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ADDRESS ON SURGERY.*

BY DR. JONES, VANCOUVER.

Mr. President and Gentlemen :

My first duty is to express my appreciation of the honor which you have conferred upon me in selecting me to deliver the Address on Surgery.

Having undertaken to give this address, I must ask you to forgive me for failing to bring before you anything original. The inhabitants of Western Canada are not afflicted with surgical diseases differing from those in Eastern Canada. There may be this difference, that they are more impatient than the eastern people when they are afflicted with any disease. They always expect and desire to be treated by the most radical methods, however severe they may be. They have no time for palliative treatment. They become reckless, and wish to be relieved of their suffering rapidly. It may be that the life they lead in the mountains, full of hardships and dangers, tends to dispel all fear of death. It has often astonished me to see how little perturbed some of these people are when they are told that they are suffering from dangerous conditions, such as cancer of the rectum, tongue, or stomach, which necessitates a severe surgical operation. Without a murmur they consent to anything you suggest. They go to the hospital then and there, and face their operation as if it were an ordinary everyday occurrence.

As an example of the strange ideas that the public have on this subject, I might quote the following letter, which is a fact:

"Dear Sir,—I hear that Mr. Briggs, one of my lodgers, is to be operated upon on Wednesday, and I shall be much obliged

* Delivered at the meeting of the Canadian Medical Association.

if you will postpone the operation until Friday, as my daughter is to be married on Thursday, and we do not want the corpse home until after the wedding."

This fearlessness is often coupled with an ignorance that demands surgical treatment where only medical is justifiable. The treatment is too slow to bring about the desired results, and they frequently ask, "Don't you think an operation will cure me?"

Operative surgery has increased to an enormous extent during the past few years. The wonderful results which have been achieved since the introduction of aseptic surgery; the improved diagnosis of the early stage of cancer in all parts of the body; the absolute safety with which operations are undertaken for the relief of deformity and disease, have given the public every confidence in surgical treatment.

One of the most useful of the recent advances, as a means of diagnosis, is the X-ray photography. When first introduced, its use was limited to the finding of bullets, needles, and pieces of metal embedded in the body, also to the direction and condition of all varieties of fracture, and to the localization of calculi in the kidney and bladder. Its uses are now further increased. It is employed for the detection of tubercular deposits in the lungs, and pleural effusions can be distinctly seen with the displaced heart pulsating.

Improved methods of applying this photography have rendered its use so simple that in some hospitals nearly all fractures are looked at both before and after they are put in position. This is done by placing the patient on an ordinary canvas stretcher, the Crooke's tube is placed under the body, and a picture of the bones is thrown on a ground glass screen held over the patient's affected limb. In many cases this has saved the patient much suffering, and valuable time—when the soft parts are interposed between the ends of the bone, or in a riding fracture—as the fractures may have been cut down upon, the muscles, or loose fragments removed, and the bones brought into direct apposition.

Another advance, in the same direction, is Finsen's phototherapy—the method of treating local superficial skin diseases of bacterial origin by the concentrated chemic rays. It is the blue, violet, and ultra-violet rays of the spectrum that possess the most powerful action. This apparatus—which up to the present time is very costly—is installed at a few of the London hospitals, and the results in the treatment of lupus vulgaris and lupus erythematosus are said to be most satisfactory, as the scar remaining is soft, white, and healthy-looking.

The toxine treatment of disease has also aided us in surgery. What a difference there is to-day in the results from tracheo-

tomy in laryngeal diphtheria, when combined with the use of anti-diphtheretic serum! In my student days at the hospital, it was considered a good record for a house surgeon—who was allowed the privilege of performing tracheotomies when required—if he saved two out of ten cases. But in these days it is not uncommon to hear of six or seven successful cases in succession. A point upon which I lay stress is to perform the operation without administering an anesthetic. How often have we witnessed the little patient stop breathing before the operation was commenced! Consequently, I have thought that many of these died from depressing effects of the anesthetic upon a patient already saturated with the poison of diphtheria.

I wish to refer to the use of the anti-streptococcus serum in the treatment of streptococcus infection of wounds. Although its general use has been adversely reported upon, it does produce a marked beneficial effect upon certain cases.

Only very recently I was called in consultation to see a severe case of septic infection from a scratch over the knuckle of the right hand of a patient who had been attending to his child's ear, with otorrhea, and by some means had inoculated his hand. He had been ill four days before I saw him. I found him with his hand in a hot bi-chloride bath, the wound having previously been laid freely open. The temperature ranged between 104 and $105\frac{3}{5}$ for three days. The lymphatics on the inner side of the arm were marked out by red lines, and in three or four places along their course there were black, sloughy-looking patches. The arm was edematous up over the shoulder, but there was no sign of deep-seated suppuration. The finger-joints, wrist and elbow could be flexed without pain.

The question of amputation was discussed, but decided against. Quinine and stimulants were freely given and we decided to try the anti-streptococcus serum. It was injected over the shoulder night and morning, and the first dose seemed to benefit him; but it was not until he had received four doses that his temperature dropped, the swelling and inflammation began to subside, and the other symptoms to improve. From this time forth there was no rise of temperature, and with the exception of opening two small collections of pus in the course of the lymphatics, he rapidly recovered.

Its use in some septic puerperal cases has also been attended with very good results. Its administration in mixed infections has been proved to be useless. When first introduced, we had greater hopes of its possibilities, for we supposed it would be useful in cases of septic traumatic arthritis and other forms of suppuration.

Surgery, from the general practitioner's point of view, is becoming so vast a subject that it almost reaches beyond the

ability of one man to follow up its advancing steps. Cases of cerebral tumor and abscess are operated upon with success. Certain forms of cerebral hemorrhage are now being treated by surgical means, but so far with a very limited amount of success. The technique in operations upon the mastoid has been improved upon of late, for the mastoid cells and antrum are opened along the roof of the auditory canal into the middle meatus, and the diseased bones and ossicles removed if necessary. I recollect many troublesome cases of recurring mastoid suppuration that could have been treated once and for all by the present operations. (Stacke and Schwartze.)

The removal of large goitres and tumors of the neck can now be safely undertaken, even if the growths involve the internal jugular vein and common carotid artery on one side, as portions of these vessels are removed with the growth, without any ill-effects resulting.

The more radical and extensive operations in the cases of cancer of the breast have resulted in greatly improved statistics. As an illustration of the necessity of these measures, a few years ago I had under my care a case of scirrhous of the breast. It was just a small nodule about the size of a hazel-nut, embedded in the breast on the inner side of the nipple. I cut into it and found it to be a cancer. I then removed the whole breast and proceeded to clean out the axilla. There I found a chain of cancerous glands running up under the pectoral muscles towards the clavicle. This was a most deceptive case, because the local lesion was so small that one would have been tempted to just remove the nodule out of the breast, whereas the radical operation was really the only proper treatment.

Wounds of the heart have been sewn up: tubercular cavities and abscess of the lung have been opened and drained successfully. But of the various branches of surgery none perhaps to-day excites as much interest as abdominal surgery, and more particularly the diseases of the stomach. By its means many diseased conditions that were considered hopeless can now be cured or benefited. Every part of the alimentary canal, from the esophagus to the anus, with the exception of the duodenum, can be removed. Dr. Keen, in speaking of complete gastrectomy, says:

"In the hands of surgeons of exceptional skill and wide experience in abdominal surgery, the operation will be advisable in rare and favorable cases. At all events, it is of great interest to know that physiologically the stomach, as I may say is the case with almost all of our internal organs, is a luxury rather than a necessity."

My aim is in this address not to discuss the merits nor to give an historical account of these operations, which have been

so ably given by Dr. Keen in his Cartwright lectures, and by others, but to submit to you the deductions which I have been able to arrive at from my own experience in twenty-eight cases.

Much has been written of late upon the subject both in Europe and America. Mayo Robson, Bennett, Moyham, and Baker in England; Keen, Hemmeter, Curtis, Kammuer and others in America; and it was thoroughly discussed at the American Surgical Association in May, 1900.

In the early days of all new operations, the rate of mortality is generally very great, but this gradually diminishes as we learn the errors that we have fallen into—which in many cases could have been avoided had we been less timid in handling the particular organ. This I have especially seen in dealing with the stomach. Operators have completed what they thought should be done without thoroughly satisfying themselves as to the exact condition of the organ. Fatal results are sure to follow in cases of hour-glass contraction of the stomach, or perforating ulcers.

My first operation upon the stomach was in 1893, upon a case of pyloric obstruction. It was a most suitable case for operation. The patient was a wiry little woman of 60, with well-marked symptoms and a movable tumor felt a little above and to the right of the umbilicus. Senn's plates were used and an anterior gastro-enterostomy performed. After tying the silk sutures, I introduced a row of Lembert sutures with catgut around the junction. She suffered very much from vomiting after the operation, and quite suddenly on the third day she was seized with a violent pain in the epigastrium and died a few hours later. The result was not encouraging. I was unable to procure a post-mortem, and I attributed the failure of the operation to the use of catgut instead of silk ligatures, as I suppose they gave way or were absorbed too readily for the adhesions to have properly formed.

In December, 1892, Dr. Murphy invented his button. It was not brought prominently before the profession in England till 1895. This ingenious device certainly afforded a rapid means of performing an anastomosis, which formerly in inexperienced hands took an unduly long time to perform. The many uses to which it could be applied appeared to make gastric and intestinal surgery simple. The time occupied in performing an anastomosis by the older methods was often considerable, and added greatly to the shock that followed the necessary handling in operations upon the stomach. Unless the surgeon was unusually dexterous, his patient died before, or soon after, the operation was completed.

As a student, up to 1889, I witnessed several operations upon the intestines—such as re-section—performed by experienced,

dexterous and well-known surgeons; but seldom did a patient recover from the operation. The only operation I recollect performed for pylorotomy was done in 1883; a year or two after Billroth's successful case. Although the operation was skilfully done, the patient died of shock some hours later. For the remainder of my time at the hospital, up to 1889, I do not recollect hearing of, or seeing, a similar operation performed.

The introduction of Senn's bone plates and the Murphy button gave a great impetus to gastric and intestinal surgery. Between 1875, when Langenbeck successfully performed resection of the intestine, and 1890, when Senn introduced his decalcified bone plates, operations upon the intestines were rare. Since that date, the number has multiplied a hundred-fold.

The cases I have been able to collect from my notes include examples of nearly all the diseases of the stomach amenable to surgical treatment:

Gastrostomy: All for relief of malignant diseases of the esophagus, five cases.

Gastrotomy: For exploration of the stomach when no positive diagnosis could be made and prolonged treatment had failed to afford relief, four cases.

Gastro-enterostomy: For pyloric cancer, malignant ulceration of pylorus, gastric ulcer, and for extreme gastric dilatation, thirteen cases.

Pylorotomy: For pyloric cancer, three cases.

Gastro-plication: For hyperchloridia, one case.

Gastrolysis: For adhesion around pylorus, one case.

Perforating Gastric Ulcer: Hour-glass contraction, one case.

Perforating Duodenal Ulcer: One case.

I have included the latter in my list from its close proximity and from the similarity of its symptoms to acute perforating gastric ulcer.

Preparations for Operation: In all cases, the usual aseptic precautions are carried out; the skin shaved, scrubbed, and antiseptic compresses applied for twelve hours, if the nature of the case permit.

If the conditions are favorable and the patient not too feeble, a purgative is given to clear out the intestinal tract, the night previous to the operation; while, if the patient is emaciated and weak, he is fed by nutritive enemata, as well as by the mouth, for 48 hours previous to the operation. The stomach is washed out two hours before anesthetization. About one hour before the operation, 1-30 gr. strychnine is given, and half an hour later 1-6 gr. codeine, as this diminishes the amount of anesthetic required to produce narcosis.

Gastrostomy: In all five cases the operation was performed

for cancer of the esophagus. Witzel's operation was performed in four of the cases with very excellent results.

The Ssabemjew-Frank's operation was done upon one of the patients, who had a more than usually large stomach. It was equally successful; the patient could attend to himself with ease, and at no time was there any discomfort experienced from leakage—the oblique direction of the canal into the stomach preventing this occurrence in both operations.

In most of the Witzel's operations the patients wore the tube in the canal, more from the dread of the canal closing than from the real contraction that took place.

Gastrostomy was—in four of these cases—done only to give the sufferers temporary relief, which it evidently did accomplish. Unless the patient is moribund before the operation there is little risk in performing it.

These operations are easy of performance, and I have no doubt will be further simplified. In fact a modification by Mayo Robson of Ssabemjew-Frank's operation is completed by four stitches and the insertion of two hair-lip pins.

In Marwedel's operation, which is a further modification of Witzel's, the canal for the tube lies between the muscular and mucous layers of the stomach, and is said to give still better results; the canal shows less tendency to contract, and the operation can be more safely performed.

In one of the cases it was done for a stricture following a gunma that had destroyed a portion of the esophagus, leaving a fistula in the neck. At a later date I had intended performing a plastic operation to close it, but, unfortunately, malignant disease supervened upon the original trouble.

The prolongation of life in malignant disease ranged from 9 days to 8 months— $8\frac{1}{2}$, $4\frac{1}{2}$, 21 days and 9 days. The other case, which could not be classed as malignant from the first, lived 31 months ($2\frac{1}{2}$ years).

This operation, I am convinced, is justifiable in malignant disease, if for no other reason than for the relief of the distressing symptoms of hunger and thirst.

Gastrotomy: The four cases I have recorded are cases of exploratory gastrotomy, to determine the cause, if any, of the symptoms complained of.

The peritoneal cavity is opened above the umbilicus, and the contents of the stomach squeezed into the duodenum. The incision into the stomach I find most useful is a free opening 2 to 3 inches long over its middle third, parallel with its long axis. Through this—when the edges are held well apart, with the aid of a small electric exploratory lamp—nearly all the surface of the stomach can be seen. The finger can from this point reach almost any part of the cavity.

In my first case, I expected to find ulceration on account of the prolonged and intractable vomiting. We found no indication of disease, and in great disgust sewed up the wounds. Vomiting ceased the next day and has never recurred—now several years since the operation. She was a highly neurotic woman and had actually acquired the habit of being able to vomit at will, when the doctor or nurse was present.

In the second case, a cancerous, nodular tumor growing from the cardiac end of the posterior wall of the stomach, that could not be felt by palpation, was easily felt and found to be inoperable.

In the third case, adhesions caused great pain, and rendered the patient absolutely incapable of work.

In the fourth case, the symptoms were due to the constriction produced by two puckered scars on the pyloric end of the stomach, the result of former ulceration. The interior of the stomach was healthy. Gastroplasty was performed by sewing the incision up transversely to its long axis.

The result in Cases 1 and 4 was good. Case 2, it did not shorten life. Case 3 developed bronchitis and died—which is a risk every patient is subject to if he undergoes such an operation. From a *post-mortem* made in this case I found two small cicatrices—with otherwise healthy conditions of the stomach—which tends to the supposition that the breaking down of the adhesions would have resulted in a cure.

Pylorotomy: Performed in the manner described by Murphy is without doubt the simplest and most rapid method. It is a modification of Kocher's, differing from it by inserting one half of the button in the open end of the divided duodenum and the other half into a fresh incision made in the posterior wall of the stomach.

Rapidity of operation in these cases is a very important factor as regards their success; prolonged operations generally prove fatal.

Suitable cases for pylorotomy require that the cause should be cancer of the pylorus, when the growth is not too extensive and is free from involvement of contiguous structures, and the patient is not too feeble and cachectic. In these cases the shock received and the time occupied in performing the operation are not great. It was astonishing how rapidly the patients recovered from the operation.

All these cases were operated upon for cancer. My first—after which the patient lived only twelve hours—should never have been attempted. The man was too weak to survive any abdominal operation. He had practically been starved for weeks before admission and had not even strength enough to stand without assistance. Since my experience with this case,

and two other cases of the same kind that I performed gastro-enterostomy for and which terminated fatally, I have made it a rule that the patients must be able to stand up and walk without help; otherwise they cannot possibly survive the shock.

The other two cases lived on an average of over eleven months, and in both the growths returned in other organs. The duration of life in some of the recorded cases of pylorotomy reaches eight years and over. It is possible that some of these were really cases of pyloric ulceration with extensive infiltration of the adjoining parts. In one of my own, which I shall refer to later on, I performed posterior gastro-enterostomy because the adjoining structures were involved and a radical operation was out of the question. She is still alive, now three years since the operation, and the large mass felt previous to the operation has disappeared. This case, at the time of the operation, was thought to be pyloric cancer.

Gastro-enterostomy: Is the most frequent, most useful, and most simple of all the operations performed upon the stomach. The frequency of the operation is evident when we think of the number of conditions under which it is done—pyloric cancer, pyloric ulceration and stenosis (non-malignant), gastric ulcer, dilatation of the stomach, and for intractable chronic dyspepsia and hyperchloridia.

Its usefulness is beyond question; the relief it affords in all these conditions is striking, and in some absolute. Nothing can be simpler than this operation, performed with a Murphy button; and considering the relief it gives it should be more frequently and earlier resorted to. Personally, I have used this method in fourteen cases, and in only one of these was there any drawback to its employment—and that was in a case where the button fell back into the stomach. In my two patients who died from the shock, I examined the lumen and found it perfect.

In intestinal anastomosis I have not found the button so successful, as in one case, the lumen of the button became completely plugged with feces, which produced great dilatation of the proximal portion of the intestine, leakage, and death. In several other cases I have had leakage, but as I generally make a point of bringing the anastomosed gut into one or other loin, and place a drain on both sides of the gut, the general peritoneal cavity becomes walled off in three or four days, by which time a fistula will have formed. This fistula closes without operation in a week or two. Contraction of the orifice has not followed any of the operations up to the present.

In the earlier operations, the intestine was united to the anterior wall of the stomach (Wolfer); but, unfortunately, by

this method the button is more liable to fall back into the stomach, as I have previously mentioned,

As to the other difficulties which are likely to arise from an anterior gastro-enterostomy, such as regurgitation of the contents of the stomach back through the jejunum and duodenum, carrying with them the contents of the common bile duct, producing fatal vomiting, and the jejunum, pressing on the transverse colon, causing intestinal obstruction, I have fortunately not met with any, and reported cases are rare. Mr. Mayo Robson, in his "Address on Surgery of the Stomach," still prefers anterior gastro-enterostomy, either by simple suture, or by the aid of his bone bobbins.

Posterior gastro-enterostomy (Van Hacker) has undoubtedly been the better operation; the position of the patient in bed favors the passage of the button, which is not so liable to fall back into the stomach, and allows the more ready escape of the contents of the stomach. This operation is as easy to perform as the anterior gastro-enterostomy. The danger of infection is greatly minimized if the purse-string sutures are inserted both in the stomach and intestine before making any opening into either of them (according to the rules laid down by Dr. Murphy). This operation is so well described in any book treating upon this branch of surgery, that it would be superfluous for me to do so in this address.

Finding the jejunum does not present the difficulties that some surgeons would have us believe. This is readily found after pulling up the omentum and transverse colon; then, by passing the hand along the meso-colon to the left of the spine, find the upper border of the mesentery of the small intestine, and close by, the jejunum can be felt, or to make sure, seen, emerging from the side of the spinal column. If you rely upon touch, follow it forward for ten or twelve inches, and then back again to the spine.

Should the opening made in the meso-colon be too large, close it with a few stitches to avoid a loop of intestine slipping through it, as Dr. Keen suggests.

The passage of the button has taken from fourteen days to four months. The delay in its travel has not given rise to any unpleasant symptoms in any of my cases.

For inoperable pyloric cancer, this operation only prolongs the patient's life and makes it more endurable by relieving him from constant pain and vomiting. He eats and sleeps well after the operation. Some surgeons have gone so far as to say that unless pylorotomy can be done, gastro-enterostomy is not justifiable. This, happily, is not the opinion of the majority of surgeons; for the relief, although only temporary, justifies the procedure. And if, when we open the abdomen, we see that by

very little additional risk we can place the sufferer in a more comfortable state, I think we should do so.

Again, in some cases we may be mistaken as to the character of the growth, as in this case referred to in pylorotomy.

A woman aged 63, with almost complete pyloric obstruction, the pylorus was involved in a large mass the size of my closed fist, movable above, but below extended into the head of the pancreas. There were enlarged glands in the gastro-hepatic omentum and great omentum, and owing to the extent of the disease in the pancreas I decided to content myself with posterior gastro-enterostomy. This was done two and a half years ago, and the patient is still alive and in excellent health. From the result it looks like a case of non-malignant ulceration of the pylorus, although the pathologist who examined a gland that I removed at the time reported it to be malignant.

In cases of pyloric ulceration the relief it gives is absolute. By the rapid emptying of the stomach, it removes the source of irritation—the food escapes by the new opening, as the spasm of the pylorus that is supposed to exist in these cases is sufficient to prevent its passage over the ulcerated pylorus—and allows the ulceration to heal.

I saw an excellent example of this in a miner, aged 61. The ulcer was situated upon the posterior half of the pylorus, and a scar marked the position on the surface of the stomach. Although the lumen allowed the forefinger to pass, the disease produced considerable dilatation of the stomach from the resistance to the passing of the food.

For simple gastric ulcers which are intractable to medical treatment, where there have been recurring attacks, and the patients are rendered unable to follow their employment or enjoy life, and are in constant misery, gastro-enterostomy is justifiable, and the only treatment likely to cure them.

A most interesting case of gastro-ulceration with acute hemorrhage occurred in a patient aged 41. Her symptoms dated back fifteen years. For all these years she had suffered great pain after food, with the other accompanying symptoms, and had to be cautious to eat only the most easily digested articles of diet; and for the last two years only liquid food. In 1898 in the course of four days five attacks of acute and profuse hemorrhage occurred, which nearly proved fatal, and from these she was several months recovering; and ever since stabbing, pricking pains under the left breast and shoulder blade never left her. When she had sufficiently recovered, on more than one occasion I tried to prevail upon her to let me operate; but she would not hear of it. My object was to examine the stomach, break down adhesions and perform posterior gastro-enterostomy. However, on December 27th, 1900, she

had two more profuse hemorrhages that rendered her blanched and pulseless, and on the following day had three more smaller hemorrhages of a bright red color. This indicated that the bleeding was still going on. An ice-bag over the stomach and the usual treatment was pursued. The question to be decided was whether or not to cut down upon the bleeding-point. The patient and her friends were anxious for me to do so, knowing the serious condition it had reduced her to on the former occasions; and as the bleeding continued I thought it justifiable to operate. Another reason that helped me to arrive at this decision was the fact that only a few months previously I had witnessed the death of one of my patients from hemorrhage resulting from a gastric ulcer. The percentage of deaths from this cause is low; it is said to be only 5 per cent.

Before beginning the operation, she was transfused with three pints of saline solution and a 1-30 gr. of strychnine given. On opening the abdomen, the stomach was bound by adhesions to the under surface of the liver and anterior abdominal wall. The adhesions were carefully broken down in all directions; then the stomach was examined externally, but there was no thickening to be felt in any part of the organ.

A horizontal incision was made over the centre of the stomach; it contained about a pint of mucus and bright blood. After wiping this up with sponges on holders, a careful examination of the interior of the stomach was made. A clean sponge on a holder would return unstained from the cardiac end, but whenever it was passed towards the pylorus it was always bloodstained. A careful search was made in the suspected region, but I could not locate the bleeding-point. I was just about to close up my opening when I found the bleeding had increased. As I pulled down the lower edge of the incision I saw the blood flowing freely from two points in the opposite sides of a small, oblong ulcer, one-half inch by one-third inch. These two points were tied and the bleeding ceased. The ulceration was not deep, and did not extend through the mucous coat. About two inches from it there was another ulcer, but there had been no hemorrhage from it. The stomach was quickly sewn up and the operation completed by performing a posterior gastro-enterostomy. As the patient showed signs of failing, she was transfused with 60 oz. of saline solution. Respiration also became so very shallow and weak that before the operation was completed a temporary tracheotomy had to be done. The after-history of the case was slow, but uneventful. Her condition has gone on improving, and at the present time her sister tells me she can enjoy any ordinary food that is put before her.

Operative treatment in this case fortunately turned out suc-

cessfully, and the history of the former hemorrhages justified the extreme measures; but as a routine practice, I think it a doubtful procedure.

Mayo Robson in his Hunterian Lectures gives the mortality in operative treatment as 64 per cent. as compared with 5 to 10 per cent. in cases treated medically. Still, every case has to be treated on its own merits.

Gastro-enterostomy Combined with Gastro-Plication: In cases of dilatation of the stomach, where medical treatment has been carried out for months or even years, and only affords temporary relief, the patient gradually losing weight and strength, gastro-enterostomy should be resorted to. One of the most interesting and satisfactory cases of the series was one of gastrectasia—an enlargement of the stomach with motor insufficiency. (Dr. B. F. Curtis, *Annals of Surgery*, July, 1900).

G. G., a tall and delicate-looking young man, 21 years of age, consulted me in July, 1900. For six years he followed the occupation of waiter; family history good; had measles when a youth, and four years ago was in a coach accident and rendered unconscious for twelve hours after. He was also severely bruised all over the front of the abdomen. A year later he began to be troubled with a feeling of fulness and a pain of a drawing, cramping character after food. The cramps at first would only come on after going to bed, and be relieved when the flatus—which caused terrible rumbling and noise in the stomach—came up. At first, there were intervals of two or three weeks between the attacks. He had a great thirst, and used to drink large quantities of fluid, a quart or more of milk or buttermilk at a time, and would often throw it up whilst still cold. Six months after the first onset of his symptoms vomiting came on and kept up for months, usually about twice a day—which always relieved the discomfort. The vomit was of a thick, frothy, mucous character, but there was never any trace of blood. When the vomiting ceased, it was followed by troublesome pyrosis. Always on waking in the morning he would be “blown up like a poisoned pup,” as he put it, with gas, but after walking about it dispersed; losing weight and strength gradually and continuously. He told me: “I have taken medicines all the time, both for my digestion and for my bowels, which have been very constipated; washed out my stomach for the last eight months, sometimes daily or every other day. At first I felt relief from it, but very little latterly. I could pour a gallon of warm water into it. I was very fond of ham, and would sometimes try a very thin slice of it; if the stomach retained it, pieces could be seen in the washings 24 or 36 hours later.” For the last year he had been obliged to restrict himself to milk and soups, and these would often come

up six or eight hours after. A severe water-brash was constant. On examination, the body was poorly nourished, but the abdomen was prominent as if he were suffering from an abdominal tumor. The prominence was more evident on the left side and extending from above the umbilicus to the symphysis pubis, resembling the outline of the stomach. The percussion note over this area was of the same character and pitch and the loud succession sound could be easily obtained—and, in fact, heard when he moved about. There was no pain on palpitation, nor could I feel any tumor. Inflation of the stomach with CO_2 rendered the outlines still more evident, and when the stomach tube was passed well down, the patient said he could feel the end of it just above the pubes. His stomach was washed out daily for a week, with very little relief, and then fed on peptonized foods. Operation was decided upon and the usual preparations gone through. An incision $3\frac{1}{2}$ inches long was made in the middle line above the umbilicus. On opening the peritoneal cavity, I lifted up each edge of the wound and could readily see the upper border of the stomach opposite the centre of my wound. The pylorus was first examined. Its position was somewhat lower than it should normally be, but it felt soft, healthy and free from thickness, and the stomach wall could be evaginated into it. The organ was then delivered through the incision on to the abdominal wall. It was immensely enlarged. Unfortunately, it never occurred to me to measure it whilst it was outside. The largest size esophageal bougie was laid over the centre of the stomach parallel with the greater curvature, and the walls sewn over it, as in Witzel's operation. About twenty interrupted silk sutures were inserted and tied, and then the bougie withdrawn. This procedure diminished the area of the anterior wall by at least one-third. It is impossible to apply the same method to the posterior surface, so that I completed the operation by performing a posterior gastro-enterostomy.

The resulting shock was not great and the patient made a good recovery. In three weeks he was allowed out of bed and was able to eat whitefish, chicken, baked potatoes, bread and toast, feeling quite comfortable after his meals. It is now a year since the operation; he has been working as a cook at a restaurant for the last eight months. In reply to enquiries, he writes that he feels quite well, can eat anything except salt corned beef and cabbage, and has gained thirty-five pounds, and says he can take as long a bicycle ride as any man.

Fwald gives as the etiology of dilatation of the stomach, two causes: 1st. Mechanical contraction of the pyloric opening; 2nd. Absolute or relative weakness of the expulsive power—that is to say, an atonic condition of the muscular wall. The

case evidently comes under the second cause, because there was no thickening of the pylorus or narrowing of its lumen. The history points to impaired muscular tone, probably brought on by the bruising of the abdomen, injuring the muscular fibres of the wall of the stomach at the time.

The indications for operation in this case were, the very dilated state of the stomach, the absence of any relief from lavage and strict diet, the patient rendered unfit for work, gradually losing his strength, and having to be supported by the other members of his family.

Whether the relief could be obtained by posterior gastro-enterostomy alone, I am not prepared to say, but I firmly believe that the gastro-plication assisted in the rapidity of the relief obtained, though I feel sure that the latter alone would not have brought about the same successful result. For gastro-plication there are a variety of operations—Bircher's, Wier's, Brandt's, Bennett's—but performed in the manner that I have described, it is easier of performance, rapid, effectual, and neat in appearance.

Mr. Bennett, in an article in the *British Medical Journal*, February 1900, speaks of gastro-plication as an unscientific operation, but one which it was stated had been performed with benefit in two cases on the continent. He also refers to it as a useless measure in a case that was not relieved and eventually terminated fatally. He says: "Had I opened the stomach and examined the pylorus, as I now should do, there is, I submit, no room for doubt that I would have detected the unnatural condition and a curative operation have been performed instead of the useless measure adopted."

I may here mention a case of gastro-plication only where I found the stomach dilated and prolapsed, the patient, suffering from the most troublesome hyperchloridia. I found no thickening of the pylorus and therefore contented myself with gastro-plication after Bennett's plan, and in addition uniting the stomach to the anterior abdominal wall by three silk sutures. As long as the patient remained in bed he felt comfortable, but soon after getting up and moving about his symptoms returned. Had I performed posterior gastro-enterostomy I do believe this patient would have been cured.

Gastro-enterostomy combined with Gastrolysis: This patient was operated on four and half years ago for double salpyngitis with adhesions. For two and a half years afterwards she enjoyed good health, then symptoms of dyspepsia followed and grew worse. Pain of a dragging, contracting feeling in the pit of the stomach, relieved by lying down but immediately brought on should she stoop to lift anything from the ground. Never suffered from acidity, nor did she vomit as long as she

lived upon liquid food, but often experienced discomfort. Washing out the stomach relieved this. For eleven months she was under the care of several well-known specialists in the States, treated for a chloridia. She was temporarily improved by the treatment, but a few months after her return home she became as miserable as ever. An exploratory operation was decided upon. The stomach was found slightly dilated and pouched, this condition being produced by a few gastric adhesions, but principally by the adherent condition of the great omentum to the scar of the wound of the former operation. After separation of the adhesion, the stomach returned to its natural shape. The pylorus felt natural, and as the symptoms pointed to a condition of gastrectasia I concluded that it was also safer to perform a gastro-plication enterostomy. She stood the operation well, and her symptoms have completely disappeared. She is fast recovering her former health.

These are the cases for which I performed gastro-enterostomy with permanent and uniform relief in all, except the cases of pyloric cancer, which were only temporarily relieved. This result is encouraging, and this form of treatment is undoubtedly applicable to a large class of cases, the subjects of which go through life at present in the utmost misery.

Gastrolysis, freeing the stomach from adhesions, has been performed in several of the previous cases, as numerous conditions both inside and outside of the stomach give rise to them.

Perforating Gastric Ulcer.—The only case that has occurred in my practice was a case of hour-glass contraction of the stomach in a lady 39 years of age. The history briefly was as follows:

Symptoms of gastric ulcer began twenty years ago; at one time the pain resembled that of spinal caries, and was diagnosed as such; her medical attendant had the courage of his convictions and put her up in plaster jackets and spinal supports for two years. On a Sunday evening she ate a dinner of roast lamb and vegetables, and at midnight was seized with severe tearing pain in the epigastrium. She could not keep still, but screamed and rolled about the bed. A hypodermic injection of morphia to ease the pain, and a dose of castor oil were given. The pain was lulled, but never entirely ceased. A morphia tablet was given on the following day. On Tuesday she went to the hospital, and walked from the door to the elevator, a distance of fifty yards. I was asked to see the patient thirty-six hours after the first onset of pain, and from the symptoms it was evident that we had to deal with a case of acute peritonitis. The differential diagnosis was between general

peritonitis from a perforated appendix and a perforated gastric ulcer. The patient was in no condition to go into her previous history, but she was able to tell us that the severe pain started in the epigastrium, after which she attempted to vomit, but did not succeed in bringing up anything. On palpation, the most painful area was over the right iliac region.

An incision was made according to McBurney's method over the appendix—the point of greatest tenderness—but the appendix was found to be normal. The peritoneal cavity was found full of a greenish, opaque fluid, which I washed out with several gallons of hot water. Another incision was then made in the middle line above the umbilicus. The stomach and omentum were matted to the anterior abdominal wall. After loosening the stomach, the hour-glass condition was evident, and above the middle of the lesser curvature there was a round hole through the gastro-hepatic omentum which would admit the tip of the little finger. This opening, I found, led into the lesser omentum cavity, and from it some milky fluid escaped.

By lifting the omentum and colon up, and tearing through the meso-colon, the posterior surface could be examined, and a valve-like perforation in the constricted portion of the stomach was found. Squeezing upon the cardiac portion of the stomach, its contents could be seen escaping through it. Seven or eight sutures were inserted across its long axis, performing a gastro-plasty. The abdomen was thoroughly washed out, drains were inserted—one above the stomach under the liver, and another into the lesser omental cavity below the stomach, and from a lower incision another drain into the pelvis. These drains were removed within forty-eight hours, and, but for the plebitis in one leg, her recovery was uneventful. It is now three years since the operation was performed, and she has been steadily improving in health ever since, being able to ride a bicycle or walk five or six miles without being fatigued.

The difficulty in this case was to make out the exact condition of the parts. This has led to several fatal mistakes. Within the last year three cases have been reported in the *British Medical Journal* where cardiac division of the stomach was not found until at the *post-mortem*, and an operation completed by dealing with the distant or pyloric portion of the stomach.

In the first place, one should bear in mind that such a condition does exist, and in the second place, one must not be satisfied until the outline of the stomach is clearly defined.

In my own case, after examining the pyloric end, and in proceeding towards the cardiac end, I found it terminating in a narrow neck, which I knew could not be the esophagus, reaching down to the middle line, and therefore it was quite evident what I had to deal with.

The cause of the constriction was cicatrization of an old ulcer. The constriction in the majority of cases is found, as in this case, near the middle of the stomach. For an able and exhaustive account of the surgical treatment of the hour-glass contraction of the stomach, I refer you to a paper by Dr. Watson, of Boston, read before the American Surgical Association, in May, 1900. This condition of the stomach presents itself in two forms—congenial and acquired. In several recorded cases of the former, the patients were free from any gastric symptoms, but there is no example on the other hand, in the acquired cases that gastric symptoms were not also present. This condition of the stomach has been frequently correctly diagnosed and operated upon. Distending the stomach with CO_2 , or with water, the water is heard rushing through the contracted portion; and again, by introducing bismuth in solution, and taking an X-ray photograph of the stomach. The operations that may be resorted to for the relief of this condition of the stomach are, gastric-plasty, gastro-gastrostomy, gastro-enterostomy.

Perforating Duodenal Ulcer: This case I saw twenty-four hours after the perforation occurred. The history resembled that of perforation of the stomach. The peritoneal cavity was full of purulent fluid. The seat of the perforation was found by the sudden liberation of a collection of dirty fluid, intermixed with particles of food from the right hypochondriac region. The opening which was close to the pylorus was closed with a few Lambert sutures. The toilet of the peritoneum was attended to in the same manner as in the preceding case. The patient lived only fourteen hours after the operation.

Early operation in these cases gives the only chance of recovery. There were only a few cases of recovery from perforating duodenal ulcer until recently. Now that the diagnosis is thoroughly understood, and the signs of perforation are more readily recognized and operation resorted to without delay, the records are fast improving. In all cases it is best to simply suture the ulcer and not try and excise it.

In the early days of abdominal surgery the surgeon occasionally closed his abdomen with draining the peritoneal cavity, having failed to find the perforated organ. But I venture to say that the average surgeon who practises this branch of his profession these days seldom fails. The common sights of perforation and causes which give rise to peritonitis are so familiar to them that they run over all the likely starting points without loss of time and soon arrive at the seat of the trouble. Some able and well-known surgeons of the day tell you that if you open the peritoneal cavity for any operation, such as ventral fixation, appendicitis or any other intra-abdominal opera-

tion, that you should pass your hand over and examine all the other organs. This, I consider, is too heroic and sweeping—unless you are doubtful as to the diagnosis.

Mr. President and gentlemen, I have touched only in a very fragmentary manner upon certain points in this very interesting field of surgery—which, with improved means for the correct diagnosis of the conditions of the interior of the stomach—will enable us to relieve many more unfortunate sufferers.

THE MEDICAL TREATMENT IN SURGICAL TUBERCULOSIS.

BY W. B. THISTLE, M.D., TORONTO.

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I suppose everyone has in mind the division of tuberculous disease into medical and surgical cases. This classification, since it is based upon the requirements of treatment, is not fixed but quite the reverse. The case which to-day might be called medical becomes surgical to-morrow. Although tuberculous disease may be divided in this way, it must not be forgotten that this classification is entirely for our own convenience; that there is no change or difference in the nature of the disease. It is of the first importance to remember this fact, as we shall presently, I hope, see when we enter into consideration of the subject of treatment.

Making a division according to the requirements of treatment is only possible in a restricted or partial sense. Transference from one class to the other, from medical to surgical, does not involve an alternative, but simply something additional in the therapeutic requirements. Medical tuberculosis does not cease to be medical because some surgical or mechanical treatment is required. All this is so apparent and obvious that it seems scarcely necessary to state it, yet I make bold to say that, in the vast majority of instances, this identity is lost sight of, and it is the alternative treatment rather than the additional that is given.

On all sides one hears that tuberculosis is a curable disease. Thanks to a better understanding of the disease, its nature, environment, soil required in order that it may flourish, it is now happily not uncommon to obtain complete cure as a result of purely medical treatment. True, no absolutely specific medicine has up to the present been discovered, yet with the means at hand, and a clear understanding of what is being attempted or sought after, wonderfully good results may be obtained. Needless to say, the clearer the view as to the requirements and the more thorough and persistent the treatment, the better the results.

Medical treatment is applicable to all cases, and should be instituted in all cases. That this rule is followed, both observation and reading lead me to seriously doubt. If one takes the trouble to investigate and determine this point, it will be found that tuberculous cases requiring surgical treatment in the great majority of instances, receive little or no medical treatment. The identity of the tuberculous process in all cases

is lost sight of, or if recognized it is somewhat in the abstract and does not find practical application. As I have mentioned above, what should constitute an additional feature in treatment becomes the alternative taking up the entire field. To attest the truth of this statement, it is only necessary to recall a series of cases seen in private practice or in hospital wards. Hip-joint disease, carious spines, white swellings, tuberculous articular disease in various situations, etc., receiving the benefit of every device and procedure in the mechanical and surgical way, splints, dressing, drainage, lotions, etc., occupying the entire therapeutic field to the exclusion, in many instances total exclusion, of medical treatment. True, many surgical cases may receive at times cod liver oil or it may be a tonic, but the point I wish to make is that surgeons are quite content as a rule with purely mechanical treatment, and fail to take advantage of the immense possibilities for cure offered by treatment other than mechanical. In combating tuberculous disease, no matter where located, every resource to be obtained is too often, unfortunately, too little. If medical treatment is of advantage in controlling and curing tuberculous disease situated in the apex of the lung, and surely no one will deny that it is so, then by the same process of reasoning it must be of like advantage in conjunction with the additional surgical means in tuberculous disease situated in the head of the femur. In so far as the therapeutic requirements of the two cases are concerned, they are absolutely parallel. The requirements in the case of the tuberculous femur, however, extend farther—to include the additional surgical treatment.

Let us pass in review the several features which might be included by the term medical treatment and see how perfectly each feature applies to surgical as well as to medical tuberculosis. Let us, however, first note the problem set before us: A human being infected in some part of his body by the fungus of tubercle. The tubercle bacilli may be located in the apex of the lung, or it may be in the head of the femur. How can he be so dealt with that the tissues of the body may not only resist, but finally overcome and destroy the invading poisonous germs? Work on the problem has been directed mainly towards two distinct objects: 1. To strengthen the resisting and aggressive power of the tissues of the body; 2nd. To weaken the power of the hostile germs.

The means employed towards the furthering of the first object one readily recalls, climatic and hygienic treatment is included under this heading. The patient should have the fullest advantage of sunshine and fresh air. Because a free supply of oxygen and exposure to the sunlight quickens and stimulates nutrition in all parts of the body. One must remember that it

is only in a sense that the disease can be said to be local. In reality all parts of the body suffer. The tissues fighting the poison of the disease must be given every assistance to not only secure a free supply of fresh air and sunshine, but also to get rid of impurities which would tend to weaken them. The care of the body, from the standpoint of hygiene, must be attended to in many ways. Digestive and alimentary functions, for example, exercise, bathing, massage, mental surroundings, rest, food and sleep, all directed towards the common end of strengthening to the utmost the cells of the body, and of improving their resisting qualities against the poisonous bacilli that have fastened upon it at some part. Will any one say that the tissues of the body do not as much require this strengthening and upholding process in surgical as in medical cases?

A second means towards the same end is found in the administration of medicines which are known to improve nutrition. The drugs that have gained the greatest repute in this respect are iron, arsenic and strychnine. There is no doubt that the nutrition of the body in all parts is improved by these medicines. No one says that they are at all specific in the disease. They are given with the idea of increasing the resisting power of the body through improvement in nutrition. They must, however, be given continuously and for long periods. The indications for their employment never cease until cure is brought about or defeat acknowledged. I almost invariably administer them in capsule form and in full doses. Iron is not so necessary in older subjects. There are, of course, many forms in which one may administer these three substances. In the case of young subjects, syrup of the iodide of iron with *nux vomica* and *liq. arsenicalis* is a very useful prescription. The important points respecting the administration of medicines of this class are that they should be given for long periods, and that they should be used in as full doses as can be well borne. In a long contest such as we have on hand, persistence in treatment is of the utmost importance.

Cod liver oil is by many believed to improve nutrition. Of late it has lost to a certain degree its former prestige. It is looked upon more as a nutritious food than as a medicine. If well taken it no doubt is of advantage. If, however, it disgusts or is not tolerated well, my own impression is that what little good it can accomplish in the way of improving nutrition, will be more than counterbalanced by the interference with digestion.

It seems clear that there is as great need for upholding nutrition in surgical cases as in medical. A visit to a surgical ward would not lead one to that belief. Exception must be made, however, in the case of cod liver oil, which for some reason is in favor with surgeons.

Prof. Treves, in his work on surgery, has a low opinion of the usefulness of medicine. Iron he would give "if there is anemia," "arsenic and quinine," he thinks, "are now and then of value." "Three-fourths of the medicines given are administered, not to treat the disease but to soothe that inherited craving in the human race for physic."

Cheyne and Burghard give first place to cod-liver oil, and advise 2in.-3m. of creasote. Let us not forget the indication—to improve nutrition and thus to increase the resistance and aggressive action of the tissues, which is the first part of the problem set before us. Who is to say that the medicine given to soothe pain or to procure sleep is not playing a part towards this in common, though less directly, with iron, arsenic and strychnine, cod-liver oil, etc.?

Edmund Owens, in his address on Tuberculous Lesions, from a Clinical Point of View, at the Canadian Medical Association of last year, in considering treatment expressed his belief in the value of cod-liver oil *by inunction or in sardines!* Evidently this was the only medicine which seemed to him useful.

This very day, in a hospital ward, I saw four cases of tuberculous diseases, all the cases in the ward under four different surgeons, not one of whom was receiving medical treatment of any kind. Surely resistance would be increased by judicious treatment towards improving nutrition, and the chance of destruction of the infection germs increased thereby.

Let us turn now to the second part of the problem presented. To weaken the power of the tuberculous germs. We can most readily conceive this being done by in some way altering their environment so as to make it unfavorable to further growth and vigorous development. In other words, we strive to bring about some alteration in the culture medium. Attempts have been made to secure this change by many substances. In one instance a very great measure of success was obtained. Several years ago, Coghill, of London, Eng., published in the *British Medical Journal* a report of experiments with creasote administered with the object of affecting this change. Dr. Coghill found that by injecting so much creasote into guinea-pigs he could bring about saturation of the body to a sufficient degree to render the animal immune to tubercular infection, and also to inhibit greatly the growth of tubercle if the animal had been previously infected. In these experiments control animals were used, to prove the correctness of the conclusions. These animals were readily infected by the same inoculation.

Such is the experimental basis for the use of creasote. The idea is to saturate the body to a sufficient degree to render it inhospitable to further growth of the tubercle bacilli. To effect a change in the culture medium, I believe Coghill's conclusions

were correct. My own experience leads me to consider creasote the most useful by far of all therapeutic agents at our command. It must, however, be given in large doses; sufficient alteration is not likely to be obtained by giving two or three minims three times a day. From his experiments, Dr. Coghill estimated that twenty or thirty minims three times a day would bring about the degree of saturation in the average-sized man that he had found necessary in the guinea-pig.

Unfortunately creasote is an irritant substance, and as frequently administered it leads to so much disturbance of the stomach that its use is abandoned. This is most unfortunate, for it may be given in large doses with but very slight, if any, irritation. My own plan for several years has been to order creasote in bulk, say one ounce, and at the same time to order a quantity of bismuth subnitrate. Empty capsules with dropper, complete the outfit.

The patient or nurse is directed to first loosely fill the capsule with bismuth and then to drop in slowly as much of the creasote as will be absorbed by the bismuth. If one capsule is not sufficient, two, or as many as seem necessary may be used to contain the dose. Any irritation can be met by increasing the amount of bismuth.

The patient is directed to take the creasote three-quarters of an hour after meals, and usually to begin with a small dose, say five minims, and to increase the dose one minim every other day until taking 20, 30 or it may be 40 drops three times a day.

For a number of years I have given creasote in this way and have never had to discontinue its use. I have patients at the present time who have been taking the medicine in from 20 to 30 drop doses three times a day for more than a year.

No harm seems attached to these full doses of creasote. I have many times examined the urine in order to determine if there had been irritation of the kidneys.

Following this idea of saturation by creasote, to change the environment in conjunction with measures such as I have described, has given exceedingly good results, and in some cases remarkable results.

I repeat again, is there any reason why the man with tubercular disease of the knee should be debarred from receiving the benefit of creasote in common with—I would not be understood as in any way underrating them—surgical means of cure. Surgical means are directed towards the same end, either to improve nutrition, by rest, fixation, freedom from irritation, and the consequent increase of resisting power in the tissues, or else towards the change of environment by the use locally of antiseptics, etc., etc.

Surely no one will deny that the utilization of all the means

at our disposal, hygienic, climatic, nutritional, medicinal and mechanical, must give better results than if only one part. A case will illustrate what I consider fully adequate treatment according to our present light.

Treatment.—J—A—, aged 39, consulted me in the spring of last year at the General Hospital, on account of great pain and tenderness about the elbow. He had been well and healthy until about three months before coming to the hospital. Then he began to experience pain and great tenderness in the left arm about the elbow. He lost flesh and failed rapidly. His father and mother were living, but three sisters had recently died of consumption. The last one shortly before.

On examination of the arm, it was found to be exquisitely tender over the head of the radius; movement was extremely painful, particularly rotation, jarring also caused pain. No external redness and no enlargement of the arm. Temperature was elevated at night.

I diagnosed tubercular disease of the head of the radius. Dr. Peters, who was my surgical colleague, saw him with me and concurred in the diagnosis.

Treatment.—1. Fixation of the joint in a rectangular splint, which extended to the fingers to prevent flexion and rotation. Later a leather splint was worn.

2. He was sent back to the farm, with instructions to keep out of doors as much as possible, and as busy as his crippled condition would permit; to sleep with windows wide open; take nutritious food and to keep his digestive functions in order.

3. Capsule.—Ferrum redact. grs. iii., three times a day.

Strychnine grs. $\frac{1}{10}$.

Acid arsenic grs. $\frac{1}{10}$.

Quin. sulph. gr. i.

4. Creasote in capsule with bismuth subnit. gradually increased to 30m. three times a day.

He quickly was relieved from pain, and reported improvement and increase in weight.

During exhibition week, in September, he came to see me, wearing the splint and still pursuing treatment. He had increased 15 lbs. in weight and wanted to abandon the splint, as the pain and tenderness had gone. I asked him to continue treatment for some time, and if not well to let me know. I have not heard from him since. I do not for a moment believe he would have done so well if but part of the treatment had been given. The employment of all the means at our disposal assuredly gives the greatest measure of success.

Selected Article.

DISCUSSION ON THE TREATMENT OF INTUSSUSCEPTION IN CHILDREN.

I.—BERNARD PITTS, M.A., M.C., F.R.C.S.,

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In June, 1897, I contributed a paper to the *Lancet*, in which the following suggestions were made :

1. In cases of recent acute intussusception, distension of the bowel by air or water, combined with gentle external manipulation, may be tried under an anesthetic. The surgeon should, however, be present, and prepared to at once open the abdomen if a satisfactory result is not quickly obtained. In many cases the effect of such inflation is to reduce the main portion of the tumor, but to leave an irreducible portion in the right iliac and lumbar regions. This amount of success aids the subsequent operation, and allows the tumor to be easily delivered through a smaller incision and with less manipulation. Supposing that inflation has apparently been successful, the child should be carefully watched, and, with evidence of continued trouble, abdominal section should be resorted to and no further inflation tried.

2. An exploratory operation should be undertaken without preliminary inflation when, from the severity of the symptoms or the chronicity of the case, there is reason to believe that such inflation would be dangerous or unlikely to succeed. It must always be remembered that the time taken up by inflation adds considerably to the shock.

3. The median incision is most suitable in the majority of cases, but when the tumor is in the cecal region a limited incision in the right semilunar line may be found most convenient. For the reduction of the final portion of an intussusception the tumor should be brought outside the wound, so that the operator may clearly see the condition of the bowel and make sure that the reduction is complete. Thickening about the ileocecal valve may be mistaken for an incomplete reduction. When in doubt, an incision may safely be made into the colon and the parts examined from within the bowel.

4. When reduction is found impossible, a resection inside the colon would seem to afford the best chance. The junction between the large and small bowel must be made secure before any part is cut away. When gangrene is present the condition

in young children is almost hopeless. Complete resection and end-to-end union, whether by Murphy's button or suture, so far has met with little success. Perhaps rapid resection with lateral implantation of the small bowel into a healthy portion of the colon, and bringing the cut end of the large bowel to the surface as a temporary vent for the escape of flatus, would be the quickest and safest method to adopt. Safely, however, as children stand a short operation, a prolonged one under such circumstances seems almost beyond their power.

Such, then, were my views in 1897. In the light of further experience, and from a study of 115 cases of intussusception treated at St. Thomas's Hospital, I have considered whether any modifications of these deductions should be made; but I venture to put my present views before you in the hope that they elicit the opinions of those interested in this subject who are present, and in this way help to settle the main question—namely, whether any treatment except immediate operation should be employed.

In the table before you of 115 cases treated for intussusception at St. Thomas's Hospital, we have 105 in children under 12 years of age, with 36 recoveries; 13 recovered after treatment by inflation and manipulation, and 23 after abdominal section.

The average age of the cases cured by inflation was 22 months; 5 of these cases were 6 months or under. The average age cured by abdominal section was 19 months, no fewer than 13 being 6 months of age or under.

During 1898, 1899 and 1900 the uniform practice at St. Thomas's has been primary abdominal section, with 27 deaths and 21 recoveries. The only exception was a child aged 7 months, who was treated and cured by water pressure, the symptoms having existed for twenty-four hours.

In looking at the table, one is struck by the great increase in the number of cases brought to hospital during the last few years. Between 1875 and 1894 inclusive, 40 cases; between 1895 and 1900 inclusive, 68 cases.

We can hardly suppose that intussusception is now more common, but must take it that medical men diagnose the condition more frequently and recognize the fact that the cases have a fair chance of recovery if sent without delay to hospital.

Since 1897, at St. Thomas's Hospital, out of 49 cases, inflation was only tried on one occasion, water was injected and relieved all symptoms, the child was 7 months old, and had been ill twenty-four hours. We have found that immediate operation gives the best result in hospital cases. As a rule, they have been treated either rightly by enemata or wrongly by purg-

atives before admission. Formerly the physicians gave a thorough trial to air or water pressure, and sent for the surgeon when they considered their efforts had failed. At the present time the surgeon is called at once, and an inflation is never attempted unless the surgeon is prepared to open the abdomen. The most unsatisfactory feature in attempts at inflation is that you are never sure that you have succeeded in reducing the whole of the intussusception, and in the ileo-colic and enteric forms it is most improbable that success will attend your efforts. It is not so very uncommon to have an intussusception of small bowel into small intestine near the cecum, and then a further intussusception into the cecum.

Again, in operating on intussusception one cannot but be struck by the considerable difficulty experienced in the majority of cases in affecting a complete reduction even when the part is manipulated outside the abdomen. It often requires very careful inspection to make sure whether the residual thickening left is due to edema or to a still unreduced final portion of the intussusception or to some complication, such as polypus, inverted Meckel's diverticulum, or even inversion of the appendix.

It is, then, this uncertainty as to the exact condition of the bowel which makes the surgeon prefer to handle and see the bowel. The length of time which has elapsed since the first onset of symptoms cannot altogether be relied upon as a guide; such swelling may take place in a few hours, so as to induce gangrene, or make the reduction by abdominal section and taxis extremely difficult; whilst intussusceptions which have lasted for days, or even two or three weeks, are occasionally reduced with comparative ease, and with very little change visible in the bowel after its reduction. What happens in intussusception is very much the same in this respect as in strangulated hernia, except that in the intussusception of children, swollen mesenteric glands are constantly met with, and often form one of the difficulties in the final reduction. I would, then, reserve trial by inflation to cases seen within a few hours of the commencement of symptoms, and then only when the symptoms are not of a very acute form.

It follows that most cases seen in hospital are best dealt with at once by operation. In some of these, however, when the intussusception has travelled along transverse or descending colon, inflation may be employed as a useful preliminary to exploration, and will often limit the field of operation and enable the incision to be made directly over the swelling.

Even if complete reduction should apparently take place, it will generally be best to make sure by a small incision, other-

wise there must remain a considerable doubt, and it is highly probable that reduction is not quite complete and will recur, or else give rise later to a condition of chronic stenosis.

I believe that water pressure is more easily managed than air, and is more efficient, and is also unattended with danger when introduced slowly and by a glass funnel, which should not be raised more than two feet above the patient.

In performing laparotomy on a young child, it is essential that the shock should be minimized by placing the child on a hot-water cushion, and by having the extremities covered with cotton wool and bandaged. The operation must be a rapid one. When the abdomen is much distended, and the position of tumor is not manifest, it is best to make an incision in the middle line and to take special precautions against the prolapse of small bowel. A distended coil may with advantage be withdrawn and air and intestinal contents allowed to escape through a small incision, and this incision having been closed, the after-examination is rendered comparatively easy. This is a much safer course to adopt than to allow coils of distended and unmanageable gut to remain outside the abdomen during the exploration.

In effecting the reduction of an intussusception the most common accident is the splitting of the peritoneal coat of the ensheathing layer. The greatest gentleness is necessary, and most of the work should be done by pressing on the apex of the intussusception rather than by dragging on the entering bowel. If great difficulty is experienced it may be advisable to open the ensheathing layer, and assist by the insertion of the finger within the bowel. The nature of the difficulty can be thus ascertained, and some of the edema will be relieved.

If the reduction is still impossible, the irreducible part in a favorable case may be resected *in situ*. Such a procedure is rarely feasible in an acute case, and is more likely to be required in a chronic intussusception.

When gangrene is manifest, resection and immediate end-to-end approximation is most unlikely to be successful in a young child, and the treatment I would suggest is that of resection, putting Paul's tubes into the end of the bowel after bringing the ends outside the abdominal incision—or better, through a separate smaller incision conveniently placed so that there shall be no drag on the bowel. Two or three stitches should then secure the bowel end beyond the tubes to the parietal peritoneum, gauze being wrapped round and between the tubes, and the patient got to bed as quickly as possible. Continuity should be established at a subsequent operation. If, however, the intussusception is of the enteric form, high up in the intestine, then restoration of continuity must be established at once, or the patient will die of exhaustion.

Before leaving the subject of acute intussusception, I would refer to a point of some importance, namely, the necessity for great care in the suturing of the exploration wound, and for the use of buried sutures, and for leaving the superficial sutures as long as possible. I have heard of several cases where an otherwise successful case has been endangered, or even lost, by the bursting open of the half-healed wound and the escape of intestines into the dressings. No doubt deep-buried sutures add a little to the length of an operation, but they are specially necessary in young children.

I have noticed after abdominal section in young infants, especially when there has been much manipulation of intestines, that death is often preceded by high temperature and delirium, and takes place within twenty-four hours of operation. Nothing is found *post-mortem* to explain the temperature or death. I have no experience of such a condition following similar operation in adults, and cannot explain it.

In conclusion, I venture to make the following modifications of the conclusions I arrived at in my paper of 1897 :

1. Try inflation only when the case is seen within a few hours of onset, and is not of a very acute character. In the great majority of hospital cases it is better to open the abdomen at once.

2. Inflation may be tried in certain other cases for the purpose of reducing the main portion of the intussusception, and enabling the incision to be made directly over the cecum.

3. When reduction is found impossible in chronic cases, a resection may be generally done through an incision in the ensheathing bowel.

4. In acute cases, and especially if gangrene is present, or the condition of the bowel requires its removal, a wide resection should be undertaken as rapidly as possible, and the ends brought outside the abdomen ; continuity should be restored at a subsequent operation.

5. In exceptional cases of enteric intussusception, resection and immediate restoration of continuity gives the only chance.

II.—D'ARCY POWER, F.R.C.S.ENG.,

Senior Surgeon to the Victoria Hospital for Children, Chelsea ; Assistant Surgeon to, and Teacher of Surgery at, St. Bartholomew's Hospital.

In regard to treatment, although he was formerly an advocate for irrigation of the bowel, greater experience had taught him that this method was not to be relied upon, and he quoted cases which had led him to alter his opinion. He now performed an abdominal section at the earliest possible opportunity, reducing the intussusception if possible without bringing the tumor into the wound, though he had no hesitation in

making a very large incision and bringing the intussusception outside the abdominal cavity if there was the least difficulty in reduction. In this way he had had three successful cases in the course of the last three months, two of these being colo-colic invaginations, and the third a large ilio cecal intussusception, which was under his care at the present time.

III.—WILLIAM McADAM ECCLES, M.S., F.R.C.S.,

Senior Assistant Surgeon, West London Hospital.

Mr. McAdam Eccles said that given early diagnosis—and this, it must be allowed, was often left until too late owing to a failure to recognize the presence of cardinal signs or symptoms of the affection, namely, paroxysmal abdominal pain, vomiting, abdominal facies, the passage of blood-stained mucus, and the presence of a tumor to be felt through the abdominal walls, or *per rectum*—given, therefore, an early diagnosis, what was the best line of treatment? He thought that, provided the surroundings of the patient were satisfactory, the results of the present day showed that immediate laparotomy with a view to the reduction of the intussuscepted bowel was clearly indicated. The laparotomy was more likely to be followed by a happy result at this early stage in the affection because the child was less exhausted, there was less distension, and therefore less difficulty in dealing with the small intestines, and there was less likelihood of sepsis after the operation from the surface of the reduced gut. He considered that some of the cases in which the temperature of the young patient had risen very high, with a fatal result, had been those in which there had been septic absorption from the intestine that had been invaginated and reduced. Chloroform anesthesia was always needful. Rapidity of operating was of the utmost consequence in such cases. There was no reason, provided that everything was in readiness before the incision was made, that the operation, including the suturing of the abdominal wall and the application of a collodion dressing, should occupy a longer time than a quarter of an hour. There was one point that had hardly had the attention paid to it that it deserved, namely, the question as to whether a child that was being suckled by its mother should be put to the breast within a short time after the operation. He thought this unwise, and that it was better to withdraw the breast milk, and to give it to the child in teaspoonfuls very frequently repeated; for the act of sucking tended to so markedly stimulate the movements of peristalsis that there would seem to be a possibility of reproducing the intussusception. For the same reason he thought that it was always well to give small doses of tincture of opium, so as to obtain and maintain rest of the gut. He had seen good results

from the early injection of two ounces of hot milk into the rectum in those cases in which the collapse after the operation was severe.

IV.—A. H. TUBBY, M.S., F.R.C.S.

Surgeon to the Evelina Hospital for Sick Children, the Westminster, and National Orthopedic Hospitals.

Mr. Tubby spoke of the relative merits of inflation or irrigation and abdominal section. He was of opinion that in all but possibly the earliest cases, that is, those of a very few hours' duration, the patient stood a much better chance if abdominal section was performed at once. With reference to the rapid rise of temperature which occurred in some fatal cases before death, he had seen in the severe cases he had mentioned commencing thrombosis of the mesenteric veins corresponding to the apex of the intussusception, and he thought that this septic thrombosis was indicative of an acute septic infection originating in the damaged condition of the bowel. The rapid spread of the venous thrombosis was, it seemed to him, a feasible explanation of the continued pyrexia in cases of this type which were admittedly fatal.

V.—F. C. ABBOTT, M.S., F.R.C.S.,

Assistant Surgeon, St. Thomas's Hospital.

Mr. Abbott raised the point of fallacy in diagnosis, quoting a case of tuberculous peritonitis in which the sausage tumor was imitated by the rolled omentum, and there was passage of blood and mucus, this being due to a kink in the small intestine against a tuberculous gland that had suppurated. It was a question what should be done in cases in which there was local peritonitis, with gangrenous gut and a big abscess, and he advised merely opening the abscess, as in an acute abscess of the appendix, dealing with the intussusception later. The gangrenous gut should be resected and joined in two stages.

VI.—J. PAUL BUSH, C.M.G., M.R.C.S., BRISTOL,

Surgeon to the Bristol Royal Infirmary.

Mr. Bush was glad to hear strong remarks made concerning the importance of early abdominal section in these cases. He thought the time was not far distant when inflation and such like methods of reducing the intestine would not be tried, and so much valuable time in that way lost.

VII.—SINCLAIR WHITE, M.D., M.Ch., F.R.C.S.,

Honorary Surgeon, Sheffield Royal Hospital.

Dr. Sinclair White stated that while he agreed generally with the remarks of the previous speakers as to the advisability of immediate operation in intussusception, he thought irrigation should not be entirely discarded. With regard to the

hyperpyrexia following operation, he thought it due possibly to some trophic change or disturbance of the thermogenic centres. It came on too quickly to be due to sepsis. It was to be remembered that country practitioners were not all experts, and the public ought not to be led to think that operation offered the only remedy. He thought that if morphine were given at once so as to arrest peristalsis, there would not so often be a recurrence of the tumor. As regarded operation he thought it was very often better to bring the intestines out of the wound, keeping them warm and clean, so that the whole abdomen might be inspected and no other condition be passed over. He thought the formation of an artificial anus a bad measure. The mortality was very high in these cases, and the operation for closure of the artificial anus had also a very formidable mortality.

XII.—A. MCPHEDRAN, M.D., TORONTO.

Professor McPhedran regretted not having heard Mr. Pitts's paper, but he wished to add his testimony to the importance of the early diagnosis of intussusception, so that prompt and effective treatment might be instituted. Early diagnosis was, however, frequently most difficult, as the symptoms might be very indefinite. As soon as intussusception was diagnosed, the case should at once be submitted to operation. This was the only course that offered a fair hope of success. In a recent case the great mass of intussuscepted bowel was easily reduced by inflation, but a small nodule might remain, and this on operation might be found exceedingly difficult to reduce. He had seen a similar case in which the symptoms had been very slight, and the peritoneum had looked well, in which death occurred from peritoneal sepsis the day following the operation. The condition had in this case only lasted twenty-four hours.

XIII.—A. D. BLACKADER, M.D., MONTREAL.

Dr. Blackader advised that purgative medicines should be avoided and enemata only used where any symptoms of obstruction were present. In his own practice he always emphasized the importance of early operation. He had not had the pleasure of hearing the early part of this discussion, but his own view was that there should be neither hesitation nor procrastination in procuring surgical assistance.

XV.—FREDERIC EVE, F.R.C.S.,

Surgeon to the London Hospital; Consulting Surgeon to the Evelina Hospital;
President of the Section.

The President remarked that the unanimous opinion of the various speakers was against the employment of inflation or injection, with the exception of the opener of the discussion,

who would employ these measures in cases seen within a few hours of the onset. For his own part, he summed up the arguments against them as follows: (1) Injection or inflation was very rarely efficacious. Of twenty-four cases so treated at the London Hospital not one was cured by this method alone. Eighteen were subsequently operated upon, and six died without operation. Of the eighteen cases subjected to operation, in fourteen reduction was effected, although inflation and injection had failed in procuring it. (2) Injection or inflation was not infrequently followed by an illusory or partial reduction. So-called recurrence of the displacement was inevitable, and the consequent delay in performing the operation usually led to a fatal result. He pointed out this danger in 1895, and had since insisted on immediate operation. Of six cases of his own treated by injection, incomplete reduction followed by recurrence occurred twice, and both patients died after operation. In the remaining four cases injection had no practical effect. In one of these cases he injected water one hour after onset of symptoms, and yet the reduction was only partial. Immediate operation resulted in recovery. (3) Injection or inflation were haphazard and therefore unscientific. They could not be expected to influence an intussusception commencing in the small intestine.

REPLY.

Mr. Bernard Pitts said, in reply: As regarded the high temperatures which occurred after operation, they came on too quickly to be explained by Mr. McAdam Eccles's theory of a toxic origin. They might more probably be attributed, he thought, to some impending death changes, and he had seen them occur after some other conditions involving operation—in one case after operation on the stomach. He wished to remind his colleagues that though a tumor might apparently be reduced after irrigation, it might only have shifted its position into the splenic or hepatic flexure, where it could not be felt. In these cases inflation might assist diagnosis sometimes. Dr. Sinclair White had objected to the general lines of treatment laid down, and seemed to think treatment by injection ought not to be disregarded. He agreed with him to a very limited extent. In general practice it might do good if the case were seen early, but it must never be substituted for operation.—(Synopsis of discussion at last meeting of the British Medical Association.)—*British Medical Journal*.

Progress of Medical Science.

MEDICINE.

IN CHARGE OF W. H. B. AIKINS, J. FERGUSON, T. M. McMAHON, H. J. HAMILTON,
AND INGERSOLL OLMSTED.

An Important Case of Ambulatory Typhoid Fever.—Hemostatic Value of the Sulphate of Soda Given in Small Doses.—Result of the Serum Reaction of Widal.

The study of the present case is interesting, as it confirms once more the benefit of the classification of the various forms of typhoid fever; as it reveals the importance which the serum-reaction of Widal assumes in special conditions; and thirdly, as it has given an opportunity of testing the effect of sulphate of soda for the intestinal hemorrhages which so often complicate the typhoid infection.

The patient was a man, thirty-eight years old, a shoemaker, born in Naples. The father died of cerebral hemorrhage, the mother of pulmonary inflammation. He had been a soldier, and had contracted a gonorrhoea and a soft chancre, after which he had no cutaneous symptoms. The present sickness began on January 15 of this year. The patient continued at his work in spite of a feeling of general malaise, fatigue and pains in the head. He had diarrhoea, and noticed that his abdomen was somewhat swollen. On the 5th of February the patient was forced to go to bed, owing to fever and severe abdominal pains. While a physician was being sent for, he had abundant diarrhoea with a large loss of blood, and vomiting also mixed with blood. It is important to fix the time of this hemorrhage, which took place between the third and fourth week from the beginning of the infection—a period, when, according to the accurate statistics of Hamolle, hemorrhage is most frequent. The vomit containing blood was probably caused by the regurgitation into the stomach of the intestinal contents owing to the exaggerated anti-peristaltic movements.

Not having at my disposal cultures of the Eberth bacillus, I was not able to try the serum-reaction until the patient's temperature was already normal. The blood for this test I obtained from the median vein by a syringe previously sterilized, taking four cubic centimetres. I consider it better to obtain the blood in this way than by a simple puncture, as it enables one not only to make the microscopic examination, but also to make a macroscopic examination, finding out the coagulating power of the serum. In my case, the serum-reaction gave, macroscopic-

ally, a very slight turbidness without any agglutination; microscopically, the bacilli of Eberth showed a tendency to unite in scattered groups in the centre of the field of observation of the microscope. Observing the preparation at its borders, there was noted an almost perfect agglutination, but that must not lead us astray, because we know that there is always a crowding of the bacilli near the edges of the slide, this phenomenon requiring a purely mechanical explanation. The result of the serum-reaction in this case confirms the conclusions of the studies of Widal, according to whom the agglutinating power of the serum is observed, even at the end of the infection, although rarely; nevertheless, in the greatest number of cases, the serum loses its agglutinating power at the beginning of convalescence.

As for the therapy, it was decided to control the hemorrhage with the sulphate of soda, which had been extolled by Mossè as an excellent hemostatic for intestinal hemorrhage.

In 1896, at the Congress of Surgery held in Paris, Reverdin, in his paper, said that he had tried to determine the action of sulphate of soda experimentally. Given to animals, this salt makes the coagulation of the blood more rapid, but only when given by the mouth, not hypodermically. Reverdin had good results from its use in grave capillary hemorrhages both spontaneous and traumatic, in menorrhagia and in a case of obstinate subcutaneous hemorrhage. The use of the sulphate of soda, then, in small and frequently repeated doses (gr. 0.10 every hour) is to be recommended, according to Mossè, in intestinal hemorrhages, favoring the coagulation of the blood.

My patient received the sulphate in small doses, in a little water. The results were satisfactory. After the second day's treatment, no more blood was seen in the stools. Meanwhile, all the other symptoms were improving. The temperature became normal on the thirtieth day from the beginning of the disease. The size of the spleen lessened, as well as the intestinal meteorism. There was no complication, and the examination of the urine, repeatedly made, showed the close relation between the renal function and the course of the disease. The urine, which was scanty at the height of the disease, gradually increased in quantity, while its acidity diminished. The urea, which was in the proportion of 27 grammes per 1,000, became 24 grammes per 1,000.—Translated from *Giornale Internazionale delle Scienze Mediche*, by HARLEY SMITH.

Sugary Ingredients in the Blood and Urine.

Mm. R. Lepine and Bouled, in *Lyon Medicale*, 16 June, explains their method of detecting sugary principles in the blood and urine. The quantity of these substances, in many

cases, is very delicate. There may be an uncertainty to the extent of five grammes per litre. If the polarimeter be employed, it is necessary to remember that there are some saccharine and non-saccharine substances that deviate the light to the left; glucose, however, deviates the light to the right. Some substances, as glycuronic acid, deviates the light to the right. Some saccharine substances deviate the light much more than others; maltose will deviate the light three more than glucose. Some sugars, pentoses, are inactive on light, but reduce copper. Different sugars reduce different weights of copper. One gramme of maltose reduces less copper than a gramme of glucose. There also exist in urine some agents that reduce copper which are not sugars. In the fermentation test, the same quantity of sugar gives different amounts of carbonic acid, according to the conditions under which the fermentation is done. It is thus that it is impossible to determine the exact amount of sugar in the urine. There is likely to be an error to the extent of 5 per cent.

As there is usually a small quantity of sugar in the blood it is well to use a considerable quantity of that fluid, 160 or 200 grammes. The blood is received in an acid sodium sulphate solution; it is warmed and the clot removed. The liquor is evaporated in a water bottle, some crystals of sodium sulphate, ground in a mortar and exhausted with absolute alcohol and heat, is evaporated and then made up by water until it is almost colorless.

The Treatment of Writers' and Pianists' Cramp.

Prof. J. Zabłudowski, of the University of Berlin, writes as follows in the *Revue Internationale de Therapic Physique* for April, 1901. There are ordinarily designated, under the titles Writers' and Pianists' Cramp, forms of disease whose characters are not always the same, and these differences give rise to diverse opinions on the subject of the curability of these affections. Most authors admit their incurability, and the sufferers are thus driven to take the advice of the laity, who promise a cure by doing something unusual, after their own method.

Cure will depend much less on the employment of physical means, isolated or combined, than on the possibility of finding some means of diminishing the quantity of muscular contraction, and of the work of the nerves necessary in writing and playing the piano. All treatment that falls short of this will not be followed by positive cure, as this depends upon the circumstance whether or not, during the treatment, professional work has been restrained. So also the simultaneous employment of a number of therapeutic measures, which is fashionable enough at present, may be quite injurious when the disease has

taken on chronic characters. A simple method of treatment has the advantage that it can be continued at home, in the absence of the physician, and becomes a good means of encouraging the patient to work.

As to apparatus for writing, they have only a palliative value. The cause of the disease in the pianist indicates to us the road to follow, which will consist in changing a little the key-boards of the instruments. There should be constructed for the young, pianos whose key dimensions would be three-twentieths less than the usual key. There might also be constructed pianos for which there could be adopted by choice different key-boards.

As to writers, it is necessary to correct the faults that can be seen in their mode of writing; it is necessary to relieve the points subjected to pressure, and to introduce compensations for the affected muscles and nerves. This latter task can be accomplished by submitting groups of muscles to training in order that they may become accustomed to new movements. For this training, means of encouraging the movements are required, and massage meets this requirement. The more we attempt to introduce changes in the manner of his writing by directing him differently, by causing him to hold his pen in another way than his custom, the more also shall we be able to free him from his bad habits of writing. Exercising the fingers, as in the Swedish gymnastics, is, on the whole, too coarse, and favors but little the relatively fine movements required in writing. The making of large, rounded initials, allowing to the hand a freedom of movement in different directions, is a very proper education of the muscles, fingers and hand. The gradual passage from large to smaller letters accomplish the same end. Often the cramp can be prevented by not allowing the fore-arm to rest in the same place while the hand writes an entire line, but by shifting it parallel with the axis of the hand as soon as one, two or three words are written. By this means also rests can be introduced in the body of each letter at the points where the pen has a tendency to stop, that is where the two strokes cross and form an angle, and in the long letters, at the points where the principal stroke crosses the upper or lower limit of the writing.

In bad cases, that is to say, the cramp properly so-called, every attempt to obtain a suitable form of writing must be abandoned at once. The treatment will be reduced to the employment of an apparatus of simple make, which will allow the muscles habitually used in writing to rest, and to bring into use other movements of the fingers. In those cases where writer's cramp is caused by a central neurosis, hysteria, neurasthenia, a systematic psychic treatment must be carried out

Massage is of much value, as it has excellent effects in the hypochondria, which constantly accompanies these cases. In fine, to strengthen the effect, the manipulations of the massage should be limited to the parts supposed to be affected by the physician, as well as by the patient.

Energetic and repeated strokes or percussions which cause peripheral irritation will exercise a repressing influence and aid in stopping the cramps. It would be very useful, as a prophylactic, if the instructors in writing gave careful attention to the correction of the faults in the method of writing so common among pupils.

Among pianists, we have to do for the most part of the time with forced fingers, caused by the keys being too large for those hands below the medium size. The difficulty of executing some musical compositions, which call for the very wide separation of the fingers, must not be overlooked in certain persons. The neuritic is the most frequent form of the malady. The pains often extend above the neighboring points and radiate into the shoulders, the back and the breast. In point of frequency, the paralytic form comes next to the neuritic. The cramps occur, when the affected pianists cease playing, soon enough. The peripheral malady exercises a very considerable influence of the general state of health among persons whose nervous system is quite normal. Among those affected with writer's cramp, we often meet persons whose nerves were already weak.

There is no doubt that the pianos for the young, made after the manner described, will come into wide use, as they do not require any new method of education. In passing from the smaller to the larger keys the hands develop better, and there will be little likelihood of cramps or paralysis.

Cardiac Hypertrophy in Nephritis Aplásigne.

Dr. L. Bouveret, of Lyons, in the *Lyon Medicale* for 7 July, discusses a phase of chronic nephritis and its relation to cardiac hypertrophy under the above title. He points out that all cases of interstitial nephritis are very liable to be accompanied by enlargement of the heart, as pointed out by Tranbe. This is true of 93 per cent. of the cases. There are some exceptions, however, to the rule. Some conditions prevent the occurrence of the heart enlargement in renal sclerosis. These are advanced age, tuberculosis, and cachectic states. But the writer calls attention to another group of cases. He describes cases of renal sclerosis with very contracted kidneys, uremic attack and death among four adults, and without cardiac enlargement. These cases are nearly always chlorotic and anemic. This is the group that he calls *aplasia vasculaire*. There is a badly

developed condition of the heart and vessels. Laucereau was the first to point out the fact that in badly developed states of the vascular, sclerosis of the kidneys did not cause enlargement of the heart. Dieulafoy called the condition chloro-fritism. This condition vascular aplasia prevents, to a great extent, the tendency of renal sclerosis to increase the work and size of the left ventricle. In the badly organized and developed state of the vascular system, chronic contracted kidney is very dangerous. The end may come with great rapidity with attacks of uremic convulsions. It may be that the kidney, so closely connected with the vascular system, shares in the faulty development of the latter, and thus fails early to do its work as a depurating organ. The cardiac hypertrophy, in most cases of renal sclerosis, is a benefit as it maintains arterial tension and diuresis. In the cases discussed in this article, this vascular tone is wanting, and the end comes all the sooner.

Cancer of the Uterine Neck.

At the recent meeting of the American Medical Association, Dr. J. M. Baldy, of Philadelphia, read a paper upon the above subject. He takes a very gloomy view of the curability of cancer of the cervix. He passes under review the statistics on the disease and the results of operations that have been performed for its relief. He holds that these statistics do not show that 5 per cent. of the cases have been cured: but he is strongly of the opinion that 2 per cent. would be nearer the truth. He contends that to do anything towards the cure of these cases the diagnosis must be made at an early period in the disease. He denounces the tendency of the present day to pay so much attention to laboratory work and so little to clinical study and symptoms. He takes strong exception to recent statements that "the early stages give little or no clue to the real nature of the disease." He attaches great importance to the three great symptoms: pain, odorous discharges, and hemorrhage. If these are accompanied by loss of flesh the case is very clear. These symptoms, properly studied, will enable one to make an earlier diagnosis than by the microscope.

OBSTETRICS AND GYNECOLOGY.

IN CHARGE OF ADAM H. WRIGHT, JAMES F. W. ROSS, ALBERT A. MACDONALD,
AND K. C. McILWRAITH.

The Diagnosis of Cancer of the Womb. — By FREDERICK J. McCANN, M.D., C.M., Edin., M.R.C.P., Lond. Physician to Out-patients, Samaritan Free Hospital for Women, London.

It has now been proved beyond doubt that if cancer of the womb be diagnosed at a sufficiently early stage in its course, it can be cured by operation. I will first narrate a typical example of cancer affecting the neck of the womb, and then indicate some of the pitfalls in diagnosis.

A married woman, aged fifty-four, was admitted into the Samaritan Free Hospital under my care on July 13th, 1896.

History.—At the end of February, 1896, she noticed a discharge of blood from the vagina, which continued daily until her admission into the hospital. It was never offensive. She did not complain of any pain, and was always able to work, but was losing flesh. The menopause had occurred seven years previously, and she had had no blood loss until her present trouble commenced. She had had five children (twins twice) and two miscarriages. She was fairly well nourished, with no cachexia. Her appetite was good and she slept well.

On bimanual examination the uterus was found to be freely movable. There was no infiltration of the broad ligaments. A nodular growth was felt, involving chiefly the posterior lip of the cervix, and extending upwards into the cervical canal. The appearance of the growth by the speculum suggested malignant disease, the surface bleeding readily when touched.

Operation.—On July 17th I performed vaginal hysterectomy. The operation occupied thirty-five minutes. The patient recovered and has remained free from recurrence. The growth was proved by microscopical examination to be a columnar-celled carcinoma.

Hemorrhage.—This case illustrates the importance of hemorrhage as an early sign of cancer of the neck of the womb. The bleeding may at first be small, occurring only after sexual intercourse. Later it may be evidenced by increased menstrual flow, and when this ceases a sanious watery discharge remains. In other cases a somewhat profuse bleeding suddenly occurs, which may be regarded as a miscarriage. If, however, bleeding appears after the menopause a thorough examination of the pelvic organs should be made, as this is always a sign of some pathological process. The same is true of the profuse hemorrhages which occur at the climacteric.

There is still a widespread belief that the great sign of cancer of the womb is a putrid discharge, but in early cases the discharge is not foul smelling, and the septicity of the discharge indicates sloughing of the cancerous surface, due either to an advanced stage of the disease, or to infection by fingers, syringe or other instruments. In fact a cancerous growth may attain considerable proportions without causing any fetid discharge.—*Brit. Med. Jour.*

Puerperal Eclampsia; Four Cases Successfully Treated by Rectal Injections of Chloral Hydrate.—By W. B. HALLOWES, L.R.C.P.

The author reports four cases of puerperal eclampsia in which the injection, per rectum, of sixty grains of chloral hydrate in one ounce of water, gave prompt relief. The injections were repeated every three hours, and in no case were more than four given, recovery being uneventful in each case. All the cases were at or about full term.—*New York Med. Jour.*

On Fibroids of the Cervix Uteri.—By DR. A. H. N. L. LEWERS.

The author confines his remarks to interstitial and subperitoneal fibroids of the cervix. Their importance is largely a matter of size; when small, they cause no symptoms, but when they reach the size of a cocoanut and upwards they should be removed. If left alone, pressure symptoms will arise in course of time. Menstruation may be scanty or profuse. An important point in diagnosis is to recognize the difference between a submucous fibroid of the cervix or body, which is felt through the dilated os uteri, and a fibroid of the cervix, which is truly interstitial. In the former case the tumor may be safely removed by *morcellement* through the vagina. Such fibroids, if left alone, become infected and break down, producing general sepsis. In removing such tumors, the deep cervical attachments must be separated before they can be drawn up to and out of the abdominal wound. Four cases of cervical fibroids are reported, the patients all recovering perfectly after operation.—*New York Med. Jour.*

Palliative Treatment of Cancer of the Uterus.

G. R. Leighton, M.B., C.M. (*Brit. Med. Jour.*, March 16, p. 634).—A widow, aged 71, was seen in May, 1898, for cancer of the cervix uteri. Hemorrhage was always controlled by ergot internally, and when severe by subcutaneous injection of ergotin. For the offensive discharge a solution of sulphate of zinc was used in the earlier stages, but later nothing was so satisfactory as a carbolic-douche (1 to 40).

After six months the pain was constant and intense. Liq. morph. hydrochlor., chloral hydrate, and morphine suppositories were used, but these began to lose effect, and the writer was continually called up at night to give hypodermic injections of morphine to induce sleep. The relief obtained was only evanescent, and the patient was rapidly being worn out by the intense suffering. The writer then acted on the advice: "If everything else fails, turn the patient into an unconscious opium eater." At this time, December, 1898, she was taking from 3 to 5 gr. of opium daily. He decided to push the opium, and finding that the tincture of opium had a more lasting effect than the liquor morphine, he discarded the latter. He gave 15 m. every four hours, work about 6 gr. of opium in twenty-four hours. In a few days he gave a dose every three hours, or 8 gr. a day. In a fortnight the patient was free from pain for six or eight hours at a time, during which refreshing sleep was obtained. She soon began to improve in her general condition. She took food well, and instead of dying, as was expected a few weeks before, began to go out in her carriage a little. The dose had to be constantly increased, however, to secure this immunity. Six months later, in June, 1899, she was taking 3 oz. of tincture of opium daily, or about 99 gr. of opium; a month later 4 oz. As tolerance became established the dose was further increased, but 5 m. of tincture of belladonna were added, night and morning, which assisted the action of the opium. By August, 1900, she was taking daily 6 oz. of laudanum, or about 198 gr. of solid opium. Three months later she was taking 8 oz., or 264 gr. of opium daily, and on some days, when the pain threatened to become severe, she took over 12 oz., or nearly 400 gr. This dose was continued, one day a little more, the next a little less, till October, 1900, when she collapsed somewhat suddenly, and, after a week of extreme prostration, died.

The patient lived two years longer than was at first thought probable, and the last eighteen months of the disease were much more comfortable than the first twelve. She had severe pain at times, but it was tolerable, and never so distressing as in the early stages. Throughout the last two years there was no difficulty with the bowels, or head symptoms, and a plain milk diet was well taken. Towards the end the growth extended to the bladder and rectum.—*Med. Review.*

Cystitis—Peculiar Condition of Uterus in Pregnancy.

Dr. Howard A. Kelly, at a recent meeting of the Johns Hopkins Medical Society, spoke of a drainage in bad cases of cystitis. Here attempts to wash out will be cut short on account of the pain. Dr. Kelly treats such cases by placing the patient

in the knee-breast position and letting air into the bladder through the cystoscope. He then thrusts in a narrow-bladed, specially made knife, set at an angle with the handle, and draws it downward toward the urethra, leaving a free opening into the bladder for escape of urine. Dr. Kelly urged the importance of making topical examination of the bladder before commencing treatment in cases of apparent cystitis. He had had cases which had been treated elsewhere for a length of time for cystitis, when on using the cystoscope a stone was seen, and on its removal the symptoms disappeared. He spoke also of peculiar cases of pregnancy which he does not understand. One part of the uterus softens down and the rest remains rigid; the softened part may bulge. In his case it was mostly toward the patient's right. The patient was the wife of a physician from Iowa. He was advised to let it alone, and returned home, where his wife had a normal labor. In another case, the wife of an army surgeon, the abdomen was opened and the right upper horn of the uterus found to be softened. The patient later aborted per vias naturales. In a third case exactly the same condition was found. Dr. Kelly would call it "Apical pregnancy," and it is liable to be mistaken for extra-uterine pregnancy.—*Jour. Amer. Med. Assn.*

Extra-Uterine Fetation.

John D. Malcolm, Surgeon to Samaritan Free Hospital, in his paper in the *British Medical Journal* of 13th July, states that an extra-uterine pregnancy may go on to full term, and give rise to symptoms that would lead the patient to regard herself as pregnant in other than the usual way. He also believes that pregnancy may take place in the ovary, or in the peritoneal cavity, as the latter may develop sufficient vascular activity to maintain the growth of the fetus. In cases where the gestation occurs in the tube, it may be in the tube proper, or that portion of it within the uterine. The great majority of all ectopic gestations occur in the tube outside the uterine wall. The author does not think that when the tube ruptures, the fetus can develop free in the peritoneal cavity. He is of the opinion that, when the gestation continues after the rupture of the tube, the amniotic sac remains intact. In the early stage of fetal development the chorion is the only covering. The amnion is formed later, and gradually enlarges until it comes in contact with the inner surface of the chorion. There is often a substance like Wharton's jelly between them. When the tube ruptures, the chorion is liable to rupture also, leaving only the amnion. In this condition the fetus may go on to term or longer. But as the fetus is developing in the tube, the layers of the broad ligament may be separated. The rupture of the

tube may then occur in such a way as to permit of the fetus and membranes escaping into the space between the folds of the broad ligament. If the amnion does not rupture, the fetus develops here as well as in the peritoneal cavity. In such a case, the tube and uterus is most likely to be lifted up into the abdominal cavity, so that the uterus may not be within reach of the finger. In cases where the rupture is into the peritoneal cavity, this would not be the case; and the placenta would be in the pelvic cavity. When the tube ruptures, there is not room on its inner surface for a full-time placenta, so that, if development goes on, the placenta must take on new attachments to adjacent parts. This fact explains to a great extent the ease or difficulty of operative treatment. Hardly any two cases can be alike for this reason. In all cases rupture, or the death of the fetus, must come sooner or later. In the great majority of cases, the death of the fetus occurs within a few weeks after conception. When the fetus dies from some cause within itself, there is a fair chance that it may shrivel up and become encysted. In some cases, the fetus may remain almost unchanged, whereas in others the soft parts disappear and the bones only remain. When the pregnancy goes on to term, the fetus must die unless removed by operation. After its death it may shrivel up, or be absorbed, but most usually some inflammatory process sets in. The fetus may be discharged by suppuration. There is much risk, however, of the large sac opening into some portion of the bowel, and septic infection is very likely to occur. In such cases, the intestines and the amnion have become so attached that the removal of the fetus and its secundines is practically impossible. All that can be done is to remove the fetus and keep the sac as clean as possible. When a rupture of the tube occurs, or if there be a separation of the placenta, there is no likelihood of the hemorrhage becoming arrested, as in the case of a normal pregnancy, by uterine contractions. There should be no delay in performing the requisite operations for the treatment of the case. No good can come from waiting and permitting further hemorrhages to take place. If the first hemorrhage be slight, the second may be copious, and therefore the patient is in imminent danger. If the fetus is still alive and the tube unruptured, delay is only to court some worse condition. If the case is diagnosed, it is much better to operate before rupture occurs. To postpone the operation until the fetus dies, in order that hemorrhage be lessened, is likely to be met with the greater difficulty of suppuration, or many inflammatory adhesions. Some may not agree with the advice to operate in all cases; but to watch a fetus develop to term outside the uterine cavity will subject the patient to far greater risks than immediate operation.

LARYNGOLOGY AND RHINOLOGY.

IN CHARGE OF J. PRICE-BROWN.

Air Currents in Nasal Respiration.

Charles A. Parker (*Jour. Lar. Rhin. and Otol.*, July, 1901), Surgeon to the London Throat Hospital, controverts the long-established belief that the air during inspiration passes through the lower part of the nasal cavities, and over the lower turbinates. He does so for the following reasons:

1. Patients with an absolutely free inferior meatus and post-nasal space will often complain of stuffiness and inability to breathe through the nose.

2. Hyperplastic or edematous enlargement of the middle turbinates, especially of their anterior ends, or muco-purulent catarrh affecting the middle meatus, may cause difficulty of nasal respiration, although the lower passages may be unusually patent.

3. Polypi will cause marked nasal obstruction, even in slight cases, where the inferior meatus is quite free.

The observation of these facts, as well as the discussions of other writers upon the subject, induced Parker to make a series of special investigations. For this purpose he examined normal noses and those affected by spurs, septal deflections, hypertrophic rhinitis, etc., etc., and then gave the result of his observations.

To test the direction of the air current in inspiration, he had his subject inhale through the nostrils air saturated with the fine powder of lycopodium, making an intranasal examination immediately afterwards. To test the direction of the air current in expiration, he had the subject exhale cigarette smoke through the nose, watching its course at the time by means of the nasal speculum.

Numerous experiments were made, and all were followed by results which led to the conclusion: that, in the normal nose, the air during inspiration is always drawn upwards and backwards during the first part of its course, missing the inferior turbinate and gliding over the middle and superior turbinates; and then in the second part, downwards and backwards through the upper portion of the posterior choana, entirely missing the whole inferior meatus, and only slightly brushing the inferior turbinate.

In expiration the current passes through the lower nasal passage and over the inferior turbinate, missing entirely the middle and superior turbinates and the middle meatus. It is when the middle and upper passages are closed, that the air is inspired through the inferior meatus, producing a stuffy feeling

even when the passage itself is freely open. Hence it follows with regard to spurs, deviations, hypertrophies, nasal polypi, adenoids, etc., that all enlargements affecting the upper meatuses will have the effect of impeding inspiration to a more or less extent; while hypertrophies of the inferior turbinates, or within the inferior meatuses will impede expiration.

Case of Long-standing Deafness Cured by Clearing the Nose and Naso-pharynx.

Mayo-Collier (*Jour. Lar. Rhin. and Otol.*, July, 1901) showed a young lady, who had been deaf for seven years and had suffered from sore throat all her life. She could only hear when shouted at; conversation being extremely difficult. Never had pain nor discharge from either ear; but there was constant loud tinnitus. Both drumheads were depressed. Operation restored hearing of watch at twelve inches.

Fibroma of the Tonsil.

Prota (*Arch. Ital. de Laringologia*, January, 1901) describes the history of this disease at length, together with the report of a case. It occurred in a woman, aged 50, who had suffered frequently from tonsillitis. The fibroma was large, pedunculated, and curved "like an eagle's beak." The base was three centimetres in diameter, and the attachment to the upper part of left tonsil. There was no pain nor glandular enlargement. It was removed by snare under cocaine. Microscopical examination proved the correctness of the diagnosis.

External Palpation of the Tonsillar Region.

Minerbi (*Balletino*, April, 1901), in speaking of the difficulty in examining the inflamed throat of a child, dwells upon an external sign, which he has frequently observed, and which he considers of much value in diagnosis. This is the swelling of the amygdalic glands of Chassaignac, in the superior triangle of the neck; which always occurs in acute tonsillar inflammations of children, and particularly in diphtheria. This triangle is situated between the angles of the jaw, the anterior margin of the sterno-mastoid, and the greater cornu of the hyoid. One must beware of confounding the glands of Chassaignac with a more superficial and mobile group, which occurs in the superficial fascia immediately below the angle of the jaw.

Another group of glands, which the writer calls the inferior amygdalic glands, are situated external to the greater cornu of the hyoid bone; and although the two groups commence to swell almost synchronously with the onset of throat fever, the latter ceases with the cessation of the fever, while the swelling of the true amygdalic gland remains for some time afterwards.

Stenosis of Larynx following Fracture. Operation. Recovery.

Arthur W. Watson (*Laryngoscope*, July, 1901). The patient, a youth aged 16, sustained a lacerated wound beneath the chin. Sutures were inserted. There was no dyspnea, but the voice was lost, and there was bloody expectoration, as well as dysphagia. Six weeks later dyspnea developed, and in three weeks became so severe that operation became necessary. It was found on examination that the thyroid angle was flattened and the ventricular bands united. The union between the latter was cut, and an intubation tube inserted. Tubes were worn of gradually increasing size for nearly three months; and although O'Dwyer's largest was replaced at last by a still larger one of hard rubber, dyspnea always immediately followed its removal.

Radical operation was then resorted to. First, tracheotomy was performed; and three weeks later, or six months after the original fracture, the operation of laryngo-fissure was done. When the wings of the thyroid were separated it was found that from the thyroid notch to below the vocal cords, the cartilage was a quarter of an inch thick, and one-third of an inch from before backwards; pushing the ventricular bands upward and the anterior commissure of the vocal cords backward.

The redundant cartilage was cut away and shelled out. In closing the thyroid a catgut suture was passed through the two sides of the cartilage, also through the two ends of the vocal cords and then tied. The recovery was good; natural breathing and the voice being restored. The tracheal tube was retained for two weeks and then removed.

Laryngeal Phthisis or Consumption of the Throat. By RICHARD LAKE, F.R.C.S.

This is the title of a monogram of which the *Journal of Laryngology* speaks in the highest terms. It is the record of the treatment of three hundred cases at the North London Hospital for Consumption, with the results. Mr. Lake is a strong advocate of the surgical treatment of laryngeal phthisis, in carefully selected cases. He has rarely seen free removal of intra-laryngeal tissue attended by hemorrhage.

In tubercular infiltration of ventricular bands, he advises removal by cutting forceps. Again, the author says, "In almost every case of inter-arytenoid thickening, one should operate with only very moderate delay, to test the efficacy of treatment." In one case he removed the whole of the epiglottis with the galvano-cautery snare.

Of local applications, Mr. Lake has had the best results from the application of a 5 per cent. solution of commercial formalin, followed immediately by a 3 per cent. to a 10 per cent. solution of freshly prepared protargol, these applications should be applied daily. He has not found submucous injections satisfactory in their results.

Editorials.

APPENDICITIS.

Twenty years ago we heard much about peritonitis, local and general. In those days the relationship of the appendix to inflammations in the abdominal cavity had received practically no study. Dr. Fitz was one of the first to direct attention to the importance of inflammation of the appendix. His papers appeared in 1886. During the past ten years a vast amount of work has been done upon the subject of the appendix and its diseases.

For the sake of convenience, appendicitis may be divided into the following types: Those cases where the mucous membrane is inflamed and that may end in recovery or pass on into a severer form; those cases with adhesive inflammation, ending in recovery, or in the formation of a circumscribed abscess with or without perforation; cases with perforation or gangrene, ending in general peritonitis; and relapsing cases. Many other classifications have been made, but the above will be found to cover the ground. For example, cases with perforation, or gangrene, may be very acute and of the fulminating type; the relapsing form may fulminate in one of the attacks; the simplest form may become purulent and perforate, and the circumscribed abscess may become diffuse, causing general peritonitis.

There are some points in the anatomy of the appendix of considerable importance. One of these is that it may be situated behind the cecum, and not surrounded by the peritoneum, so that an abscess would form in the retroperitoneal tissue. Such an abscess would burrow in different directions behind the peritoneum. Another feature in the anatomy of the appendix that must be borne in mind, is the variation that may be found in its position. It may be directed upwards towards the liver or right kidney, or inwards towards the mid-line, or lie behind or outside of the cecum, or dip down into the pelvis, and be attached to some pelvic organ. It may vary from one to nine inches in length. The peritoneal covering and meso-appendix vary considerably. Sometimes the meso-appendix is almost

entirely wanting, or so constructed as to curl it up, favoring cystic formation, or empyema of the appendix. When it is absent the appendix is usually attached to the posterior aspect of the cecum. There is a very abundant supply of lymphatic tissue in the appendix. This favors the taking on of inflammatory processes. The wall of the appendix is thick and rigid, and contains much muscular and fibrous tissue. The resistance of these tissues often leads to perforation or gangrene, when the lymphatic tissue in the mucous membrane becomes inflamed, as they cause constrictions in the organ and strangle off the circulation.

The parts mainly affected in the disease are the cecum, the appendix and the peritoneum. Attacks may begin in the cecum. Constipation, typhoid fever, tuberculosis, or a foreign body may give rise to ulceration or perforation of the cecum, causing perityphlitis and an abscess. With regard to the appendix the following conditions are met with in different cases: Chronic inflammation of the mucosa, the presence of cysts, closure of the appendicular canal, ulceration and gangrene. When the canal is partially closed there is a distinct tendency to the formation of cysts. Ulceration frequently ends in perforation. Chronic inflammation of the mucosa destroys the epithelium and there may ensue infection and general peritonitis. The gangrenous condition of the appendix may result from the catarrhal or ulcerative condition, but usually is an infective inflammation of the tissues of the appendix, the offending germ generally being the bacillus coli communis. As to the peritoneum, several conditions may be present. There is always some peritonitis in every case of appendicitis. There need not be ulceration or perforation for this to occur. The peritoneum may form firm adhesions. This is specially likely in the catarrhal and cystic forms of appendicitis. These adhesions may wall off the appendix and be capable of circumscribing the pus. The peritonitis may be local or general. In the latter case it may be general from the first, or it may become general from the bursting of an abscess into the general peritoneal cavity. When there is either perforation or gangrene of the appendix, with circumscribing adhesions, the general peritoneal cavity is at once and primarily involved.

The disease is four times as common among males as females;

it occurs most frequently between the ages of 10 and 20; is met with oftener in the summer months; is caused in about 8 per cent. of all cases by injuries, and is preceded, in the great majority of cases, by some form of digestive derangement, as diarrhea or constipation. Foreign bodies entering the appendix, or forming in it, play an unimportant part in the causation of appendicitis. These inflammations are of bacterial nature. But the bacteria lying in the intestinal canal, usually harmless, may become very virulent, if the health of the parts are deranged by constipation, diarrhea, indigestion or injuries.

THE PREVENTION OF TUBERCULOSIS.

At the Congress on Tuberculosis, held in London a short time ago, Dr. Robert Koch, whose name is so well known as the discoverer of the tubercle bacillus, gave utterance to the following views in his able address. The disease is so seldom hereditary that this source for it may now be practically ignored. The great source of infection in man is the sputum. When consumptives talk and cough they expel from their lungs particles of phlegm laden with the germs of the disease. The sputum is expectorated on the ground and streets, and often on the floors of inhabited dwellings. From these sources the bacilli rise in the air as dust, or are dragged about by clothes and foot-wear. The common use of towels, bed clothing, cups, etc., is highly dangerous. When the population is dense the disease is more prevalent. Overcrowding is very prone to spread the infection. All consumptives should exercise the utmost care not to infect clothing, and to dispose of their sputum properly. All houses where consumptives have lived should be thoroughly disinfected before they are occupied by any one else. Advanced cases should be isolated as much as possible. Whole families have been infected by neglecting these precautions. There should be special hospitals for the consumptives. This would afford a means of treatment and cure for the early cases, and isolation for the advanced and incurable cases. As hospitals are now conducted, they do not desire these cases. These hospitals would gather in the consumptives and separate so many centres of infection from the

community. Some system of notification should be established. This would require proper steps being taken to see that safeguards were thrown around the cases; and also to furnish them with suitable information on the disposal of the sputum. It would also supply the needed information as to what premises should be disinfected. By a vigorous application of these means, consumption can be stamped out, as has been the case with leprosy.

EPILEPSY.

In some cases of epilepsy organic disease of the brain is found after death. Injury to some portion of the brain cortex may set up convulsions with loss of consciousness. These attacks may occur throughout the life of the patient. The convulsions may be local, or may become general.

In most cases of epilepsy, however, the nerve matter appears quite normal. The thickening in the meninges in chronic cases is secondary. At the moment of an attack there is venous engorgement of the brain and various organs. As to the microscopic changes that have been described as occurring in epilepsy, it may be said that they are similar to the changes found in other diseases of the nervous system, and must be regarded as the result and not the cause of the epilepsy. The various morbid changes that have been noted, as present in the brains of those who have suffered from epilepsy, are too inconstant to warrant any safe deductions. The spasm, which is such an important feature of epilepsy, must be regarded as an excessive action, or discharge, of the grey matter. The sensations and loss of consciousness must also be regarded as a discharge in the sensory regions of the brain. The sensory regions are so intimately connected with the motor regions that a discharge in the former may readily excite the latter, and thus motor spasm will follow, an auditory or visual sensation or aura.

The teachings of pathology and morbid anatomy, as well as those of experiment, show that the seat of the discharge is in the cerebral convolutions. Injuries and diseases of the motor convolutions cause convulsions. Stimulation of these convolutions by experiments produce the same results. Further

experiments on the sensory centres have caused convulsions through the connection of these with the motor centres. The spasms are tonic and clonic. It has been fully established that clonic spasm is due to discharge of the cortex. This discharge may give rise to tonic spasm also. Tonic spasm alone is frequently due to irritation of the base of the brain. But this irritation may extend upwards, and a spasm that is basal in origin may become cortical and change from the tonic to the clonic type. The onset of an attack of epilepsy is so uniformly that of some group of muscles, or some one of the senses, which are known to have their representation in some given portion of the brain cortex, that there is no longer room for doubt as to the portion of the brain where the discharge commences. Even those cases where the aura is in the regions of distribution of the pneumogastric and sympathetic nerves are undoubtedly cortical, as all the organs of the body have their cortical representation, including those supplied by these nerves.

It is also well established that the loss of consciousness is not dependent upon vascular changes. The brain is not congested because the face is flushed, nor is it necessarily anemic when the face is pallid. The loss of consciousness may be complete without cardiac or pulse failure. Severe anemia of the nervous centres will cause both loss of consciousness and convulsions. It does not follow that such a state of anemia is the cause of these phenomena in epilepsy. Convulsion is not a feature of cardiac syncope, and the resultant brain anemia.

There is no foundation for difference of seat of the origin of spasm because it is clonic or tonic. If there be remissions in the tonic spasm, the clonic form of spasm results. On the other hand, if the remissions be compressed, the clonic passes into the tonic. Tonic convulsion is clonic compressed, clonic is tonic spread out. They are both cortical in origin.

There are some grounds for thinking that the point of discharge is not the cerebral cell, but the fine dendrites. These dendrites are not roots of the cells, but the origins of the fibrils of the nerve fibres, as they pass through and beyond the nerve cell, to spread out in the spongy matter of the brain. Thus the dendrites begin in the spongy matter, pass through the cortical cell, and are gathered together as the fibrils that form a nerve fibre; the dendrites, the cell, and the fibre constituting a

neuron. These dendrites do not join other dendrites from other neurons, but come into such close proximity to them that the stimulus may flow from one dendrite to that of another neuron, and thus the discharge may spread with rapidity and readiness. Sensation begins in the peripheral ends of the fibrils and passes to the centre. Discharge may begin in the central end, the dendrite, and pass out to any given muscle fibre, causing its contraction. If the waves of discharge are very close upon each, the contraction will become continuous, or tonic. If the waves of discharge are separated, so will the contractions, and the result will be a clonic action of the muscle fibre.

There is no doubt but that the discharge in disease is the same as the liberation of energy in health. There is some chemical change. These changes in the composition of tissue take place with great rapidity in health, as shown by the suddenness of reflex action. In like manner there is some instant interchange between the blood and the reserve matter that forms the chemical basis for the discharge. This leads to the view that the molecular changes in epileptic discharge is some as yet unknown, untrifling change. There is some state of instability. There may be a great readiness to the release of energy to an unusually slight stimulus. As this process is repeated, the discharge becomes easier of production. Thus epilepsy, like acquired movements, becomes self-perpetuating. There is in many cases a further instability that gives rise to post-epileptic attacks of mania, automatic action and hysterical seizures.

INTUSSUSCEPTION IN CHILDREN.

We publish in this issue a synopsis of an admirable discussion on this subject which took place at the last meeting of the British Medical Association in Cheltenham, and was published in full in the *British Medical Journal*, September 7th. We fear that the mortality from intussusception in young children in Canada has been extremely high. We are not sure that in a majority of cases a correct diagnosis has been made. It is perhaps not to be wondered at that general practitioners throughout the country should make many mistakes in this

respect. It happens, however, that the diagnosis is not very difficult in the majority of cases, if practitioners keep in mind the ordinary symptoms as described by recent authors.

We have had so much appendicitis preached to us and pounded into us (which is all right enough in a way) that we are perhaps apt to overlook the fact that the appendix is not the only thing contained within the abdomen. We have, however, no desire to cast any slurs on either our general practitioners or our surgeons, but we think that both can learn much from this discussion. When a number of representative British surgeons, such as those who were present at that meeting, express a decided opinion on any important subject in connection with their life work, we firmly believe that such opinion is the best that the world can furnish.

GIFT TO THE UNIVERSITY OF TORONTO.

Through the generosity of Professor Goldwin Smith and Mrs. Smith, the University of Toronto has just received an addition of \$10,000 to its endowment. The donation is to the library of the University, and the trustees are given an absolute'y free hand as to the manner in which it shall be applied to the various departments of the library. Mr. Goldwin Smith's letter offering the donation was addressed to Sir William Meredith Chancellor of the University, and was as follows :

"Dear Mr. Chancellor,—England is celebrating the millenary of King Alfred, who, as it chances, is the patron hero and the legendary founder of my Oxford College.

"My wife and I wish to be permitted to pay our joint tribute to the memory of the restorer of English learning, and at the same time to show our interest in the University of Toronto.

"To enable us to do this, we hope the university will accept a donation of ten thousand dollars to its library, to be applied for the purposes of such of the departments as the trustees may from time to time determine."

Personals.

Dr. P. H. Bryce, of Toronto, Secretary of the Provincial Board of Health, went to Buffalo, September 14th, to attend the annual meeting of the American Health Association.

Dr. Digby, of Brantford, left home for an extended trip to the Pacific Coast.

Miss Snively, Superintendent of the Training School for Nurses, Toronto General Hospital, attended the annual meeting of the American Association of Superintendents of Nurses Training Schools, Buffalo, September 17th to 20th.

Dr. Perry G. Goldsmith, of Belleville, returned in the latter part of August from London, England, where he had spent six months at post-graduate work.

Dr. Donald J. Armour (Tor. '94) was married October 2nd, to Miss Hoban in Cobourg, Ontario. Dr. Armour, who has spent the last two years in Chicago, will in the future reside in London, England.

Dr. J. J. MacKenzie, Professor of Pathology and Bacteriology, University of Toronto, spent the summer in Europe, visiting many of the larger Universities in Great Britain and Germany.

Obituary.

JOHN CONDIE THOM, M.B.

Dr. J. C. Thom died suddenly at his home in Woodbridge, September 14th. The cause of death was said to be heart failure. Dr. Thom graduated, M.B., University of Toronto, in 1864. After practising for a time in Streetsville he removed to Woodbridge. In the latter village he was engaged for many years in a large and laborious practice. He was very popular as a physician and highly respected as a good citizen by all classes of the community.

T. A. PAGE, M.D.

Dr. T. A. Page, of Brockville, received injuries by falling under a railway train, August 21st, which caused his death within a few hours. He was 44 years of age. He was a graduate in medicine of Queen's University, but had never practised on account of ill health.

Book Reviews.

The American Illustrated Medical Dictionary. A new and complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches, with their Pronunciation, Derivation, and Definition, together with new tables of Arteries, Muscles, Nerves, Bacilli, Bacteria, Diplococci, Micrococci, Streptococci, Ptomain's and Leukomrin's Eponymic Tables of Diseases, Operations, Stains, Tests, Methods of Treatment, etc. By W. A. N. DORLAND, A.M., M.D., of the University of Pennsylvania Hospital, etc. Second Edition Revised. Philadelphia and London: W. B. Saunders & Co.; Canadian Agents, J. A. Carveth & Co.

It is a matter of some difficulty to make a thoroughly good medium-sized medical dictionary. To do so, an author requires extensive knowledge, clearness of thought and expression, and that good sound judgment which enables him to retain the useful and eliminate the less useful of the larger works. Judged by the standards, Dorland's Dictionary has achieved a great measure of success. A somewhat extended examination of the work shows that its definitions are clear, concise, and correct. The tables are gotten up with rare good judgment. The illustrations (many of them colored) are good. The printing is most admirably done, while the flexible leather binding is just what is needed in a dictionary. Having been revised in 1901, the most recent words, and the most recent meanings of those words, will be found here. It is thoroughly up to date.

J. T. D.

Selected Researches in Pathology. By ALEX. GUNN AULD, M.D., M.R.C.P. With Illustrations. London: J. & A. Churchill, 7 Great Marlborough Street: 1901. Price Six Shillings.

The papers, nine in all, making up this book of 153 pages, have appeared in Transactions and Journals. They are now reprinted. The subjects discussed are emphysema, pneumonia, Bright's disease, hematogenous jaundice, Addison's disease, atheroma, and aneurysm. The several articles are of very high excellence. The author is quite original in his treatment of the above subjects. While he gives a very full review of the opinions advanced by others, he does not hesitate to differ from them. It would be difficult to single out any one of the articles for special praise, and they are all so good. The book is gotten up in very fine style. It is both a pleasure and a profit to read the work.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Vol. II, June, 1901. Lea Brothers & Co., Philadelphia and New York: 1901.

This volume has articles by William B. Coley, M.D., on the Surgery of the Abdomen and Hernia; Gynecology, by Jno. G. Clark, M.D.; Diseases of the Blood and Glandular Tissues, by Alfred Stingil, M.D.; and Ophthalmology, by Edward Jackson, M.D. These articles give a full and able digest of the progress made in these subjects during the quarter. The work is well illustrated, and is of very high excellence. It is a work of much value as a handbook of reference.

Operative Surgery.—By JOSEPH D. BRYANT, M.D., Professor of the Principles and Practice of Surgery, Operative and Clinical Surgery, University and Bellevue Hospital Medical College; Visiting Surgeon to Bellevue and St. Vincent's Hospitals; Consulting Surgeon to the Hospital for Ruptured and Crippled, Woman's Hospital, and Manhattan State Hospital for Insane, etc., etc. Vol. II. Operations on Mouth, Nose and Esophagus, the Viscera connected with the Peritoneum, the Thorax and Neck, Scrotum and Penis, and miscellaneous operations, containing eight hundred and twenty-seven illustrations, forty of which are colored. New York: D. Appleton & Co. Toronto: George N. Morang & Co., 90 Wellington Street West.

We have no hesitation in pronouncing this as one of the most lucid, concise and complete treatises on operative surgery published. The description of conditions surgical is elaborate, and their operative treatment minutely yet clearly described. The necessary instruments for the many major operations are not only listed but illustrated. The chapter (xiv) on operation on viscera connected with peritoneum is most interesting reading. The many minor points of technique that are troublesome are illustrated, in fact any point that is possible of illustration explanation is beautifully and clearly done. We are particularly impressed in this chapter with the graphic description of the many varieties of hernia and their numerous methods of cure—here possibly the illustrations excel themselves. No other general work that we have seen so completely covers the hernial ground as this one does. The chapter on "Operation on the Arms and Rectum" is most complete and equally clear in every detail. We have pleasure in congratulating the Geo. N. Morang Company for the production of such an excellent work in such a truly elaborate manner. The paper, binding, press work, illustrations, etc., are all of the first-class order.

Selections.

Nutrient Enemas.

Rectal feeding is too little employed by the average general practitioner. This negligence is due to fear of bother, the disagreeable nature of the operation, and a lack of proper understanding regarding the technique. Even without trained nurses, one may teach any intelligent person, by a single lesson, sufficient to enable him or her to administer the food successfully. It is not to be expected that even the humblest country physician would do such work regularly, even if present at the proper intervals; and if doctors once realized the simple nature of the procedure, and the benefits to be derived from it, it would oftener be employed.

The best equipment is a smoothly-working piston syringe attached to a large calibre soft rubber catheter. The catheter is lubricated with glycerine or olive oil, and is left in position after insertion, until enough food has been injected; when one syringeful is injected, the syringe is detached and filled, and again attached to the distal end of the catheter. When enough has been injected, the catheter is removed and the patient instructed to endeavor to retain the injection by avoiding all bearing down. The discomfort generally passes away in a few moments. Catheter and syringe are then boiled and allowed to cool until the hour arrives for the next injection. The rectum should be washed out once each twenty-four hours with warm water and non-irritating soap.

In giving the injection, the patient should lie upon the left side, with the hips elevated a few inches on pillows, or the foot of the bed may be elevated on bricks or books. The fluid should be at a temperature of 100° F., and should be injected slowly. The intervals between injections may be four to eight hours.

Easily soluble medicines not likely to irritate the bowel may be often incorporated with the nutriment, and thus save the patient the annoyance of taking them by the mouth.

No one can rightly deprive a patient of the benefit of rectal feeding through a plea of inadequate equipment, or lack of skilled nurses; for any syringe will do in an emergency, and any one who can give a sick person a drink of water can operate it.

When a patient cannot swallow; when prolonged vomiting causes a threatened collapse; when any other condition excludes the advisability of administering food by the mouth; then rectal feeding is indicated. Every physician should become familiar with the simple technique and be able to give

extemporaneously the popular formulas and method of administration, and illustrate the method personally if the circumstances demand it. The mode of procedure is little different from the practice of rectal irrigation for summer disease of children; and no doctor in the coming season dare ignore the advantages of this treatment. In the name of humanity, so long as you pretend to practice medicine, practice it as well as any one can. Ignore no valuable suggestions, and learn the techniques of all the simpler plans, at least.—*Med. World.*

Pernicious Anemia.

Th. Rumpf (*Berl. klin. Woch.*) publishes the results of his analyses of blood in cases of pernicious anemia. He first turns his attention to the etiology of the disease. He can only explain the disease by looking on it as a combination of symptoms due to various causes. Of these he mentions bothriocephalus latus in the intestine—a very rare cause—carcinoma, specially of the stomach, pregnancy and parturition, syphilis, insufficient nutrition, and pathological conditions of the gastro-enteric canal. Besides cases due to or following one of these conditions, he calls attention to those cases for which no cause can be ascribed—cryptogenetic pernicious anemia (Birch-Hirschfeld). He says that just as ill-understood as the etiology of the disease is the actual condition of the blood. The microscopical appearances are well known, but the true chemical changes have almost entirely been neglected. He conducted experiments with Dennstadt. They examined the blood of two stillborn fetuses as a control, and further compared the results with those obtained by Schmidt and other analysts. They found that the blood in pernicious anemia contained a larger quantity of water than normal blood, a smaller quantity of solids, a higher proportion of chlorine, and a lower proportion of potassium, iron, and fat. The deficiency of potassium is more evident when a comparison is made with the quantity of sodium and of chlorine. In pernicious anemia there is not sufficient sodium to "cover" the chlorine, and the potassium also is present in too small quantities to combine with all the free chlorine. In normal blood there is an excess of sodium when estimated by the side of chlorine, without any of the potassium being needed to take up the chlorine. They further examined various tissues of the body, and found that the proportion of water was higher than normal in the heart, but considerably lower in the liver, spleen, and brain. The solids were in excess in the heart, and especially in the liver and spleen. There was also a deficiency of sodium to cover the chlorine in the liver and spleen, while in the former potassium was present in a higher proportion than normal, and in a lower