quoted in Annals of Surgery*, Oct. 1885.)

Palmar Ganglion.—The treatment of palmar ganglion has never been very satisfactory. It is an affection which interferes considerably with the function of the hand, and at times renders it completely useless. The old forms of treatment by pressure, counter irritation and tapping, though occasionally successful, cannot be relied on. Injections and incision of the sac have been frequently followed by failure, and occasionally by fatal septicæmia. Again, if there is free suppuration, the tendons become adherent and the hand is rendered useless. These ganglia nearly always contain "melon-seed bodies"; when these are present injection is useless. In an interesting editorial in the *Lancet* for June 27th, 1885, the writer advises early operation, free evacuation of the cyst, and removal of the "melon-seed bodies." For this purpose a free incision is necessary over

the most prominent part of the swelling, above the annular ligament; pressure should be made in the palm to force out the fluid and as many of the loose bodies as will escape; then a sharp spoon should be introduced, and the whole cavity scraped to detach any "bodies" which are fixed to the synovial membrane. This is better than attempting to wash out these bodies or trying to remove them, as Volkmann does, by passing in a drainage-tube and drawing it sharply to and fro. After having scraped out the sac, a solution of zinc chloride, 40 grs. to the ounce, is applied to the whole interior of the sac to modify the nutrition of the lining and prevent a re-collection of fluid. The operation should be done with strict antiseptic precautions, as by this means union by first intention is obtained, and there is no danger of septic suppuration. A tube should be introduced, not made to come out in the palm, as suggested by some surgeons; this is unnecessary, as perfect drainage may be obtained by fixing the hand in a splint and placing a compress on the palm. How the cure is effected is not clearly understood—granulation or direct adhesion, or is it analogous to the cure of hydrocele by injection? if so, it has no tendency to recur, as hydrocele has.

Transplantation of large pieces of Skin in recent Wounds.—Esmarch brought forward, at the German Congress of Surgeons, some pictures to illustrate the importance of such treatment. One was a case of lupus of the nose; another, a facial mole. The success in both cases was complete; the flaps united by first intention, and the scar was quite insignificant. The conditions necessary for success are that all subcutaneous tissues should be cut away and the flaps laid flat on the raw surface, where they should be firmly secured by a few stitches and a bandage.—(*Verhand. der Deutschen Gesell. f. Chir.*, quoted in *Practitioner*, October, 1885.)

There is an elaborate article in Langenbeck's *Archiv f. Chir.*, Bd. 130, Hft. III, 1884, by Dr. H. Maas of Würzburg, on the healing of large raw surfaces by the application of large skin flaps from distant parts of the body. For instance, suppose there was a large raw surface on one leg; a piece of skin is partially dissected from the other, placed over the raw surface,

and kept there by sutures, and the two legs would be immovably fixed upon one another by plaster bandages. When the flap has taken, it is cut away from the sound leg and allowed to receive its nourishment entirely from its new attachment. I saw at the New York Hospital, eighteen months ago, the whole back of the hand covered in this way by a flap from the chest. The surgeon was Dr. W. T. Bull.

Treatment of Ringworm by Chrysarobin.—Dr. Alexander (*Jour. of Cutaneous and Venereal Diseases*, Vol. III, No. 2) found the most satisfactory results follow in ringworm when a paint of chrysophanic acid was used. The preparation is made by adding one part of chrysophanic acid to ten of liquor gutta-perchæ, and is used as follows: The hair of the head is closely cut or shaven, the scalp thoroughly cleansed, and epilation by forceps of diseased hairs on the spots. The pigment should now be applied to the diseased spots with a stout brush. Nothing more is done till the growing hairs push their way through the paint, when the application is renewed. This is done about once or twice a week. In many of the cases thus treated, even without epilation, the disease was cured by one or two applications.

Treatment of Nævus by Ethylate of Sodium.—Mr. S. Welch (*Brit. Med. Jour.*, Aug. 1885) says that he finds ethylate of sodium very efficacious in the treatment of nævus. Two coatings of the ethylate are painted over the nævus on two consecutive days, care being taken to protect the surrounding skin. In all instances of superficial nævi, this treatment is completely successful. When the nævus affects the subcutaneous tissues, a second and even a third application of the remedy is required.

The Way to Prepare Sponges.—The following is Mr. Lawson Tait's method of preparing sponges, and but one person is entrusted to do this: New sponges are first put into a large quantity of water, with sufficient muriatic acid to make the water taste disagreeably acid. They remain in this mixture until all effervescence has ceased, and all the chalky matter is removed. For this purpose it may be necessary to renew the acid several times. The sponges are afterwards carefully and thoroughly washed to free them from every rough particle. After being

used at an operation, they are first washed free of blood and then put into a deep jar and covered with soda and water (one pound of soda to twelve sponges.) They are left in this about twenty-four hours, and then they are washed perfectly free from every trace of soda. This takes several hours' hard work, using hot water, squeezing the sponges in and out of the water, and changing the water constantly; allowing them to soak for a few hours in very hot water greatly assists in the cleansing. When quite clean, they are put in a jar of fresh water containing about 1 per cent. of carbolic acid, and after being in this for 24 hours, are squeezed quite dry and tied up in a white cotton bag, in which they are left hanging from the kitchen ceiling (being the driest place in the house) till they are wanted.—(*Amer. Jour. of Obstet.*, quoted in *Pacific Med. & Surg. Jour.*, Oct. 1885.)

Bichloride of Mercury as an Antiseptic.—According to Prof. J. Mikulicz (*Archiv f. Klin. Chir.*, 1884), for the prophylactic portion of wound-antisepsis—disinfection of sponges, tubes, sutures, operator's hands, and the part to be operated on—sublimite is incomparable, its value being increased by the rapidity of its action. It is not, however, suitable for metal instruments, since they are attacked by it. During and after completion of an operation, on the other hand, we have to deal with albuminous secretions, which form insoluble combinations with mercury, and for this the sublimate does not answer so well as carbolic acid. Mikulicz found that solutions of 1-1000 retarded and diminished the development of micro-organisms; weaker solutions not perceptibly, while only a strength of 1-400 or 500 completely prevented their appearing. Comparative tests showed that it only needed double this strength of carbolic acid to give as good results. Since the excretion of pathogenic micro-organisms usually occurs in connection with albuminous materials, sublimate is probably less trustworthy for such hygienic disinfection than carbolic acid. . . . Mercury albuminate itself is, however, not entirely inactive, and does not putrify readily. There are, therefore, good reasons for considering carbolic acid a far more constant and trustworthy wound antiseptic than sublimate, although the latter is the stronger agent. If

sublimate is used in preparing for an operation, and full precautions be taken, then even pure water may answer for wound irrigation. In septic puerperal conditions, it is questionable whether sublimate should be used, since either strong solutions or frequent irrigation may prove toxic. As a wound-dressing, iodoform, thymol, etc., are not inferior to bichloride, and less dangerous. Again, sublimate, contrary to general impression, is volatile. . . . Finally, sublimate may be absorbed in fatally toxic amount. Its local caustic action—principally seen under sublimate dressings—has repeatedly caused eczema, erythema, urticaria, etc. Not a few cases have ended fatally. Mikulicz gives six cases, and says the first case of amputation of the breast, in which he used sublimate dressing of sawdust, containing 1 per cent. of sublimate, had a fatal termination.—(*Annals of Surgery*, July 1885.)

Surgical Treatment of Cysts of the Pancreas.—Dr. N. Senn (*Amer. Jour. of the Med. Sciences*, July 1885) has an exhaustive and able paper on the above subject. After giving a full report of a retention cyst of the pancreas recently under his care, which was successfully treated by laparotomy, he summarises in a compact form the clinical history of similar cases, and draws conclusions founded on his own and other cases as to the proper method of treatment. At the end of his paper he sums up as follows:—1, Cysts of the pancreas are true retention cysts. 2, Cylindrical contraction or obliteration of the common duct or its branches and impacted calculi are the most frequent causes of cysts of the pancreas. 3, A positive diagnosis of a cyst of pancreas is impossible; a probable diagnosis between it and some other kind of cyst amenable to the same surgical treatment is adequate for all practical purposes. 4, The formation of a pancreatic fistula under antiseptic precautions recommends itself as the safest and most expedient operation in the treatment of cysts of the pancreas.

Treatment of Lupus.—The method of interstitial cauterization by the aid of the thermo- or electro-cautery suits a great number of cases of lupus. Old, very extensive cases, with destruction effected, are, indeed, refractory, in a measure, to all medication.

Here we can have recourse to suppurative dermatitis in the manner indicated by Schwimmer. The lupus surfaces are painted over with a saturated solution of pyrogallic acid in ether, or receive a pulverization of this ethereal solution. In either case, the surface becomes covered immediately with a white and adherent layer of pure pyrogallic acid, which is now at once covered over with a layer of traumaticine. Afterwards, an irritation analogous to that of a strong vesicant is produced on the diseased tissues, and at the margin a little swelling without redness. The resulting cicatrix is smooth, and the paintings are renewed until every deposit of lupus has disappeared from the tissues. This method suits lupus vulgaris best.—(*Annales de Dermatologie et de Syphiligraphie*, Janvier 1885, quoted in *Edinburgh Med. Journal*, May 1885.)

Reviews and Notices of Books.

Curability and Treatment of Pulmonary Phthisis.—
By S. JACCOUD, Professor of Medical Pathology to the Faculty of Paris, Member of the Academy of Medicine, etc. Translated and edited by MONTAGU LUBBOCK, M.D. (Lond. and Paris), M.R.C.P. (Eng.), Assist. Physician to Charing Cross Hospital, etc. New York: D. Appleton & Co.

The possibility of the curability of pulmonary phthisis—the fact that many cases of tubercular disease of the lungs may be arrested—are points perhaps not sufficiently admitted by all physicians. Strong convictions on this matter are, however, necessary to insure such careful attention to treatment as these important and all too common affections demand. Prof. Jaccoud is an enthusiast upon the subject, and his treatise is one which is likely to excite similar enthusiasm on the part of his readers. His experience has been unusually large and varied, and he has for years studied the question from every standpoint. He is, in fact, now looked upon as one of the highest authorities in Europe upon chronic pulmonary disease. We cannot, therefore, but feel indebted to the English translator and the American publishers for having introduced the learned professor's views to

English-speaking countries. It is interesting to find the doctrine of the infectious nature of phthisis maintained here, although the discoveries of Koch were not made till after the first appearance of the work. In view of the proof of the existence of some relation between tubercle and its bacillus, part of the pathological sections would necessarily require to be revised, but this in no way detracts from the value of the enunciated views of this eminent writer. Having considered the "conditions which influence the curability of phthisis," the author takes up "the prophylactic treatment" at some length. This is followed by a description of the principles for the management of the ordinary form of phthisis, then "treatment by mineral waters," and lastly, "climatic treatment." Upon this all important matter of suitable climates, Dr. Jaccoud speaks with all the authority of personal knowledge and experience, having made, upon the spot, careful investigations into the exact meteorological conditions of all the noted health-resorts of Europe, as well as Madeira, the Canary Islands, Morocco and Algiers. The book is one of great interest, and will be found of much value to physicians in the important duty of giving such advice to their phthisical patients as they may hope will not seldom result in cure or, at any rate, arrest of progress in the disease and prolongation of life.

Insomnia and other Disorders of Sleep.—By HENRY M. LYMAN, M.A., M.D., Professor of Physiology and Diseases of the Nervous System, Rush Medical College, Chicago. Chicago: W. J. Keener. Montreal: Dawson Brothers.

Few conditions are less amenable to treatment than sleeplessness. Its causes are so varied and so complex that it requires the highest skill of the physician to unravel them. The symptomatic treatment is, of course, easy, but it is far from being successful; in fact, it often does more harm than good. To simply prescribe a hypnotic to a person complaining of sleeplessness can be done by a tyro, but to find the cause of sleeplessness and to combat them so as to give sleep to the sufferer is a problem often beyond the most erudite and philosophical

physician. We welcome Dr. Lyman's work, as it is the work of a philosophical physician. In the first chapter he deals with the nature and cause of sleep. An account is given of the experiments of Professor Mosso of Turin on the exposed surface of the cerebrum of three individuals. The results of these investigations prove conclusively that anæmia of the brain is a result and not a cause of sleep, as was formerly supposed. The changes in the blood pressure and circulation were invariably secondary to the excitement of nerve tissue. The cause of sleep lies in changes in the molecular structure of the brain, rather than in fluctuations of the blood-current. In the second chapter the author deals with insomnia, and he first mentions those causes of wakefulness which are due to irritation of the peripheral portions of the sensory apparatus, and, secondly, those caused by morbid states of the central nervous organs. In the third and fourth chapters, the remedies for insomnia are separately described and the treatment of this condition as it arises in particular diseases. The final chapters of the work are taken up with a very instructive description of dreams, somnambulism, and hypnotism.

The work is one we can confidently recommend to our readers. Its only shortcoming, in our opinion, is that it does not as fully deal with the pharmacology of the great hypnotics—opium, chloral and paraldehyde—as a work devoted to insomnia should. Little or no attention is given to the marked untoward effects of the first two of these agents.

Inebriism: A Pathological and Psychological Study.

By T. L. WRIGHT, M.D., Member of the American Association for the Cure of Inebriates. Columbus, O.: Wm. G. Hubbard.

This work deals with the subject of inebriism principally on psychological grounds, and while the author confines himself to this part of his subject he performs his task well. The same, however, cannot be said of the pathological part of the work. The first section is devoted to the consideration of the symptoms of acute intoxication and the changes brought about by this state

in the tissues, but especially in the central nervous structures. The author considers that the deleterious influence of alcohol is not directly due to its primary action on the tissues, but to the lessened oxidation that it causes. He would ascribe all its baneful influence to the retention of the carbonic acid and urea in the blood. It is unfortunate that he has not advanced any arguments whatever in support of this assertion. We believe there are none. There is a lack of the scientific method in dealing with the subject, which detracts greatly from the value of the work. The author has evidently the best of intentions to point out the causes and best means of treating inebriism, but in order that such an undertaking should lead to the greatest success, it is a necessity that no loose statements should be made, that the truth, and only the truth, should be made known. On page 135 the statement is made that progressive paralysis of the insane is a disease peculiarly the child of alcoholic indulgence. This is certainly an over-statement. It is generally admitted that a considerable number of cases of paralytic dementia are brought about by alcoholic excesses, but it is not unfrequently the case that the drinking and the paresis are results of a common cause, and that a distinctly organic one. The symptoms of alcoholismus and general paralysis are different, as are also the anatomical changes which underlie them.

We have drawn attention to some of the faults of this work. In it, however, both professional and lay readers will find much that is instructive, in spite of the author's verbosity of style.

Practical Surgery: Including Surgical Dressings, Bandaging, Fractures, Dislocations, Ligature of Arteries, Amputations, and Excision of Bones and Joints.—By J. EWING MEARS, M.D., Lecturer on Practical Surgery, Jefferson Medical College, &c. With 490 illustrations. Philadelphia: P. Blakiston, Son & Co.

The first edition of Dr. Mears' book was issued exactly seven years ago. Judging from the greater dimensions of the present volume, the author has not been idle in the interval. This edition is fully three times the size of the first, and excels it in every

particular. Beyond a few of the illustrations, the author does not make any pretensions to originality. With one or two exceptions, however, he has brought his book well up to the most recent observations and teachings. The part devoted to "surgical dressings" is very complete in every particular, giving Lister's method with its various modifications. As usual with books of this kind, much unnecessary time and space have been devoted to "bandaging," as though students or others could learn how to bandage from books. It is well known that this art can alone be acquired by long and patient practice. The chapter on "Fractures" is very well written, and the illustrations are exceptionally good. We are disappointed, however, at finding no reference to the method recently suggested and put into practice of treating fracture of the patella—namely, exposing the fragments and wiring them. Nor is the suggestion made that, where the effusion into the joint is considerable, aspiration may be employed. Intracapsular fracture of the femur is admirably handled, especially with regard to treatment. We are quite with the author in the precautions which he takes to secure bony union in this form of fracture. Dr. Senn's excellent paper on "Fractures of the Neck of the Femur," read some time ago before the American Surgical Association, we are pleased to see referred to, and his immediate treatment with plaster-of-paris splint strongly recommended.

The directions given for the performance of the various amputations and excisions are altogether very full and accurate. We confess to some disappointment, however, that the method of sawing the bones in excision of the knee joint, first suggested by Dr. Fenwick of this city, is not referred to. Considering, also, that Dr. Fenwick's method is so fully described by himself in the last volume of the International Encyclopædia, our surprise is made greater. We would beg to suggest that the author gives this plan a trial when next excising the knee-joint, as we feel satisfied it needs only a fair test to become more universally adopted.

Altogether, we cannot speak too highly of the volume under review, and we predict for it a large circulation both among students and general practitioners.

A Text-Book of Nursing, For the use of Training Schools, Families, and Private Students.—Compiled by CLARA S. WEEKS, Graduate of the New York Hospital Training School; Superintendent of Training School for Nurses, Paterson, New Jersey. New York: D. Appleton & Co.

This little book is one of the best of its kind we have yet seen. It is full of information of value to the nurse, and this is conveyed in such a clear and concise manner that any woman of ordinary intelligence cannot fail to comprehend it. Although the writer modestly calls her book a compilation, it nevertheless treats of many subjects which we have not noticed in other works of the kind. Thus there are some admirable hints on the "Observation of Symptoms," in connection with which is given a very good form of table for bedside notes. "Massage" is likewise treated at considerable length, and the chapter on "Surgical Nursing" is very complete. The illustrations are all well executed, those illustrating the circulation in connection with the treatment of hemorrhage being especially deserving of mention.

The Law and Medical Men.—By R. VASHON ROGERS, Jr., of Osgoode Hall, Barrister-at-Law. Toronto (Canada) and Edinburgh (Scotland): Carswell & Co.

Though the title of this book may be considered rather uninviting, the contents are exceedingly interesting and instructive. The intention of the author is to present to medical men the legal aspects of our dealings with the public. Thus such important questions as fees, malpractice, medical experts, relations with patients, etc., are fully dealt with. Brief chapters are also devoted to Dentists, Druggists and Partners. Cases are reported at length which have occurred in Great Britain and the United States, as well as in this country, so that it will doubtless become a book of reference for members of the legal profession also. The author, however, deals with the law as it exists in Ontario only, so that it loses much of its interest for us in the Province of Quebec, where the civil law is based on the Code

Napoleon. However, notwithstanding that, we would recommend this book strongly to our *confrères*, and trust that they may derive as much pleasure and profit from its perusal as we have experienced.

A Reference Handbook of the Medical Sciences.

Being a complete and convenient work of reference upon topics belonging to the entire range of scientific and practical medicine, and consisting of a series of concise essays and brief paragraphs arranged in the alphabetical order of the topics of which they treat. Prepared by writers who are experts in their respective departments. Illustrated by chromo-lithographs and fine wood-engravings. Edited by ALBERT H. BUCK, M.D. Vol. I. New York: Wm. Wood & Co.

It has been very generally known for more than a year past that this ambitious handbook was in course of preparation, and from the names of the contributors we were led to expect a high class of work. We may say at once that we feel satisfied that its many excellencies will commend it even to those whose anticipations may have been most sanguine. The enormous field which it is proposed to cover must have necessitated great labor in preparation, and great care in the selection of writers of known ability to do their share in ensuring a compilation of sound teaching and complete information. To judge from the first volume, now before us, the editor has amply proved his capacity for the arduous undertaking he set before him—his previous experience in connection with the successful translation of Ziemssen's great Cyclopædia of Medicine having no doubt been of great service. Vol. I includes from AAC to CAT, and turn, if you will, to any given word having reference to Medicine, Surgery, Anatomy, Physiology, Chemistry, Therapeutics, Ophthalmology, Gynecology, or any other of the numerous branches of scientific and practical medicine, and you will find a clearly written article giving, without verbosity, the substance of our present knowledge upon that subject. It is called a handbook of reference, but is in reality a cyclopædia, so thoroughly are many of the matters

in hand treated of. Indeed its owner will be at once in possession of a small library in itself. The plan of having numerous contributors is that which commends itself as the most effective, and is that which has been followed in the most popular works of this kind at the present day. A glance at the list of contributors shows the names of many of the best known writers in the United States, and we are glad to observe that quite a number of Canadian physicians have also been enlisted in the good work. We may mention amongst the latter, Dr. Gardner on the Female Bladder, Dr. R. MacDonnell on the Anatomy of the Abdomen, Dr. Mills on Chemistry of the Brain and Nerves, Dr. Geo. Ross on Thoracic Aneurism, Dr. Shepherd on Anomalies of Arteries, etc., Dr. Jas. Stewart on Antipyretics and other subjects connected with Therapeutics, and Dr. Wilkins on Acetonæmia and Acetonuria. We are glad to know that a good subscription list has already been secured in Canada, and hope that this will now be largely extended. The get-up is in every respect excellent. A few well-executed chromo-lithographs are introduced, and a profusion of woodcuts has allowed the writers the opportunity of illustrating many original cases.

The Physician's Visiting List (Lindsay & Blakiston's) for 1886. 25th year of its publication. Philadelphia : P. Blakiston & Co.

The Medical News Visiting List for 1886. Philadelphia : Lea Brothers & Co.

The former comes to us in the well-known form, and will no doubt maintain its standing as a popular favorite with the profession. The latter is particularly neatly gotten up. A special feature is the manner in which the edges of the leaves are nicked out for the finger so that each separate department can be turned to in a moment. It is "just the thing."

Books and Pamphlets Received.

LECTURES ON THE DISEASES OF THE NOSE AND THROAT. By Chas. E. Sajons, M.D. With 100 chrome-lithographs. Philadelphia: F. A. Davis, publisher.

AN ATLAS OF CLINICAL MICROSCOPY. By Alexander Peyer, M.D. Translated and edited by Alfred C. Girard, M.D. First American from the manuscript of the second German edition. With additions; 90 plates. New York: D. Appleton & Co.

RATIONALISM IN MEDICAL TREATMENT, OR THE RESTORATION OF CHEMISM: THE SYSTEM OF THE FUTURE. By William Thornton. Boston: Published by the author.

EPILEPSY AND OTHER CHRONIC CONVULSIVE DISEASES, THEIR CAUSES, SYMPTOMS AND TREATMENT. By W. R. Gowers, M.D. F.R.C.P. New York: Wm. Wood & Co.

POST-MORTEM EXAMINATIONS, WITH ESPECIAL REFERENCE TO MEDICO-LEGAL PRACTICE. By Prof. Rudolf Virchow. Translated by T. P. Smith, M.D. From the fourth German edition. Philadelphia: P. Blakiston, Son & Co.

EPITOME OF DISEASES OF THE SKIN. By Louis A. Duhring, M.D. Philadelphia: J. B. Lippincott Co.

A TEXT-BOOK OF PHARMACOLOGY, THERAPEUTICS, AND MATERIA MEDICA. By T. Lauder Brunton, M.D., &c. Adapted to the United States Pharmacopœia by Francis H. Williams, M.D., Boston, Mass. Philadelphia: Lea Brothers & Co.

ACNE, ITS ETIOLOGY, PATHOLOGY AND TREATMENT. By L. Duncan Bulkley, A.M., M.D. New York and London: G. P. Putnam's Sons.

THE PEDIGREE OF DISEASE. Six Lectures on Temperament, Idiosyncrasy and Diathesis. By Jonathan Hutchinson, F.R.S. New York: William Wood & Co.

A SYSTEM OF OBSTETRIC MEDICINE AND SURGERY, THEORETICAL AND CLINICAL. By Robert Barnes, M.D., and Fancourt Barnes, M.D. 131 woodcuts. Philadelphia: Lea Brothers & Co.

MANUAL OF THE DISEASES OF WOMEN. A concise and systematic exposition of the Theory and Practice of Gynæcology. By Charles H. May, M.D. Philadelphia: Lea Brothers & Co.

THE PRINCIPLES AND PRACTICE OF SURGERY. By John Ashurst, Jr., M.D. Fourth edition; enlarged and thoroughly revised. With 597 illustrations. Philadelphia: Lea Brothers & Co.

Society Proceedings.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, Oct. 23, 1885.

T. G. RODDICK, M.D., PRESIDENT, IN THE CHAIR.

New Official Preparations.—DR. REED showed a series of drugs and preparations illustrating the additions to the British Pharmacopœia of 1885, which had been prepared for him by A. H. Mason, F.C.S. They were examined by the members with much interest.

DR. WM. GARDNER exhibited the following pathological specimens:—

1. *Uterus Septus, with atresia and hæmatometra of the left chamber.*—This specimen was exhibited at the meeting of the Canadian Medical Association, at Chatham, last September, and described in this JOURNAL in the report of that meeting.

2. *A Dermoid Ovarian Cyst*, removed 15 days previously from a woman 47 years of age; three years past the menopause and the mother of children. The tumor was the size of a large adult head, and contained a greyish-yellow, ochre-colored, thick fluid, a bunch of hair, one tooth, and a plate of bone in the cyst wall. It had been of slow growth, causing very little in the way of symptoms, but was removed because of the fact that such patients are in constant danger of peritonitis from bursting or suppuration of the tumor, and of axial rotation, with consequent gangrene or hemorrhage within the cyst. Axial rotation of the tumor is an accident to which it would appear dermoid cysts are especially prone. The patient made a good recovery.

3. *A small, solid Ovarian Tumor of the left side*, removed a week previous to the date of meeting from a married woman, aged 56, the mother of several children, and five years past the menopause. The tumor measured $4 \times 2\frac{1}{2}$ inches, was very hard and heavy for its size, and contained a cyst as large as a small hen's egg. This was ruptured during the operation. The cut surface was very firm, not markedly fibrous, of faintly yellow color. The disease was confined to the ovary. The pedicle was slender. There was a general enlargement of the fundus of the uterus, which also presented a nodulated projection. The microscopical characters determined by Dr. Wyatt Johnston, lecturer on Pathology and Morbid Anatomy in McGill University, leave the question of the real nature of the growth in doubt to a certain extent. Dr. Gardner remarked that solid ovarian tumors are exceptionally interesting, because of their rarity and frequently malignant nature. Whatever their nature, if there be no evidence of infiltration of surrounding tissues, they ought to be removed. The propriety of this can often only be determined by abdominal section. There is ample evidence, from the experience of Sir Spencer Wells and others, that unmistakably sarcomatous tumors of the ovary may be removed without recurrence for many years or indefinitely. Dr. Johnston's report is as follows: "Tumor, on section, very firm, and consists of two different parts. The first, which is firmest, lies more superficially and forms the bulk of the tumor. On microscopic examination,

this portion is composed of epithelial elements in the shape of fully-formed and well-developed cylindrical cells arranged in circles, having the appearance of glandular ducts. These cells are uniform in size, and do not appear to infiltrate the surrounding tissue. The matrix in which these are imbedded is abundant and consists entirely of mature connective tissue, with scarcely any nuclei. The lesser and more deeply-seated half of the tumor is, in respect to its epithelial elements, precisely similar to the half just described, but its connective tissue element is entirely embryonic, consisting of young spindle cells with abundant nuclei, and apparently in vigorous growth. From the general appearance of the tumor, it looks rather as if the mature half was being developed out of the younger, than that the younger tissues were sarcomatous, and developed in addition to the older formation."

Extraction of Large Calculi.—DR. HINGSTON, alluding to a large calculus, exhibited to the Society some months ago, which he had removed by the lateral method, stated that a portion of the medical press, in noticing it, curiously misrepresented Sir Henry Thompson in not having the context considered as well as the sentence quoted. The quotation was: "No incision can be made in the region which belongs to that operation" (the lateral) "through which a calculus of three ounces or more can be extracted." The context, which greatly modified it, is: "Laceration, either avowedly made by instruments, or but half concealed under the name of gradual distention, invariably takes place, and that affecting very important structures often to a large extent." In making this correction, Dr. Hingston observed that while he admitted that the extraction of large calculi would often be attended with more or less laceration, he thought the limit of three ounces was below the possible, and should not decide the question as between the lateral and supra-pubic operations. In the last case published in Canada, the supra-pubic operation for a calculus of three ounces was fatal, while the lateral operation for a calculus nearly twice that size was successful, and without injury to the neck of the bladder or other important structures.

DR. MIGNAULT read the following report of the kidney removed by Dr. Hingston, and exhibited at last meeting:—The organ presented a uniform grey color, and was much enlarged, measuring about six inches in length. Upon section, the cortical substance was very thin, and seemed to have lost its usual elements, being of the same grey color as the external surface of the organ, and being also tough and fibrous. The pyramids of Malpighi have entirely disappeared, and the usual prolongations

of the capsule are very thin and fibrous, leaving large cavities between them. The pelvis of the kidney was much contracted, and the opening of the ureter could not be distinguished. The ureter was not removed with the specimen, or, at least, was not with it on examination.

Extirpation of Kidney for Calculous Pyelitis.—DR. SHEPHERD showed a kidney which he had removed from a woman some five weeks before. The history of the case is as follows:—

Eliza T., aged 24, married, was admitted into the General Hospital under Dr. Wilkins, on the 10th of August, 1885, suffering from emaciation, general weakness, and a painful swelling on the left side of the abdomen. Family history threw no light on the case; no consumption. Had herself always been healthy up to nine months before entrance into the hospital; at that time she began to loose flesh and to have pains in left side of abdomen, which occasionally extended down to the thigh, but these were never severe. Has had four children, and after birth of last child, five months ago, first noticed a tender swelling or rather fulness on left side of abdomen; at this time she noticed her urine was milky and that a deposit was thrown down when it was left standing for a short time. Had never passed any blood or had attacks of renal colic, nor had she ever had chills or sweatings. When admitted into the hospital she was in a condition of extreme emaciation and very weak; pulse was 140 and temperature 100°F. She had no cough and her lungs were probably healthy. She had, however, frequent and painful micturition, and the urine contained large quantities of pus; some days, however, it would be quite clear. On examining the abdomen the superficial abdominal veins were found much enlarged and a distinct fulness was seen in the left lumbar and iliac regions. Palpation revealed a large tumor which extended across the abdomen to within one inch of the umbilicus, above it reached as high as the spleen, and below could be felt reaching down as far as the brim of the true pelvis. By bimanual palpation the tumor could be grasped between the hands and moved slightly; no fluctuation could be distinctly made out. The tumor was very tender on pressure. Towards the latter end of August, Dr. Wilkins transferred the case to the surgical wards under Dr. Shepherd. At that time her condition was better than on entrance to hospital, and she had gained flesh. The tumor had not increased in size since she had been under observation, but her pulse continued rapid and her temperature ranged from 99° to 101.5°, the other symptoms were much the same. After a consultation with his colleagues, Dr. Shepherd decided to explore

the kidney and to perform either nephrotomy or nephrectomy, as would be determined by the condition of affairs.

On September 17th, the patient having been etherized, the right kidney was first examined by palpation and made out easily to be normal size and apparently healthy ; it was freely movable. An incision was then made, as for colotomy, in left lumbar region, between last rib and crest of the ilium, commencing at the outer edge of the erector spinæ muscle, and extending outwards for some five inches ; the kidney tumor was soon reached and found to be freely fluctuating ; it was aspirated and some stinking pus withdrawn ; a needle was passed in and soon came in contact with a calculus. The tumor, which was somewhat larger than a child's head, was now freely incised and a large quantity of foul-smelling pus evacuated through the opening thus made. The finger was introduced and the pelvis was found filled with a large calculus ; owing to the disorganized state of the kidney and the bad general condition of the patient it was decided immediately to extirpate the kidney. The upper end was first freed without difficulty, and then the lower end and posterior portion ; these latter portions were freed with some difficulty, especially the lower end, which reached far down towards the true pelvis. To enable the hand to get in freely, the original incision was enlarged by incisions above and below at right angles, and several more incisions made into some of the pus-filled saccules. The kidney was now easily delivered through the wound and the vessels entering the hilus tied with silk and divided. The ureter, into which a portion of the calculus extended, was then ligatured and divided, and after cutting some strands of cellular tissue with scissors the kidney came away. Whilst freeing the kidney there was considerable venous hemorrhage from the torn vessels at upper and posterior part, which, owing to the pressure of the tumor, were much engorged. This was stopped by sponge pressure. The large cavity caused by the removal of the kidney was quickly filled up by the intestines pushing forward the peritoneum. The cavity was washed out with bichloride 1 to 2000, and a large drainage tube introduced. The wound was brought together with catgut sutures and dressed with iodoform powder and sublimate jute pads. The patient, although suffering considerably from shock, recovered well from the operation. She had some vomiting, which was controlled by champagne, and for the first 24 hours had brandy and beef-tea per rectum. During the first night there was considerable oozing, and the dressings had to be changed the second day. At this dressing the drainage tube was much shortened. More than 30

ounces of urine were passed the day after operation. Her pulse, which after the operation was very weak and 160, soon fell to 120, and temperature after first day never reached 100°F. The woman rapidly recovered, and the wound with these dressings healed by first intention, except at the point where drainage-tube had been. At the end of the third week she was able to wheel herself about the ward in a chair, and during the past week has been walking about. Her appetite is good, and she is rapidly regaining flesh. The daily amount of urine excreted is from 35 to 40 ounces.

The kidney was now exhibited, and was seen to be of large size and composed of a number of saccules which had contained pus; the pyramidal portion had all disappeared, and the cortex was about a quarter of an inch thick. The pelvis was filled with a large oxalate of lime calculus, which extended down into the ureter, almost completely blocking it up. In one of the saccules at the lower end of the kidney was a small round calculus the size of a marble. Dr. Shepherd said about a pint of pus had been removed from the kidney.

DR. FENWICK congratulated Dr. Shepherd on the success of his case, and said that it had never been his fortune to remove a kidney, although he had many times seen it whilst performing colotomy, and had occasionally cut down on it for abscesses in its neighborhood. He had always thought that there was not much difficulty in the operation, and that if the patient survived the shock the prognosis as to recovery was good.

DR. HINGSTON asked why Dr. Shepherd did not remove the stone and leave the kidney, and why he cut the quadratus lumborum muscle.

The PRESIDENT said he had been present at the operation, and thought that Dr. Shepherd had acted properly in removing the kidney, as the woman's condition was such that she could not have stood the drain which must have still gone on had the stone merely been removed; besides, removal of the stone could not have been effected without further serious injury to the organ. He was pleased to find how much more room was obtained by making incisions at right angles to the first one, and how easily the kidney was delivered when this was done. He himself had never performed nephrectomy, though some two years ago he had performed nephrotomy in a case of scrofulous pyelitis; the patient was relieved by the operation, but subsequently died of phthisis.

DR. SHEPHERD, in reply, said that he did not think removal

of the stone could have been easily accomplished without so much injuring the kidney as to render it useless ; as it was, the kidney was so disorganized that he did not think it worth preserving, and the woman's condition before operation was so bad that he thought complete removal of the source of disease was by far the best procedure. He had cut the quadratus lumborum muscle so as to get more room posteriorly. He always did so when performing colotomy, and it never interfered with the good result of the operation. Dr. Shepherd considered the operation more dangerous than difficult.

Excision of the Uterus.—DR. TRENHOLME reported that the two cases he had brought before the Society some weeks ago were doing well (one excision having been for uterine fibroid, and the other for cancerous disease).

(From our own Correspondent.)

CHATHAM MEDICAL AND SURGICAL SOCIETY.

Stated Meeting, Nov. 5th, 1885.

THE PRESIDENT, DR. BRAY, IN THE CHAIR.

Case of Gunshot Wound of Base of Lung, with Implication of Colon—Recovery.—DR. BACKUS read a report of this interesting case, which came under his care while acting as ship surgeon on the steamship *Glencoe*, February 11th, 1884. It was the result of an accident which happened to the cabin boy, aged 15. The entrance wound was about one-third of an inch in diameter and situated $2\frac{1}{2}$ inches to the left of the median line, in front of and on a line with the cartilage of the 8th rib. The bullet lodged beneath the integument, two inches beneath the axillary line in the 8th intercostal space. Shock was severe, but consciousness was not lost, primary external hæmorrhage was slight. Intense pain was complained of at the lower angle of the scapula, which was controlled by morphia. Some particles of clothing were removed from the wound, but no probing was attempted. A wide roller bandage was placed around the chest, holding in position a compress of lint soaked in carbolized oil. Severe vomiting occurred during the night, the ejected matters consisting simply of the contents of the stomach mixed with bile. There was no hæmoptysis following the accident, or at any subsequent period. The bullet was removed the following morning, under chloroform, and was found to be three-quarters of an inch in length and half an inch in diameter. On the third day the left side became markedly emphysematous,

and signs of pleurisy and pneumonia developed. His temperature ranged from 100° to 103° F., pulse from 120 to 132, and respiration from 40 to 52 per minute. Secondary hemorrhage occurred on the 16th of February, about midnight, while the patient was asleep. It was controlled by means of ergot and turpentine internally, and cold applications and pressure externally. It recurred the next day, and was checked by similar means. At this time air passed freely in and out of the anterior wound during respiration. The wound behind, through which the bullet was extracted, closed in a few days. Both wounds were treated with compression of carbolized lint and strapping. The wide bandage had to be abandoned after the second day, as it seemed to augment the pain and interfere with the respiratory movements. The general treatment was supporting and stimulating, with morphia when rendered necessary. The patient was landed February 19th at Point de Galle, on the island of Ceylon, and at once conveyed to the hospital there. He was not again seen by Dr. Backus until June 2nd. While in the hospital he was under the care of Dr. Brickenberk, from whom Dr. Backus obtained the subsequent history of the case. On admission his temperature was 99·6°, pulse 148 and respiration 54. His wound was dressed antiseptically, and he was ordered a quinine mixture, opium *pro re nata*, liquid food, and brandy. On February 22nd a marked faecal odor being observed about his dressings, they were removed, and 64 ounces of offensive faeces escaped from the opening. The wound was then syringed with a carbolic acid lotion and a drainage-tube inserted. By March 5th the wound had closed, but rigors and an elevated temperature occurring the wound was reopened, when 24 ounces of faecal fluid escaped. On March 15th the wound was finally closed, and on the 30th of the month he left the hospital. When again examined by Dr. Backus the boy was in good health, but complained of pain on the injured side and shortness of breath on slight exertion. Inspection revealed lesser respiratory movements on the left side, which measured three-quarters of an inch less than the right. The percussion note was slightly duller at left base. On auscultation no abnormal sounds were detected, though breath sounds come feeble.

The case is somewhat remarkable, in the entire absence of blood from his sputum, vomited matters, and from his stools, at any time; and there being no symptoms of peritonitis, also his recovering under adverse circumstances.

Remarks on Vaccination.—DR. FLEMMING considered it an opportune time for offering for discussion the subject of vaccination. He referred to the generally conceded fact that it was perhaps the greatest discovery for which the world was indebted to medicine; but notwithstanding statistical and well-established proofs as to its utility in saving millions of lives from premature and horrible death, still a few remained to obstruct its universal adoption. He stated that when he first commenced to practice, he was in the habit of following the English practice of making three to five punctures about half an inch or more apart, as statistics show that from three to five cicatrices give greater immunity than less; he then used humanized vaccine, but latterly, since it was the fashion, he had been using bovine virus, from which he had obtained effects, local and constitutional, far more severe from one insertion, than from five of the humanized lymph; from this he concluded that one insertion of the former ought to be as effectual as five of the latter. He, however, gave his preference to properly selected humanized vaccine lymph, as he considered it gave equal immunity without inflicting such distressing symptoms. The popular belief that there is a direct ratio between the susceptibility of persons to vaccination and smallpox, was shown by statistics to be erroneous. He urged vaccination as necessary, especially at every threatened invasion of the enemy. He thought that the law requiring all children before three or four months old to be vaccinated ought to be as vigorously enforced in Canada as in England, as it is considered by the highest authorities the most suitable time for vaccination, the child being free from the disturbing influences of teething, nourished by a milk diet, enjoying as a rule perfect health, having no fear of the operation, less sensible to pain, incapable of interfering with the vesicles, and that one-quarter of the deaths from smallpox are in children under one year. He also spoke of the responsibility of the physician in doing his work efficiently and properly, and concluded his remarks by referring to the annoying and distressing complications which sometimes arise and cause much of the public prejudice against vaccination.

DR. RUTHERFORD said he had almost entirely given up using bovine and returned to the use of humanized vaccine lymph and arm-to-arm vaccination. Stated that the law in Ontario regarding revaccination was not compulsory unless smallpox was threatened, and considered it the duty of medical men to use their efforts in obtaining a more stringent law.

DR. TYE had formerly vaccinated entirely from arm-to-arm, but latterly had been using bovine virus. Is strongly in favor of the former procedure; thought the symptoms produced by the bovine virus unnecessarily severe and its effects more frequently spurious. Considered revaccination proper and safe, and should be insisted upon; instanced an epidemic in a tribe of Indians in the county of Bothwell, in which 48 cases occurred with 16 deaths, the source of the contagion being a chief, who had been primarily vaccinated but never revaccinated. He contracted the disease on an official visit to Ottawa. Had only one pustule, which was unobserved until others had contracted the disease in a malignant form.

DR. HOLMES stated that the Michigan State Board of Health condemned the use of humanized virus, and they considered that virus which had passed through one person was worthless because unreliable; but he could not agree with such statements, and cited a case which occurred in his practice where a father was attacked with a severe type of smallpox,—the other members of the family, 10 in number, were at once vaccinated with humanized virus, and none contracted the disease though exposed to it daily. To avoid unpleasant complications vaccination should not be done promiscuously; teething children, pregnant women, people in feeble health, persons recently exposed to the exanthemata or erysipelas, or suffering from skin diseases, should not be vaccinated unless exposed to smallpox.

DR. MURPHY had vaccinated recently a large school of girls with bovine virus, and they were all very ill; had high temperatures and marked constitutional symptoms; vesicle did not develop, but instead a sloughing ulcer, and in some cases abscess in axillary glands. He considered the virus not sufficiently attenuated before physicians obtained it. Would use humanized virus in future; urged compulsory vaccination.

The PRESIDENT considered bovine and humanized virus equally effective, but preferred arm-to-arm vaccination as giving the same immunity with less unpleasant results, thus avoiding public prejudice. Thought that medical men should cry down the present popular demand for bovine vaccine. Had a case recently in which a crop of umbilicated vesicles appeared over the entire body after a bovine vaccination. Spoke strongly in favor of making revaccination compulsory.

Extracts from British and Foreign Journals.

Unless otherwise stated the translations are made specially for this Journal.

The Treatment of Typhoid Fever.—By Prof. J. M. DaCosta (*Coll. and Clin. Record*):

1. **HYGIENIC.**—Place the patient in a large, well-ventilated room, so that he may get *plenty of fresh air*. Allow but one person (nurse) with him. Keep friends away. Enjoin cleanliness. Keep patient washed twice daily with vinegar and water, or a solution of permanganate of potassium. Disinfect the dejections with carbolic acid or chloride of zinc, etc.

Nourishment.—There are times when the patient is weakest, as in the early morning; this is the case in all low fevers. Nourish him every two hours with beef or mutton broths, alternating with milk. Other broths, as chicken, etc., may be used. If the patient craves for more solid food, allow him at the mid-day meal a little arrowroot, boiled in milk, or a soft-boiled egg. Excepting these, allow no form of solid aliment until convalescence is completely established, and even then be careful. *Be sure to feed the patient between 4 a.m. and 5 a.m.*; even wake him at this time to feed him. Allow a liberal supply of water, or toast water, ginger syrup and water, or claret and water. It will keep the kidneys washed out.

2. **MEDICAL TREATMENT.**—Different plans have been instituted: 1. Quinine, which has been justly abandoned. 2. The mercurial plan—calomel, grs. v-x per diem, at the first stage of fever—said to modify the intensity of the fever process. Not an effective process. 3. Carbolic acid, gtt. j-ij, in mint water, every two hours. This remedy is not to be relied upon. 4. Iodine treatment, as Lugol's solution, gtt. ij, four times a day. This promises something good in the way of treatment. 5. The plan used by Dr. Bartholow, in the following combination: \mathcal{R} Acid. Carbolic., f 5 j; Tinct. Iodinii, f 5 ij. Dose, gtt. i-ij, every two or three hours. This is a good plan of treatment. 6. My own plan is by the use of mineral acids. Those that use this plan in Germany prefer sulphuric acid; in England, hydrochloric; in France, phosphoric; and in America, nitro-hydrochloric acids. Of the last, an ordinary prescription is \mathcal{M} xx of the dilute acid in simple elixir. This will also control, to some extent, the diarrhoea.

Do nothing else if you can possibly get along without, but guard against complications, and treat them immediately as they

arise. The first prominent symptom to be noticed is the *diarrhœa*. If there are but three stools, unless they be unusually large, do nothing. If very profuse, give a little tinct. opii camphorata at night, or an opium suppository, gr. j. Should this fail, use: \mathcal{R} Bismuthi Subnitrat, gr. x-xx; Opii, gr. ss-j. Every three hours. If this fails, try carbolic acid, gtt. j, with morphinæ sulph., every three hours. Often cupri sulph., gr. 1-12, with opium, gr. 1-3, is very effective.

For the *Tympany*, cold applications, or injections of vinegar, f 3 j-ij to water Oj. Internally administer turpentine, gtt. vij, in emulsion, with morphia, gr. 1-48. Often strychnia is useful, but secondary to the above.

Thoracic Symptoms.—The pulmonary congestion occasions cough; the patient's position must, therefore, be changed frequently. If the patient is not too feeble, use dry cups. The internal use of turpentine is of avail when marked fever is associated with the congestion. Do not give expectorants. If there is a large accumulation of mucus, use aromatic spirits of ammonia.

Sustain the circulation by quinine in tonic doses, gr. vj-x, in the twenty-four hours, but alcohol is the best, repeated in small doses, to keep up the heart's action. In the early morning increase the dose. Under stimulus the pulse of 150 should come down to 120 or 110. The first sound of the heart is the key to the amount required. From four to ten ounces may be necessary. For nervous symptoms, as headache, delirium, etc., give opium with camphor or with belladonnæ. Chloral is the most useful, but do not give it when the heart is weak.

For *high fever*, cold water is excellent. Put the patient in a bath until the temperature of the water gets to 72°F. The tendency to intestinal hemorrhage is greater in this treatment than by quinine, which is next in importance, and should be given in doses of \mathcal{D} i-5ss in the day.

For *intestinal hemorrhage*, ergotin, gr. ij-vij, hypodermically, or f 3 j fluid extract of ergot may be given every hour or two. Sulphuric acid is also useful. Opium, to keep the bowels at rest, is indispensable. Cut down milk and stimulus now.

Spreading tenderness (peritonitis).—Tinct. opii deodorat., gtt. x every hour, and gr. j opium suppository at the same time. The suppository must not be repeated for four hours.

Should the patient have *parotitis*, ice is the best treatment; also tinct. ferri chloridi, to enrich the blood. For the *functional palsiés*, use strychnia.

Prolonged Retention treated by Aspiration daily for Five Weeks.—Dr. J. T. Hague thus writes in the *Lancet*, August 29: Amongst instruments of modern invention, few are of more practical use in the treatment of disease than the aspirator, and one of its most generally recognized uses is for emptying the bladder in cases of retention where a catheter cannot be passed. In such cases the choice of treatment lies between puncture of the bladder per rectum with a curved trocar and canula—a proceeding certainly requiring expertness—and aspiration immediately above the pubes. The latter treatment is certainly easy, and, as I think, safe. At any rate the following case bears out that belief:—On September 3rd last I was called to see a patient, aged 90, who was suffering from retention of forty-eight hours' duration, due to enlarged prostate. Of course catheterization was the treatment indicated, and this was tried most carefully and perseveringly by Dr. McGuinness and myself with both silver and soft catheters; but, partly by reason of the enlarged prostate and partly from numerous false passages, which made it almost impossible to keep the catheter in the urethra, all efforts to reach the bladder with catheters failed. Then, as it was an absolute necessity that immediate relief should be given, we decided to aspirate. That was done, and thirty-five ounces of urine were drawn off, the operation causing but little pain. On the following morning, as no ill effects were visible, it was decided to aspirate again, instead of trying the catheter, so that the urethra might recover itself and the false passages heal by rest. This was done, and has been repeated daily for thirty-four days, all the attempts by several surgeons to catheterize during this meeting with failure. On the 7th of October, however, I succeeded twice in passing a soft catheter. This patient, therefore—an old man of 90—passed no water per urethram for five weeks, during which period he was aspirated thirty-four times, and has had neither cystitis nor peritonitis; the only discoverable ill effect being an inflammatory thickening about the seat of the numerous punctures. This is the third case in which I have aspirated the bladder—one case being a stricture with acute gonorrhoea; the other, calculus impacted in the urethra. In neither of these cases, however, was it necessary to operate more than once. I have never found any ill consequence arise from the operation, and I cannot see what advantage the old method of puncture through the rectum possesses over it. It would certainly have been impossible to have repeated this latter proceeding thirty-four times.

CANADA

Medical and Surgical Journal.

MONTREAL, DECEMBER, 1885.

CHOLERA AND THE COMMA BACILLUS.

The recent investigations on this subject, owing to their occurrence at a time when Europe and America are dreading a general cholera epidemic, have received a far greater share of public attention than has ever attended any previous investigation of this nature. Since the theories regarding the toxic action of bacteria in diseases have obtained general credence, many of the objections, obtaining so long as bacteria were regarded as having local effect, are now obviated, and cholera can rationally be looked upon as a disease of probable bacterial origin.

The main interest of the question centres now on the point as to whether Koch's bacillus is or is not the cause of the malady. Before a particular organism can be clearly held as the proven cause of any special disease, after its occurrence in connection with this disease has been fully established, the natural history of the organism itself must be clearly made out and distinguished from all others and then shewn capable of producing the disease. Even at this stage the proof would be greatly weakened if some other organism appeared to have probabilities in its favor. In the case of cholera, though the *co-occurrence* of the comma bacillus and the disease are thoroughly established—(it is interesting here to note that Virchow, in 1848, was the first to note the remarkable abundance of vibrionic organisms in cholera evacuations)—yet up to 1884 the bacillus had appeared perfectly incapable of producing cholera experimentally, while its identity was constantly disputed, and it was held to be the same as numerous other bacteria.

The chief upholder of the theory that Koch's microbe was identical with other forms, normally present in the mouth, was Dr. Klein. It had long been known that several forms of comma-like bacilli occurred in the mouth, and no one was better aware of that fact than Koch himself, and accordingly he laid little stress upon the mere appearance of his organism, basing its identity entirely on physiological grounds, chiefly on its mode of growth and chemical and thermal peculiarities, and claiming that in these points it differed from all other known bacteria—a statement which Klein has failed even to shake, still less to disprove, by his Cholera Commission Report or by his demonstration in March last before the Medical and Chirurgical Society of London, his organisms having utterly refused to grow on the very food upon which Koch's thrived best.

Among the promoters of other cholera microbes, none has become so notorious as Dr. Ferran of Madrid, the discoverer, or, more strictly speaking, inventor of a remarkable modified cholera virus, which he declared capable of producing immunity from cholera in persons inoculated with it, and by the sanction of the Spanish Government operated upon thousands of the inhabitants of cholera-infected districts. Although Dr. Ferran's enterprise proved a brilliant financial success, yet certain circumstances in connection with it have brought both himself and his organism into very bad repute. His flat refusal to redeem a promise of demonstrating to a competent body of foreign savants the nature of his virus and his methods of investigation is most reprehensible; and further, though it has not yet transpired whether he went so far as actually to "doctor" his statistics, or whether he merely inoculated them with some of his "modified virus," the fact remains that as published by him they remain in distinct contradiction to those of a government commission appointed to observe and report upon the results of his inoculations.

All the negative arguments against Koch's cholera theory having thus fallen through, it only remained for its supporters to prove the bacillus capable of causing cholera. Until within the last year, all attempts of this sort had invariably resulted in utter failure.

In 1884 Drs. Nicati and Reitsch established the fact that dogs and guinea-pigs, in whom cultures of comma bacilli had been injected into the duodenum, died with choleraic symptoms in many instances. Preliminary ligature of the bile ducts was at first practised, but afterwards discarded as being unnecessary and misleading. The result of these researches were fully corroborated by Babes, Watson Cheyne, and Koch.* The method, however, still had too many inherent fallacies to be of much practical use. Koch, therefore, resorted once more to his original method of feeding his animals with the bacilli. Out of 20 animals so experimented on 19 remained unaffected; one of them, which had aborted just before the feeding, died with all the symptoms of cholera—its evacuations and intestines contained enormous quantities of comma bacilli. Thinking that, perhaps, in the unsuccessful experiments the bacilli had passed too quickly through the small intestines, he became confirmed in this view after a number of carefully chosen experiments of feeding with small glass pellets, and cultures of easily recognized micro-organisms.

Koch, accordingly, performed his feeding experiments with the following precautions:—His guinea-pigs were starved 36 hours to remove excess of food from the stomach, and a small (3iv) dose of a pure culture of comma bacillus was injected into the stomach through a catheter, being mixed with ʒi of a 5 per cent. solution of caustic soda, this being given simultaneously with an intra-abdominal injection of tincture of opium in the dose of ℥iiss for every ounce of the animal's weight.

This operation was followed by deep narcosis, lasting about one hour, when, after a few hours of apparently good health, the animal would rapidly develop marked symptoms of cholera, with purging, cramps, paralysis of the hinder extremities and collapse. At this autopsy congestion of the intestines was invariably found, with vast numbers of genuine comma bacilli in the intestinal contents and tissues. Out of 35 animals experimented on, 30 died in this manner.

* See minutes of second Cholera Conference held in Berlin May 1885.

By employing only one-third of one drop of cholera bouillon, seven died and seven recovered; and in using a still more minute quantity only seven died out of twenty-four.

In 85 successful inoculations, the clinical phenomena and post-mortem appearances were precisely similar in every case. Control experiments, differing only in the substitution of non-pathogenic bacteria (many of these organisms occurring in the mouth and intestines), for the comma bacillus produced no ill effects whatever.

The result of numerous experiments tried with antherax and other pathogenic bacteria are not yet published. Of many experiments conducted after this method with other bacilli supposed to be connected with cholera, the only case in which the conditions produced or much resembled cholera was in the case of Finkler's comma bacillus, found by him in cases of cholera morbus (an organism looking like Koch's but differing widely from it in physiological character). This produced fatal diarrhoea and collapse in 20 per cent. of the cases experimented upon, but the post-mortem appearance differed from those of Koch's microbe in not producing any congestion of the intestines, while the symptoms also had not the same uniformly typical character. The "Naples" cholera bacillus, described by Dr. Emmerich of Munich, though producing a form of septic poisoning, is incapable of producing anything resembling true cholera.

A remarkable coincidence is the occurrence in one of the workers in Koch's course of instruction on culture of the comma bacillus of a sharp attack of apparently true cholera. In his stools many comma bacilli occurred, and a gelatine culture from this source is regarded by Koch as the gem of his collection.

While, therefore, nothing positive can be said in the absence of outside corroboration and the extension of experiments to clear up the doubtful points, still the large amount of direct proof,—of direct proof of the potency of a hitherto apparently inert organism—taken together with the failure to disprove its occurrence, or identity, and the absence of stronger proof in favor of any other agent, allows us to suppose that in

all probability the comma bacillus will prove the cause of Asiatic cholera,—and all must admit that for the discovery of these new and valuable methods and precautions for use in connection with bacterial experiments through the digestive system, the profession is deeply indebted to Dr. Koch. A point of great practical interest in connection with the subject, is the important *role* which opium plays in aiding the action of the cholera virus ; and few practitioners would now be bold enough, in view of these new developments, to follow the time-honored custom of uniformly prescribing opium during the early stages of a suspected case of cholera.

THE INTERNATIONAL CONGRESS.

The prospects of the Washington Congress of 1887 do not appear to grow brighter, and the tone of the great medical weeklies of the eastern cities shows very plainly that there is still war between the adherents of the old and the new committees. It is a great misfortune that there does not seem to be any central executive of the Congress which could step in and say—Stop this unseemly quarrelling at once, or we shall go elsewhere ! But apparently the meeting must take place in Washington or not at all. The latter alternative would be preferable if a reconciliation is not effected ; for, if matters remain as they are, it will be impossible to organize the sections with men of sufficient reputation to command success. To attract the workers of other countries the sections must be controlled by the men most eminent in their respective departments, but the present officers of sections, with few exceptions, do not reach beyond a respectable mediocrity, and are men that we cannot regard as representative. If the Executive cannot secure the return of the leaders in thought and work, and fails to engage their hearty coöperation, but one thing remains to be done, and in the interests of the profession of the United States, it should be done soon—give it up. Better no Congress than a prolongation of this unseemly strife.

THE SMALLPOX.—The good effects expected from the energetic measures instituted by the Board of Health are, we are happy to be able to state, being already experienced. The new hospitals are ample for all the demand upon them. They are efficiently conducted, and command the public confidence. The members of the Provincial College in this city have undertaken the duty of making periodical inspections. Their reports, having been very favorable, have done much to remove prejudice and induce patients to submit to removal. Those permitted to remain at home are satisfactorily isolated and their houses guarded. The decrease in the mortality during the past three weeks has been most marked. The hope is fully entertained that the epidemic is controlled, and that by steady perseverance in the thorough measures at present in operation, its approaching end may soon be discerned.

—We took occasion a few weeks ago to notice Mr. Schäfer's new book, "The Essentials of Histology;" at that time the English edition only was in our hands. As this is a valuable book to all students and microscopists, we wish to say that we are now in receipt of the same work from the publishing house of Lea Brother & Co., Philadelphia, who have done full justice to it in the way of handsome typography and woodcuts.

Correspondence.

NOTES FROM OUR TORONTO CORRESPONDENT.

During the month of October, medical circles in Toronto have been particularly interested in the opening of our medical colleges—namely, the Toronto School of Medicine, Trinity Medical School, and the Women's Medical College, all of which commenced their sessions on Thursday, the 1st of October.

At the Toronto School of Medicine, the opening lecture was delivered by Dr. W. A. Ogden, and a *conversazione* was also held in the evening, at which were gathered a great many of the *élite* of Toronto to do honor to the occasion of opening the spacious new wing which has this year been erected as an addition to the school, and affords much valuable accommodation to

the large number of students assembled there to pursue their medical studies.

At Trinity Medical School, the opening lecture was delivered by Dr. Charles W. Covernton, the venerable Professor of Sanitary Science and the Institutes of Medicine. His lecture was a masterpiece, and the outcome of much study and thought; it contained valuable advice to the students, and touched largely upon hygiene and the recent and remote experiments of eminent scientific investigators. In the evening a *conversazione* was held, which was well patronized. It is somewhat to be regretted that the entertainments at both institutions should be held on the same evening, as the success of each entertainment might have been even better than it was.

The epidemic of smallpox in Montreal has struck terror into the inhabitants of Toronto, and vaccination has been booming during the past two months. People have been flocking in great number to the public vaccination stations and to the offices of private practitioners to get all the protection they can from the dreadful scourge.

At a meeting of the Toronto Medical Society, held November 19th, 1885, which was devoted to the exhibition of pathological specimens, Dr. Nevitt showed, for Dr. McPhedran, a mammary gland which the latter gentleman had just amputated for malignant disease. The disease involved the axillary glands and extended high up under the clavicle. All diseased tissue, as far as could be detected, was removed.

An interesting discussion ensued, in which Drs. Davidson, Newitt, Oldwright, Cameron and Grassett took part, dealing principally with chances of the operation when disease involves adjacent structures, and also as to the value of the by some much lauded clover tea in retarding the progress of the disease. The concensus of opinion, however, was rather against the utility of clover tea.

Dr. Nevitt also exhibited a very interesting specimen consisting of the stomach, duodenum, liver, and the great vessels in the region of these organs, with a blood tumor about the size of a medium-sized orange situated in the gastro-hepatic

omentum. The symptoms came on suddenly, and death soon followed, rendering little time for an ante-mortem investigation.

This somewhat unusual case gave rise to much discussion on tumors occurring in this region, which was participated in by Drs. Graham, Grassett, Cameron, Teskey, Oldwright and Davidson. The blood tumor was considered to be an aneurism, not of the aorta, but of one of the branches given off from it in the upper part of its course. The specimen was referred to the Pathological Committee to report on.

Dr. Grassett exhibited a portion of the jaw of a woman from the region of the canine tooth, which he had removed for the cure of an old standing neuralgia, followed with complete success. The bone was not diseased; the operation was performed as a *dernier ressort* and as an experiment. It is now a month since the operation was performed, and there has been no return of the neuralgia since. The portion of bone removed was about the size of a scarlet-runner bean.

On the 11th ult. Dr. Cassidy, the President of the Toronto Medical Society, entertained the members at supper. The viands were of the most *recherche* character. The usual toasts of the evening were proposed and responded to, and the evening was a most enjoyable one,—and I am sure every one present felt, if once in his life, that he had a perfect “feast of reason and a flow of soul.”

It is very gratifying to announce the opening in Toronto, during the past few months, of a hospital for the treatment of diseases of women. The hospital, which is situated on the corner of Euclid avenue and Robinson street, was opened a few weeks ago by the Bishop of Toronto. The ceremony was attended by many of the most influential people in Toronto, evincing a very great interest in the welfare of the institution. The hospital is in connection with the Church of England Sisterhood of St. John the Divine, and may be said to have originated from a small dispensary which was carried on in the Sisters' Home by two medical gentlemen residing in the neighborhood: The internal economy of the hospital and the nursing of patients is conducted by the Sisters, under the supervision of the Mother

Superior, a lady in whom are combined many qualities which will foster the success of the institution. I cannot pass over the mention of her name without congratulating her upon the completion of the work and the large amount of success she has already achieved. It may here be added that the Mother Superior was appointed to the head of the nursing staff of the Moosè-Jaw Hospital, N.W.T., during the late rebellion, which added much to her experience in the nursing of the sick and wounded. The hospital contains about twelve beds; four of these are free, and are for patients whose means will not permit of them paying anything for their care or maintenance. The other beds range in price from three to fifteen dollars per week, according to location, etc. The hospital is so constituted that the regular practitioner can bring his patients to a private ward and have their treatment entirely in his own hands. The satisfaction that several practitioners have already had in conducting the treatment of their cases in this institution augurs well for its success. The medical staff is composed of Drs. Machell, Davidson, Berrus and Johnston, who are in attendance at the hospital for a period of two weeks in rotation. They undertake the treatment of those patients who have no regular medical attendant. The hospital is small, yet great things have often small beginnings; but for sanitary conditions and good appointments, it would be hard to find its superior.

Obituary.

DR. W. B. CARPENTER, the great English physiologist and scientist, is dead. It is painful to relate that this amiable gentleman and truly great man came to a suffering and tragic end. Whilst taking a hot-air bath, the lamp was accidentally overturned and the ignited spirits produced fatal burns. It is a token of the universal esteem in which Dr. Carpenter was held in every country, that we find in so many of the notices of his death the words, "the world is all the better for his having lived"—the best eulogy that can be pronounced over the grave of mortal man. Many will recall with pleasure Dr. Carpenter's last visit to this city, his kindly and instructive address, his deep interest in the progress of scientific medicine

in this country, and his active encouragement of all philanthropic schemes. He was brother to the late Dr. P. P. Carpenter, whose great services on behalf of sanitary reform in the city of Montreal are by no means yet forgotten. Would that there were more like him!

M. CHARLES ROBIN, the eminent histologist, died last month at the age of 64. Since 1852 he has been Professor of Histology at the Faculty of Medicine, and since 1875 was one of the senators for Aix, and by his death the French Senate loses almost its only scientific man.

Medical Items.

—John L. Shibley, M.D., McGill, '85, is practising at Los Angeles, Cal.

—D. J. G. Wishart, M.D., McGill, '85, has recently passed for licentiate before the Royal College of Physicians.

—Oscar J. McCully, M.D., McGill, '79, passed recently the examination for the membership before the Royal College of Surgeons, England.

—Dr. Graves, in the *Chicago Medical Times* for September, 1885, alleges that the painting of the gums at intervals of half an hour with a 4 per cent. solution of cocaine arrests the diarrhoea of children, where this is due to irritation from teething. We have grave doubts about the truth of this assertion. It is in our opinion a piece of bad observation, which will go to swell the immense heaps of forgotten nothingnesses.

MONTREAL TURKISH BATHS.—The great value of the well-directed use of Turkish baths in many diseases is well known, but as a therapeutic measure they are not resorted to as often as they should be. We have in Montreal, thanks to the energy of Dr. McBean, one of the most complete and luxurious set of baths on this continent.

MALTOPEPSYN.—Since the introduction of Maltopepsyn into the Dominion of Canada, its rapid and increasing demand, arising entirely through the support of the medical profession, until it now stands at the head of all remedies of its kind, proves conclusively its intrinsic merit and superiority of formula over all other digestive remedies. This is still further attested to by the signatures of nearly all the leading physicians of Canada, and the fact that it has met with the support of the profession in England, and is gaining a large sale throughout Great Britain. Maltopepsyn is invaluable as a specific for infants' troubles during the summer months, such as cholera infantum, etc.