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A REVIEW OF SOME OF THE CHANGES IN SURGICAL
THOUGHT AND TREATMENT DURING THE PAST
THIRTY-SIX YEARS.

BY

SIR WILLIAM H. HINGSTON, M.D.

At the suggestion of two of the ex-Presidents of the Association, Sir William proposed, instead of showing a number of clinical cases, to give an *aperçu* of the more important changes in surgical thought and surgical treatment during the thirty-six years in which he had been surgeon to the Hotel-Dieu hospital.

Brain Surgery was almost a new departure since then; for although practised by the ancients in certain cases, especially in depressed fracture, it was reserved for recent times to locate disease within the cranium by disturbance of function at a distant part, the nearest approach to an exact science hitherto made in any department of the healing art. The speaker had employed trephining many times, using, more recently a large circular saw for the purpose. He had trephined for epilepsy, paralysis, depressed bone and tumour. In the first two, success was occasional; in the two last, the success which followed was sometimes quite beyond his expectation. In no instance, however, had any serious disturbance occurred as the result of the operation.

In the treatment of *nasopharyngeal tumours* he had formerly advocated the German method of cutting through the attachments of one side of the nose, and of turning it over to the other side so as to reach the tumour through the increased space thus afforded; a very

¹ An abstract of an address delivered at the Hotel Dieu Hospital before the members of the Canadian Medical Association, August 27, 1896.

excellent operation, and one which, carefully performed, left little or no deformity. He had also in the past practised the method of reaching the growth through the superior maxilla. Both these methods he had now discarded. He had several times recently reached large hard masses attached to the basilar process, or to the bodies of the upper cervical vertebræ through the nostrils without dividing them. By introducing the index finger of the left hand into one nostril, and the index finger of the other beyond and above the soft and hard palates, and working steadily till the two fingers meet, the growth may be removed through the mouth. This is not a quick operation nor is it painless to the operator. He was obliged, in some instances, to complete the operation, with the patient suspended by the feet with his head on the floor, when the hæmorrhage threatened to fill the trachea.

In *surgery of the chest* he had noticed very remarkable modifications of treatment. At one time the trocar was used almost exclusively. Afterwards, when antiseptic surgery came into use, microbe-destroying fluids were employed to wash out the cavity. Now we had a variety of methods, adapted each to special conditions. Their use was summarized by Sir William as follows: When fluids in the pleural cavity are recent and are not as yet purulent, the aspirator was indicated, and should be repeated as frequently as may be necessary and so long as the fluid remained non-purulent. When the retained fluid became purulent, he resorted to the trocar, and if the fluid re-formed he made a counter opening, through which he endeavoured to drain the cavity. If that did not suffice, a large incision was made and the chest cavity repeatedly washed out. Should this not prove effectual, he wasted no more time but resorted to excision of a portion of one or two ribs. He had more than once regretted not having resorted to this latter operation earlier in the course of the disease. He had never regretted that he had resorted to it at too early a period. (Sir William here introduced a patient who had been brought into the hospital apparently in a dying condition, thin, emaciated, and suffering from cough, night sweats and an offensive discharge from the side. The removal of about four inches of each of two ribs gave complete and permanent relief. The patient was now stout, fat and corpulent.) Paracentesis of the pericardium was touched upon, and its advantages recognized.

In *Abdominal Surgery* the advances have been so great, and operations so general, that practitioners, not only in large cities, but even in smaller towns and villages and in country districts, perform gastro-tomy for one purpose or another. Operations upon the stomach

for cancer of the pylorus, or of one of the curvatures have not been very frequent. The typical cases which a surgeon would desire are not those most frequently met with; and the differential diagnosis of each is not always easy, yet surgery has achieved much in this direction. The liver also has been frequently visited, abscesses opened and gall stones removed; and with attention to cleanliness in every detail, exposure of the abdominal cavity to the air seems not to be attended with great risk. To this feeling of apparent safety in entering the abdominal cavity may be attributed, no doubt, the performance of operations better left untouched. Within the later years of the period under consideration, Sir William said a new disease had sprung up, rare indeed, on the other side of the Atlantic, but comparatively frequent here, and in an epidemic form in some parts of the United States. He alluded to appendicitis, a disease which made many persons uneasy lest they might be the subjects of it and others almost pleased that they were the subjects of that somewhat fashionable malady. There is no denying that the disease is not uncommon, and there is no denying that surgical operations are performed frequently. To his hospital, in the past few years have been brought a large number of cases, but in by far the larger number, he did not think it advisable to operate, sometimes even when solicited to do so by the medical attendant. Yet in one instance only had he been disposed to doubt the wisdom of not having operated. In certain cases he would unhesitatingly operate. In those cases in which he did not operate, and they were a large majority, the early and satisfactory recovery of the patient satisfied him that he was right in withholding the knife. When an attack was acute, his usual plan was not to operate at first, but to confine his attention to diminishing the severity of the inflammation. But in recurrent attacks each one becoming more severe, he used the knife unhesitatingly. When an abscess formed, he opened it, but was satisfied with merely opening it, and did not deem it advisable to grope in all directions for the appendix, opening up the adhesions with which nature had walled off the peritoneal cavity. The abscess was opened freely, washed out gently with carbolized water, and packed lightly with carbolized or iodoform gauze. He could not recall a single instance where a case treated in this way had not done well. When, however, the abscess was not walled in (a comparatively rare condition in his experience) and when the appendix was found floating freely in pus, it was his custom to remove it. In this department of surgery, he was glad to find that surgeons had recently changed their views very markedly, and had come to the conclusion not to meddle too much with an abscess cavity. This to him was a matter

of satisfaction, as he had all along and almost alone defended the position now being taken by the most advanced surgeons, who had turned back, and not too soon, from a course which he, Sir William, had always contended was dangerous.

Removal of the spleen had been practised in the hospital, but the results were not of a nature to encourage him to resort to the operation, save in those exceptional cases where the local trouble is conspicuous and where the general health is not seemingly disturbed—a condition not generally met with. But if splenectomy could not often be resorted to judiciously, ligature of one or more of the tortuous branches of the splenic artery could be practised before they penetrated the hilus, or when passing along the free border of the organ, and in that way limit or retard the growth of the organ.

Operations on the kidney come quite within the thirty years, and to Canada belongs priority in that direction. His first nephrectomy for tumour, nine months in advance of the Germans, upwards of a year in advance of the French, and two years in advance of British surgeons, was not successful, but soon after an operation for painful dislocation of the kidney and hydronephrosis was successful. He rarely operates for displacement, as attention to dressing and tonifying usually suffice, and the patient becomes accustomed to the *error loci*. Even fixation is usually unnecessary.

On looking over the statistics of *stone in the bladder* he found that the horizon of lithotripsy had steadily extended as instruments had reached greater perfection; and no doubt, for the reason that cases of stone were recognized earlier than formerly, the horizon of lithotomy was diminishing in the same ratio. From puberty to the age of sixty was at one time considered to be the period within which lithotripsy could be safely performed. The range of time had now been extended in both directions. In the hospital, children only three years of age had been subjected to the crushing operation without inconvenience, and even extreme old age had not proved a barrier to the use of the lithotrite. He had long disregarded the rule laid down by authors of preparing the bladder for the operation. He prepared it by removing the peccant stone which it contained. He paid no attention to the presence of pus or leucocytes, nor even to the condition of the kidney under any circumstances. Excessive weakness did not deter him from using the lithotrite. Cutting, on the other hand, gave greater shock than crushing; the latter seldom gave any shock. He always endeavoured to remove all the fragments at one sitting. In washing out the bladder, the method introduced by Mercier in France, and brought to the highest perfection by Bigelow,

of Boston, he had used for many years. A long conversation with Bigelow, however, some months before he died satisfied him he had been using unnecessary force in pressing the rubber pump. Now he did no more than merely dimple the rubber gently between the thumb and middle finger. This was sufficient.

He had not had a large experience of the supra-pubic method. He had found the old classical lateral method generally sufficient and satisfactory. Stones of from three to four ounces in weight it might be safer to remove by the supra-pubic method, although he had many times removed calculi of larger size by the perineum. Large calculi, however, for the reasons given were now comparatively rare.

In few departments of surgery had greater changes taken place than in the *treatment of stricture of the urethra*. Formerly, slow, gradual, steady dilatation was generally practised. Some surgeons—not many—practised the *coup sur coup* dilatation of the urethra. Subsequently Syme's method of external division was practised; but unhappily the operation was not confined to those cases where Syme himself would have employed it, and it fell into disuse. Then divulsion was practised, and about the same time internal division; and a great variety of instruments were introduced for the purpose of division. Later still these two improved methods were combined—moderate divulsion and internal division. He had held to the latter method for the past twelve or fifteen years, and when strictures did not yield readily to the bougie, he resorted to the combined method of divulsion and moderate division. He believed he obtained better and more durable results from this method than from any other. The full calibre of the canal was at once obtained, and it was not difficult to preserve it in that state.

He then spoke of *club foot*, and exhibited a patient who had had an exaggerated talipes equino-varus, with excessive arches, of both feet. In one, he had performed tarsectomy; and in the other division of all the soft tissues of the sole of the foot. These operations were both comparatively new, and he was yet undecided to which he should give the preference. His impression was there were cases where one operation would succeed better than another. (In the present case tarsectomy in one foot had been performed at an earlier date and the deformity was completely removed; in the other foot, operated upon by open division, granulation was still going on.)

A patient was then introduced with *ingrowing toenail*, and Sir William took occasion to say that the misnomer had led to a great deal of mischief and to operations that should not have been performed. He had not removed the toenail, for what is called ingrowing

toenail, for twenty-five or thirty years. He rarely found it necessary even to resort to the excellent operation introduced by Cotting and Martin, of excising a wedge shaped piece at the lateral aspects of the toe. Recognizing the nail as the sinned against and not the sinner, he came to its relief by leaving it severely alone, putting a little pledget of lint beneath the corners if he could reach them, and in the meantime applying a gentle escharotic, usually a saturated solution of sulphate of zinc. In the course of a couple of weeks the nail, which always refuses to be narrowed to less than its rightful width, would reach beyond the flesh and all troubles would be at an end. In cases of onychia, however, division of the nail had to take place.

He then dwelt at some length on the improved system of *treating wounds*—the attention to cleanliness in patient, operator, assistant, surroundings, etc. He took exception, however, to the use of the spray and had stopped its use. After sufficient trial, his experience of it was not satisfactory. He had put it aside even before Dr. Thomas Keith and other distinguished surgeons had sounded its death-knell at the international medical gathering in London.

He had also discontinued the *use of ointments* in the treatment of ulcers; he had certainly not used them for nearly thirty years, and he could see no excuse for their employment except in inflamed or irritable ulcers (forms of ulcer not often seen in hospitals) where one desired to keep off atmospheric air. When he was a student, ointments were in general use and he rarely saw a clean ulcer in any hospital. Now he never saw a foul one forty-eight hours after its admission.

In *amputations, excisions, sections*, etc., he had returned, in the past few years, to very ancient surgery, having wounds thoroughly dry before closing them. That was a maxim in ancient surgery, but it had been neglected in recent years; but now again freedom, even from a drop of the patient's own blood outside the vessels, was endeavoured to be secured.

He discouraged, in strong terms, a resort to the knife, to establish diagnosis. He thought it unpardonable. It was one of the opprobria of modern surgery. He contended that a diagnosis, though not always easy, was almost always possible when undertaken with care and patience. During his long connection with the hospital, once and once only had he resorted to the knife before establishing what he believed to be a fair diagnosis. Even during the past few years he had not been able to make up his mind clearly as to the precise nature of the trouble, without long and repeated examinations.

Errors in diagnosis, he thought arose from hurry and inattention to minor details, rather than from a want of capacity in the observer.

He recollected when a patient was under daily observation for weeks, sometimes, before resorting to the knife, and that too after long years of experience. To-day it sometimes happens that men of extremely limited experience are not satisfied if they cannot decide, in the twinkling of an eye, the nature of a malady that the more experienced might diagnose, or they themselves with time. The knife should never be used to unravel the enigma, however puzzling at the moment to the understanding.

Specialism was the outgrowth of the same period and the legitimate consequences of a rapid advance in various departments of the healing art. But while he recognized its great advantages, he thought that individualizing and specializing had, in the period referred to gone almost too far in surgery, as, in his opinion, it had in medicine. He did not dread the work of the specialist who had prepared himself for his particular pursuit by a study of the whole body, and of the functions of its several parts, but he did dread the manipulations of any one who hastily referred all disturbances in the economy to a disturbance of a part within his special occupancy.

DISCUSSION ON SUMMER DIARRHŒAS IN CHILDREN.¹

DIETETIC TREATMENT.

BY

F. R. ENGLAND, M.D.

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Dr. J. Lewis Smith, in his book on the Diseases of Children, says, "before the New York Foundling Asylum was established, every foundling admitted to the almshouse on Blackwell's Island died, more than 1,000 annually, before the age of two years, from summer diarrhœa." Every practising physician associates summer diarrhœa with improper feeding, impure air and bad hygienic surroundings, hence the disease is often spoken of as the summer epidemic of cities.

The indications for feeding, considering the etiology and pathology, may be discussed briefly as follows :

First. All food is to be withheld for from 18 to 24 hours.

Second. Only bland and non-irritating mucilaginous drinks are to be given for two or three days, something that will be readily absorbed and leave little or no residue for bacteria to develop in.

Third. Gradual return to a proper dietery.

When called upon to attend an infant suffering from summer diarrhœa, entero-colitis, fermental diarrhœa, or subacute milk infection, as the disease is variously called, I believe it is good practice to withhold all food for from 18 to 24 hours, allowing only small quantities of cold sterilized water at frequent intervals. By this means an opportunity is given to clear the intestine of all decomposing and irritating organic matter, thus starving out the intestinal germs which are causing the trouble or replacing them by less harmful ones. The improvement effected within a few hours by this course, where the child has not been long ill, is generally remarkable, and clearly shows that the food is not being properly digested, and can only be returned to gradually, and in small quantities, after carefully deciding what food will likely best suit the requirements of the particular case. It is my practice to abandon milk entirely for two or three days in artificially fed infants. When milk begins to disagree with an infant especially during the hot months of summer, I find it a difficult matter to correct the digestive disturbance if the milk, however carefully prepared and in whatever combination, is continued without interruption. Individual idiosyncrasies must be remembered and taken

¹ Read before the Montreal Medico-Chirurgical Society, June 26, 1896.

into account. Some adults we know cannot take milk without suffering from digestive disturbance, and certain infants will thrive on peculiar mixtures which are not adapted to infants as a class. Again many infants will not thrive on that food which nature has provided for them. In the case of twins, without any apparent reason, both infants drawing their nutriment equally well from the same source, one has been known to thrive and grow, while the other atrophied and melted away. The feeding problem has always been a difficult one. Much has recently been accomplished, but there is yet much to be solved before artificial feeding can hope to compete with human breast feeding. Besides idiosyncrasies, much depends upon the circumstances by which the infant is surrounded, wealth or poverty, city or country life, all must be considered in preparing a substitute food and its composition must necessarily vary in a given case under different conditions and at different times.

Second. At the end of twenty-four hours, when the stomach and bowel has been pretty well washed out by nature, aided perhaps by mechanical or medicinal treatment, a little rice water, egg water, or some equally bland beverage may be allowed; this may supply only a small amount of nutriment, but it will be absorbed into the blood vessels and tissues, replacing the fluids drained from the system. Such albuminous drinks leave little or no residue in the intestinal canal to undergo fermentation and decomposition; further the deranged stomach and bowel is afforded rest and given an opportunity to recover its normal physiological function.

Third. When the symptoms have well-nigh disappeared, a very gradual return to feeding is permissible. To begin with, it is important to give nourishment in very moderate quantity to test, as it were, the digestive powers and not over-tax them by over-filling the stomach.

If the child is nursing and the mother's milk has been found to repeatedly disagree, a wet nurse should be secured whenever it is possible. There can be no difference of opinion in this regard, other things being equal, the average human breast fed infant is more likely to live and thrive than the infant fed by any other method. In the great majority of cases, however, where the mother is unable to suckle her child, human breast feeding cannot be secured and we are obliged to depend upon some artificial food as a substitute for the natural nutriment elaborated and secreted so perfectly by the mammary gland. The food substituted, if it is to be satisfactory, must in composition correspond as closely as possible to human milk. The milk of an animal, owing to the strong analogy existing between

human beings and animals which suckle their young, is naturally selected as the most desirable of all substitute foods. The milk of the cow is usually employed; it is probably as satisfactory as the milk of any other animal, and it has this important advantage that it can be obtained easily by all classes of people.

Cow's milk differs in composition from breast milk, nevertheless it contains all the elements, though combined in different proportions. Whatever milk is used, to prepare a substitute food, it must be modified to correspond to human milk, and when we begin to modify, it is as easy to change the proportions of the different constituents to a great degree as to a small.

The process of modifying or humanizing cow's milk has been the subject of scientific study and experiment for years. Much still remains to be solved and understood before science can so copy nature as to produce a food which can be depended upon as safe and satisfactory, even if it can not compete with human breast feeding. That a state of perfection has not yet been reached in artificial feeding is evidenced by the great number of artificial foods, new and old, to be found in the market. These foods are now, one and all, denounced by men, in a position to speak, as unreliable and generally wanting in nutritive value if not actually dangerous. They are placed upon the market and advertised by manufacturers incompetent to judge of their merits, and the claims made for them have not been supported by scientific and unprejudiced investigation. Recognizing modified cow's milk as infinitely superior to any of the patent foods, the Walker-Gordon Milk Laboratory was opened in Boston in 1891, the first establishment in the world for the exact modification of milk. Since then other like laboratories have been introduced in other cities and are said to be giving satisfaction. Prof. Rotch has tested the value of this method of feeding in nearly 3,000 cases. In speaking of these laboratories, he says "by their establishment a new era has been entered upon in the province of infant feeding, and one which will enable us to produce results which have never before been obtained." The milk to be modified should be from a herd of cows of a common breed and such as give a moderately rich milk, for the elemental percentages are less likely to vary in the mixed milk of a herd, than in that of an individual, and because any disturbance in the health of an animal would have a less deleterious effect on account of the mixing. The milk should be obtained as free as possible from bacteria and other foreign matter, for it is always much better to prevent impurities from getting into the milk than to try and eradicate them after they have altered its normal composition. Sterilization will

destroy bacteria, but it cannot remove toxins or render them inert. The milk to be modified is carefully tested daily by the Babcock milk-tester for the exact percentage of fat which it contains. The cream is then separated by means of a centrifugal separator.

Now with fresh skim milk, known to contain a definite percentage of albuminoids, cream containing a definite percentage of fats, distilled water, lime water and a solution of milk sugar at hand, they can be combined in any proportion desired to meet the requirements of any particular case. The fats for example can be withheld or any percentage added, so can the albuminoids and the lactose. The modified milk is finally sterilized when it is ready for use.

It is not always possible to determine the special form of fermentation present, in a case of fermental diarrhoea, but if from the symptoms and examination of the faecal discharges acid fermentation is thought to be present, the percentage of fats and sugar should be diminished; on the other hand, if albuminous decomposition be present, the proteids should be reduced to a minimum.

I believe there are cases where, in spite of every precaution, milk will not agree; here fresh meats, broths (chicken mutton or beef) may be given, and all milk withheld. Children a year old or more may have gruels of arrowroot, barley or rice, but commercial baby foods, and preparations of meat must be omitted. With Koumiss, matzoon and malted milk recommended by some for chronic intestinal catarrh, I have no personal experience.

DISCUSSION ON SUMMER DIARRHOEAS IN CHILDREN.

THE MECHANICAL TREATMENT.

BY

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Diarrhoea is but a symptom and is "always dependant on or connected with, surface changes of the intestinal mucous membrane, from a simple catarrh to ulceration." (Jacobi, Therap. of Infancy and Childhood, page 247.)

The mechanical treatment of diarrhoea may be considered under two headings: 1st. Stomach washing or lavage; 2nd. Intestinal irrigation or enteroclysis.

Lavage or stomach washing was first employed by Epstein, in the treatment of the digestive disorders of children, in 1880. During the past six years it has been gaining ground in this country and is now a very common therapeutic procedure.

Properly performed lavage is devoid of danger and is more easily carried out in young children than in adults.

It is probably the best and most certain method of emptying the stomach. The apparatus generally employed is the one originally recommended by Epstein, and consists of a soft Nelaton's Catheter, No. 8, 9, 10, connected by means of a short piece of glass tubing to a soft rubber tube, two or three feet long, the distal end of which is slipped over the tip of a glass funnel which will hold two or three ounces of fluid.

A rubber sheet or apron should be provided to wrap about the child and should be long enough to reach a basin placed on the floor.

A gallon of tepid water in a pitcher should be placed within reach. It is advisable to dissolve two teaspoonsful of borax in this, or the same quantity of a mixture of equal parts of bi-carbonate and benzoate of sodium.

The assistant should be seated and after loosening all the clothing about the child, should pass her left arm around the child's body, so as to include both arms in her grasp, with the child in a sitting posture on her lap.

The child's head may rest against her shoulder, but should be tipped somewhat forward.

The rubber sheet may be secured about the child's neck, and so

¹ Read before the Montreal Medico-Chirurgical Society, June 26, 1896.

arranged as to fall over the nurse's arm and protect her clothing from being soiled.

The operator sits opposite the child and should wear an apron.

The catheter should then be moistened and the end inserted into the child's mouth, and passed rapidly back to the pharynx and then downward into the œsophagus and stomach without interruption.

If the catheter is not passed rapidly over the pharynx, the child will gag, and perhaps vomit, but if the tube is rapidly pushed down just as the child commences to gag, the contents of the stomach will be forced up the tube and into the funnel.

It is not necessary to guide the end of the tube into the pharynx by depressing the tongue with the forefinger as it is apt to cause the child to gag and vomit, and makes the introduction of the catheter more difficult.

When there is much gas in the stomach it escapes with a loud noise as the catheter enters; its escape is facilitated by holding the funnel well up.

The odour and character of the contents of the stomach should be noted as they pass into the funnel.

After emptying the funnel it may be rinsed out and filled with the fluid from the pitcher, then by gradually elevating the former the fluid runs into the stomach. Then lowering the funnel the fluid is siphoned back into it again and emptied, and the process repeated till the fluid returns quite clear. The introduction of air may be avoided by rapidly filling the funnel as soon as it is emptied.

The flow of the fluid may be interrupted by the child vomiting or coughing or by the eye of the catheter becoming plugged with mucous or curd. It may be necessary to withdraw the catheter to clear it.

The catheter may be inserted too far and by bending on itself, raise the eye above the stomach contents.

If the fluid is run in too rapidly the child holds its breath and turns blue.

If the stomach contains a quantity of thick curds, these may be broken up by repeated washings, or by filling the stomach with fluid; the child will vomit and thus expel them.

There is no danger of perforating the stomach, as Epstein was unable to perforate, or even injure the mucous membrane of the stomach, in some experiments he made on the cadaver of an atrophic infant.

After lavage a small quantity of some medicinal fluid may be left in the stomach if desired.

No food should be permitted for at least four hours afterwards.

In older children, it may be necessary to use a gag in order to introduce the tube; in such a case a second assistant is required.

Or the tube may be introduced through the nose as is frequently done in diphtheritic patients.

Indications.—Where vomiting is severe or uncontrollable, lavage is of great value. It is undoubtedly the quickest and most effective way of relieving this troublesome symptom.

Where it is desirable to rapidly empty the stomach of irritating contents, it is superior and more certain in its effects than waiting for an emetic to act, which may fail, or make matters worse by increasing the irritation.

Lavage is not limited to acute cases but proves of great value in the treatment of chronic diarrhœa in children.

Lavage is contra-indicated in children affected with heart disease, bronchitis or pulmonary disease.

In a few rare cases the tube seems to excite vomiting.

Feebleness does not necessarily contra-indicate it, as it can be carried out without inconveniencing the child to any great extent.

2nd. Intestinal irrigation or enteroclysis has been practised for many years in Germany and America and its value is well established.

It is undoubtedly a most rational and scientific therapeutic method in the treatment of the more severe forms of diarrhœa in children or adults.

The irrigation to be effective must be thorough. The fluid must distend the colon and penetrate to the ilio-cœcal valve, beyond which it cannot be expected to reach.

In order to be effectual, attention to detail is necessary. It is better that the physician should attend to the first irrigation himself or have it done by the nurse under his supervision, so that he may be satisfied it is being properly performed.

All clothing but an under-vest should be removed and the child placed either in the dorsal position with the hips elevated on a pillow covered with a rubber sheet, or it may be placed on its side in a semi-prone position, with the hips elevated in the same manner.

The child is best placed on a table or near the edge of a bed.

A rubber sheet or small Kelley-pad should be arranged so as to conduct the discharges to a pail or bucket beneath.

The apparatus consists of the largest size soft rubber catheter, or a rectal tube of the same size, the end being attached to the nozzle of a fountain syringe, the bag of which should be suspended two or three feet above the patient.

Holt has found from a series of experiments made upon the cadaver,

that a pint of fluid must be in the colon at once to thoroughly distend it, for a child of six months, and a quart for a child of two years.

The water should be allowed to flow as soon as the tip of the tube has been inserted into the rectum, to distend the bowel ahead of it, and so facilitate its introduction high up.

The child often strains after the tube has been inserted a few inches, and the water is spurted out or flows rapidly away, though the tube is being pushed up apparently several inches. This is because the tip has been obstructed and has bent the tube on itself and coiled it up in the rectum. Sometimes considerable difficulty is encountered in getting the tube to enter the colon in these cases that strain, and it may be necessary to introduce a small cocaine suppository into the rectum, a short time before injecting.

Difficulty in introducing a sufficient quantity to distend the colon, is overcome by passing the tube up at least eight to ten inches.

The colon can usually be well outlined when distended, though abdominal manipulation may be necessary to aid the passage of the water high up.

Pressure of the buttocks together will insure retention of the fluid in most cases.

After the colon has been filled, the fluid may be allowed to run out, and the process is then repeated till the fluid returns almost clear. At least a gallon of fluid should be used at each irrigation.

When there is much mucus in the discharges, it is well to add a drachm of borax to each quart of water.

The temperature of the fluid should be about 100° F., though in cases where there is considerable fever, ice cold water gives the best results.

In feeble collapsed children hot water is better, but in every case either salt, borax or bi-carbonate and benzoate of sodium should be added to the fluid, as plain water acts as an irritant to the bowel.

The interval between the irrigations varies with the severity of the case. Generally once or twice daily will be sufficient.

Where there has been a great loss of fluid it is well to leave a few ounces of normal saline solution, to which a few drops of liq. opii sed. has been added, in the bowel, after completing the irrigation.

Almost every antiseptic has been used, mercuric chloride (1-10,000) carbolic, boracic, hydrochloric and salicylic acids, quinine, creolin, thymol, etc.

Tannic acid, nitrate of silver and alum solution are recommended.

In my opinion these solutions can only be of value after the bowel has been thoroughly cleared out with saline or borax solution.

Tannic acid, 15-30 grains to the pint, is recommended by Vaughan in cases of severe diarrhoea from milk infection, the object being to render inert any soluble poisons which may remain in the colon or come down later from the small intestine.

The use of enemata may be combined with intestinal irrigation in cases of entero-colitis. Four to six ounces of a mucilaginous solution of bismuth subnitrate (5ss.- $\bar{3}$ i) or nitrate of silver (gr. ii- $\bar{3}$ i) may be injected and left in as long as possible.

Liq. opii sed. must be added to both the above in doses appropriate to the age of the patients.

Stomach washing, a purgative dose of castor oil or calomel in acute cases, followed by intestinal irrigation to prevent the absorption of ptomaines from the large bowel, combined with proper food and intestinal antiseptics, promise the best results in the treatment of all forms of diarrhoea in children.

EXCISION OF THE SCAPULA FOR SARCOMA.¹

BY

FRANCIS J. SHEPHERD, M.D.,

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The operation of excision of the scapula for disease is one of comparative rarity, so much so that I deemed it not unimportant to place on record a case in which I have lately operated. As far as I am aware no case has previously been recorded in Canadian medical literature. Langenbeck was the first to remove the entire scapula for disease in 1855; the patient was a boy aged 12. In 1856 Mr. Syme removed the whole scapula from a woman aged 70, for tumour. Since then the bone has been occasionally removed for disease, but more frequently for injury. As far as my knowledge goes the whole upper extremity has been removed more often than the scapula alone, chiefly because primary disease confined to the scapula is rare. The case related below was sent me by Dr. Wm. Ferguson, of Kingston, New Brunswick, who had made an early diagnosis of the condition.

Mrs. C, married, æt. 33, was admitted into a private ward of the Montreal General Hospital on June 25th, 1896, for an enlargement of the left scapula. She has always been strong and healthy until last winter. Whilst driving a long distance and holding a child in her arms, she felt a severe pain in her shoulder; this pain continued intermittently from that time. Two months before entering hospital she consulted Dr. Ferguson for pain in the left shoulder and also down the left arm. He at that time made a careful examination of the shoulder, but could detect nothing abnormal, so thinking the pain was rheumatic, he prescribed accordingly. A few weeks later the patient had a bronchial attack and was confined to bed, and at this time, when applying remedies to the chest, her sister discovered a lack of symmetry in the scapular regions, and Dr. Ferguson was again called and discovered a tumour below the spine of the left scapula. I saw her a week later and by that time the tumour had become well marked. It was confined to the fossa below the spine of the scapula. It was the size of a closed fist, fixed, firm, non-fluctuating, was not tender and moved with the scapula. Operation was recommended and agreed to.

Operation, June 26th.—After being etherized the left arm was

¹ Read before the Canadian Medical Association Montreal, August, 1896.

bandaged and the parts about the scapula cleansed. An incision was made from the acromion process to the superior angle of the scapula and continued down the posterior border to the inferior angle. The skin was now rapidly dissected away, and then the muscles attached to the spine and vertebral border were cut through, viz., the trapezius, levator anguli scapulæ and the rhomboids. Here the bleeding was free from the muscular branches of the posterior scapular artery. The scapula was now lifted up and the serratus magnus muscle severed and the vessels secured. To complete the excision of the lower end of the scapula, it was necessary to make a second horizontal incision at the base of the vertical one. The muscles attached to the superior border of the bone were now cut through, viz., infra spinatus, omohyoid and deltoid. The tip of the acromion being quite free from disease, was sawn through leaving the deltoid and trapezius muscles attached. The joint was now opened and the muscles of the axillary border (viz., teres major and minor, latissimus dorsi and long head of the triceps) detached, the end of the coracoid process was cut through with forceps, leaving the attachment of the biceps, coracobrachialis and the pectoralis minor. The long head of the biceps was cut through when the joint was opened. The scapula and the tumour was now removed. The patient lost but little blood during the operation, though there was much oozing, for which a rubber drain was introduced at the lower end of the wound. The patient made an uninterrupted recovery, the wound healing by first intention. A week after operation there was some rise of temperature and a fluctuating tumour felt; this was opened and found to be synovial fluid secreted by the joint, which when removed immediately relieved the symptoms.

In two weeks the patient was out driving and left for home well on the 16th of July, but having her left arm in a sling. Dr. Wyatt Johnston who examined the scapula, reported that the tumour was a myeloid sarcoma and confined to the infrapinuous fossa.

CHEMICAL RELATIONS OF SOME THERAPEUTIC AGENTS.

BY

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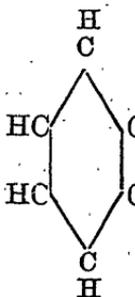
New remedies are being turned out by the aniline works and the great research laboratories of the European continent in such numbers and with such complex formulæ that one is quite bewildered.

The constitution of many of them is indeed complex, but when orientated, their relations are not so remote as might appear from their ordinary formulæ.

It is also interesting to note in many cases that the addition of a certain group, not in itself having any distinctive therapeutic qualities, will impart decisive characters to a nucleus like benzene. Unfortunately this is not always the case, for if it were so, we could with certainty predict the therapeutics of any product which we might synthesize.

An endeavour will be made in this paper to point out some relations existing between drugs in common use by the profession.

Most of the coal tar drugs and the alkaloids may be laid more or less remotely to the derivatives of three compounds, benzene, pyridin and quinoline. Benzene has a formula which is expressed according

to Kekulé's hypothesis as  The hydrogen atoms are of course replaceable by any equivalent group.

The effect of these groups on the benzene nucleus will be taken up. The homologues of benzene, toluene the xylenes, mesitylene are without special therapeutic qualities. If, however, we introduce hydroxyl — O — H we immediately change the hydrocarbon into products of definite antiseptic power.

Thus the placing of this group once into the benzene nucleus gives us phenol; so, according to position, if two hydrogen atoms are replaced we get resorcin hydroquinone and pyrocatechin, all of which are distinct antiseptics, though in a less degree than phenol.

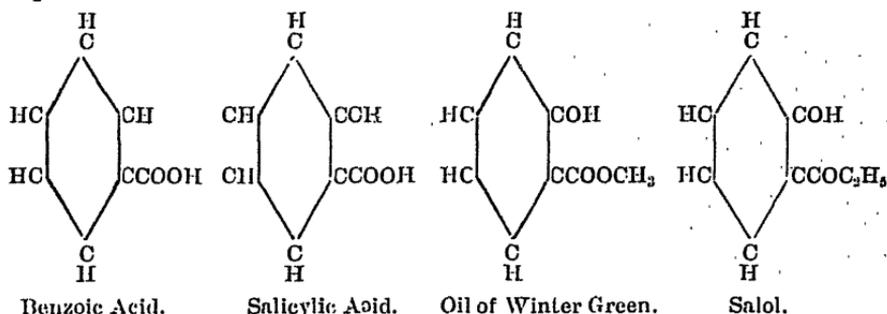
The homologues of phenol, the cresols, cumol, thymol and carvacrol all owe their marked germicidal qualities to the hydroxyl which form part of their structure. So also *a.* and *b.* naphthol not derivatives directly of benzene, but of naphthalene are hydroxyl compounds.

Even when combined with other groups this property is seen.

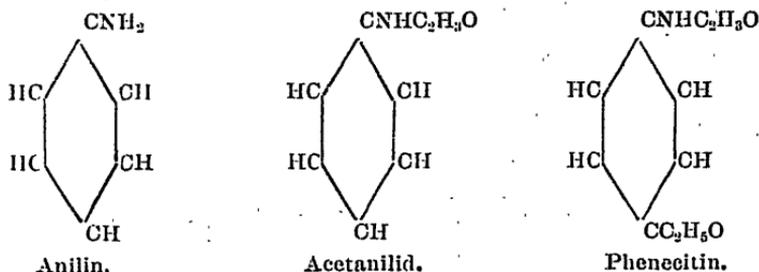
When carboxyl C O O H is introduced we get benzoic acid. If now the ortho-hydrogen atom is replaced by hydroxyl, salicylic acid is formed capable of very much greater antiseptic action than benzoic acid—and indeed it may be said that the greater number of antiseptics in the market to-day, if not containing a hologen like iodine, owe their properties to a hydroxyl group.

Two compounds which are closely allied to salicylic acid are oil of wintergreen and salol.

The former is the methyl ester of salicylic acid while the later is the phenyl salt. The relationship of these with benzoic acid may be expressed as follows :



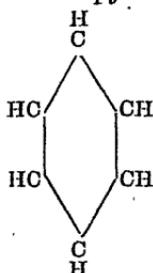
On introducing an anide group into the benzene ring we form anilin. Although anilin and its homologues the toluidins and xylydins are toxic, no therapeutic use has been made of them except in rare instances. The introduction of an acetyl group produces the important antipyretic acetanilid. By still further adding to this molecular arrangement an ethoxy group in the para position relative to the acetyl group we obtain phenacetin, so that the relations of anilin acetanilid and phenacetin are



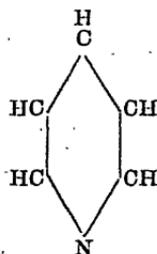
Perhaps the most interesting compounds from a theoretical point of

view are the bases pyridin and quinoline, both of which have been used to some extent of late in therapeutics. These bases, although of simple structure, give rise, under the numerous synthetical operations to which they have subjected, to substances which in every respect are entitled to the rank of alkaloids, and in fact quite a number of alkaloids have been made by taking them or their homologues as a starting point.

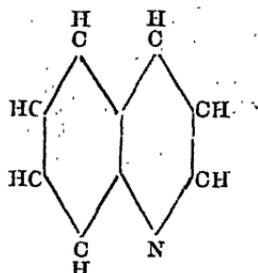
Pyridin itself may be represented as benzene with a C H. group replaced by a nitrogen atom, while quinoline is a combination of the benzene and pyridin nuclei. Thus



Benzene.



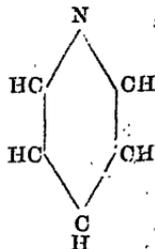
Pyridin.



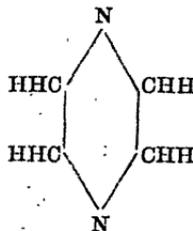
Quinoline.

Pyridin itself has a marked action on the respiratory system and is used in the spasms of pertussis and asthma. The alkaloid nicotin also belongs to the pyridin group, consisting as it does of six atoms of hydrogen united to two pyridin radicales. It is hexa-hydro-dipyridyl. It possesses the same therapeutic properties as pyridin, but in a much greater degree.

A drug closely allied to pyridin in its chemical constitution, although not therapeutically, is piperazin. Piperazin contains another nitrogen atom replacing the para CH group with the addition of four hydrogen atoms. Thus



Pyridin.



Piperazin,

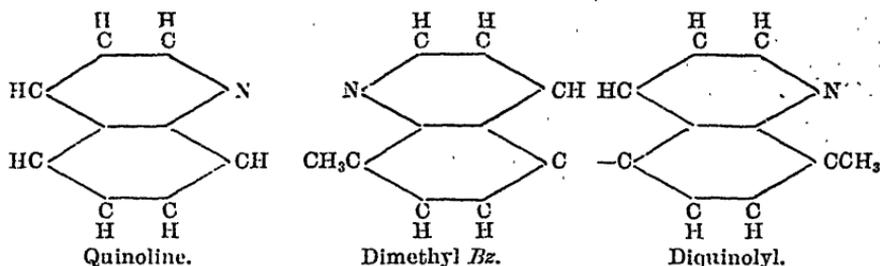
Chemically it is a diamine, diethylene-diamine.

Although pyridin presents a close relationship with some of the alkaloids, it is when one combines the two radicles of benzene and pyridin to form quinoline as shown above that one gets products which to a great extent are alkaloid in character.

Quinoline itself, the basis of this group, is an oil of which one mode of preparation is especially noteworthy, namely, that of Gerhardt who first isolated it in 1842, and who made it by the distillation of quinin in cinchonin and strychnin with alkalis. Quinoline itself in the form of a tartrate is used in medicine, and has been found to have antiseptic properties. Kairin which is of interest as being the first synthetic substitute for quinin. Kairin and thallin are quinoline substitution products with febrifuge and germicidal properties. The action of these products though great in lowering the bodily temperature, has not been satisfactory owing to untoward effects on other centres.

As pyridin increases in effect by condensing two nuclei to form dipyridyl derivatives so quinoline appears to do so also.

In 1891, Ruttan (*Trans. Roy. Soc. Can., III., vi., 92*) prepared a body having a formula $C_{20} H_{16} N_2$ and which bore the following relation to quinoline.



This body consists, as will be seen from its spacing, of two methylated quinoline nuclei. On examination by Stewart and Ruttan (*Ibid*) it proved to possess exceptional antithermic properties in doses of a decigram per kilo body weight reducing the temperature $3.1^{\circ}C$, ($5.6^{\circ}F$). It was interesting because it was the first substituted disquinolin prepared whose constitution was thoroughly established and because of its relation to quinin and the group of quinin alkaloids.

Dimethyl Bz Diquinolyl	$C_{20} H_{16} N_2$
Quinin	$C_{20} H_{24} N_2 O_2$
Cinchonin	$C_{20} H_{24} N_2 O$
Quinonin	$C_{20} H_{26} N_2 O_2$
Chinin	$C_{20} H_{22} N_2 O$

Quinin itself has been partly proven to be a hydrogenated diquinoline. It is of interest to note that two isomers of quinin have been prepared by Kohn and by Wallach and Otto both of which had antipyretic qualities, but in a lesser degree than quinin itself.

The constitution of morphin and of strychnin is somewhat complex, but one finds that the introduction of a methyl group into strychnin

and into morphin is attended with diminution of their toxic power. In the first we have the comparatively innocuous methyl strychnin; in the second the production of codein. The introduction of a second methyl group into codein, however, increases the effect of codein not only to a nerve poison but to a muscle poison.

All through the range of natural alkaloids there are relations of extreme interest such for instance as lead to the partial synthesis of cocain, eozomin, of caffen, and the relations of such alkaloids as aconitin to benzoic acid and to aconine and pseudoaconitin, but such would lengthen the paper beyond its proper bounds. Suffice it will be to say that it is only by the closest attention to chemical relations that we can ever hope to supplant by laboratory methods the syntheses which are performed in animal and vegetable life.

A DEMONSTRATION OF PROFESSOR FLORENCE'S IODINE REACTION FOR SEMINAL STAINS.¹

BY

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The test for the presence of semen universally recognized by the courts, is the finding of one or more perfect and entire spermatozoa of the size and shape characteristic of human spermatic fluid. No chemical reaction hitherto discovered, has been found of any value for this purpose.

The objections to the spermatozoon test as the sole means of diagnosis are two-fold: First in genuine seminal stains the spermatozoa are difficult to recognize when present, and there are in most of the objects which ordinarily are subjected to this examination numerous bodies which so closely resemble spermatozoa as to deceive any one not having great personal experience in such examinations.

In old stains upon linen, etc., it is so extremely difficult to separate the spermatozoa from the fibres of the cloth without injury, that hours of work may be needed to demonstrate the presence of a single perfect spermatozoon.

Second, where the stains are not due to semen the microscopic method does not afford a ready means of excluding them, since even after prolonged and futile efforts one still feels that further search would lead to their detection. The absence of a ready means of excluding stains which are not spermatic has been the cause of a large amount of wasted labour among medico-legal microscopists. It is therefore with pleasure that one learns of a new test, by Prof. Florence of Lyon, claiming to be a means of promptly recognizing the *probable* spermatic nature of a suspected stain and as promptly excluding those which are due to pus, mucus and other organic fluids.

Prof. Florence recommends the use of a solution containing, Iodine 2.54 grams, Iodide of Potassium 1.65 grams, Water 30 grams, making what he calls a sort of tri-iodide compound of potassium, though this is not a definite chemical salt. When a drop of this is brought into contact with a moistened fibre from a dried seminal stain, and examined under the microscope, there immediately appears an abundant precipitate of brownish rhomboid crystals which are well described by saying that they closely resemble haemin crystals in appearance.

These crystals are readily soluble in acids and fixed alkalis, also in alcohol, ether and benzol, and sparingly soluble in water. They dis-

¹ Given before the Montreal Medico-Chirurgical Society, June 26th, 1896.

appear on warming the specimen gently and reappear on cooling, so that they are sometimes difficult to obtain in very warm weather, unless the reagents and instruments are cooled. The smallest trace of a seminal stain will produce a very large number of crystals, the number obtained from a single fibre being sufficient to fill the microscopic field to an extent, which makes it difficult to recognize the individual crystals.

Prof. Florence claims that the crystals are absolutely distinctive of human semen, and that they are not obtained by testing stains produced by blood, pus, nasal mucus, vaginal mucus and secretion from the urethral glands. I have tested stains produced by these materials and find his statement to be correct. He also states that he has not been able to obtain the crystals in testing with the semen of the various domestic animals. This statement I have not yet had an opportunity of testing.

I have obtained this reaction typically from a seminal stain one year old, on cotton, in a museum specimen. In this stain the spermatozoa were abundant at first but now can only be seen with great difficulty, whereas the iodine reaction always reacts so promptly that I use the specimen by preference for class demonstrations. Thus these crystals fulfil admirably the requirements of a preliminary test for seminal stains and especially by their extreme delicacy and rapidity enable other stains to be promptly excluded.

From my experience, I consider the reaction of great value as a preliminary test for the probable presence or absence of seminal elements in suspected stains.

It is well not to decide hastily as to exactly how far we can justify M. Florence's statement, that the obtaining of his reaction typically, together with the debris (as separated heads and tails) of spermatozoa affords satisfactory proof that a given stain is the result of a seminal ejaculation, and that the presence of this reaction even where spermatozoa are not subsequently discovered, makes it probably of that nature.

M. Florence recommends the employment of a solution of crocein for staining the spermatozoa. This brings out characteristic details in the heads recognizable under a 1-12 oil immersion, and as it does not tinge cotton and linen fibres, duly enables the spermatozoa to be readily recognized when still clinging to the fibres. He recommends prolonged maceration (two hours or more) and subsequent teasing of the filaments in preference to scraping or squeezing the fibres. His re-action certainly offers a valuable safeguard against miscarriages of justice, due to the error of mistaking purely extraneous matters for spermatozoa.

A CASE OF SO-CALLED ACUTE HODGKIN'S DISEASE.

(From the Medical Clinic of the Royal Victoria Hospital.)

BY

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Resident Physicians, Royal Victoria Hospital.

In a recent number of the MONTREAL MEDICAL JOURNAL, Drs. Vipond and Martin described briefly, "A Debatable Case of Hodgkin's Disease," whose main features consisted of a clinical history and a morbid anatomy so closely bordering both on conditions found in Hodgkin's Disease and the typical symptoms of leuchæmia, that it was not found possible to decide definitely under which of these two diseases the case should have been classed.

It would seem from a careful perusal of the literature on the subject, that such cases are being more and more described, and that several authors regard the two conditions as of similar origin.

In his classical work on leuchæmia and pseudo-leuchæmia, Ebstein records one case of acute Hodgkin's Disease which he has evidently regarded as being unique; and inasmuch as it has been our fortune to observe in the Royal Victoria Hospital a case which, though somewhat similar, yet, so far as we know, differs in certain respects from any hitherto described, it has seemed worthy of special attention; and we are again indebted for our material to Dr. A. E. Vipond, in whose practice the case occurred, and through whose kindness the patient was allowed to enter the hospital.

J. T., a young Canadian, aged 19, was admitted to the medical wards of the Royal Victoria Hospital on August 6, 1896, complaining of weakness, dizziness, and persistent nose-bleeding.

He had enjoyed good health up to July 1, 1896, when, for the first time, he observed an unusual weakness after his day's work was done, and further, that dull headaches and occasional attacks of giddiness supervened in the evenings. His appetite failed and his face assumed a distinct pallor. To these symptoms were added slight bleedings from the gums and a vesiculo-pustular eruption on the skin on the hands and face. On July 15 he noticed for the first time a swelling under the jaw, and that his condition was becoming progressively and rapidly worse. The pallor, weakness, anorexia and mental stupor increased, and on August 3 a marked epistaxis occurred, necessitating plugging of the nares.

He was seen about this time by Dr. Vipond, who reported his condition somewhat as follows :

Patient is a well-nourished, but very anæmic young man. His expression is dull and apathetic, though his intelligence is fair. There is slight œdema of the lower extremities. On the face and hands there is a pronounced pemphigus. The left lower extremity presents the usual signs incident to an old infantile anterior poliomyelitis. All the lymphatic glands of the neck, those in the occipital region, the axillæ, epitrochlear region and the groins are distinctly enlarged. They are all fairly movable and some slightly tender, but the skin overlying them shows nowhere any evidence of inflammation.

Temperature, $102\frac{2}{3}^{\circ}$; pulse, 100 ; respirations, 24.

Digestive System.—There is distinct anorexia and some constipation. The abdomen is slightly distended. The spleen is distinctly palpable below the ribs for a distance of about one centimetre, but its dulness is somewhat masked by stomach tympany. The liver is not palpable.

Respiratory System.—Patient has a harsh cough unaccompanied by expectoration. There is slight dulness over the second and third interspaces close to the sternal margin, evidently from enlargement of the retrosternal glands. Except for the presence of coarse breath sounds there is no evidence of pulmonary disease.

Nervous System.—Apart from the above described apathy and the symptoms incident to the poliomyelitis there is no abnormality.

Urine is normal.

The examination of the patient was further carried on after his admission to the hospital.

The *Blood* showed the following conditions: 3,160,000 red corpuscles, 8,000 white corpuscles, and 42 per cent. hæmoglobin.

The *Urine* on the first examination was faintly alkaline and presented a trace of urobilin. In other respects it was normal.

The *Retina*, as examined by Dr. Buller, was found to be œdematous and presenting a few hæmorrhages in the outer granular layer.

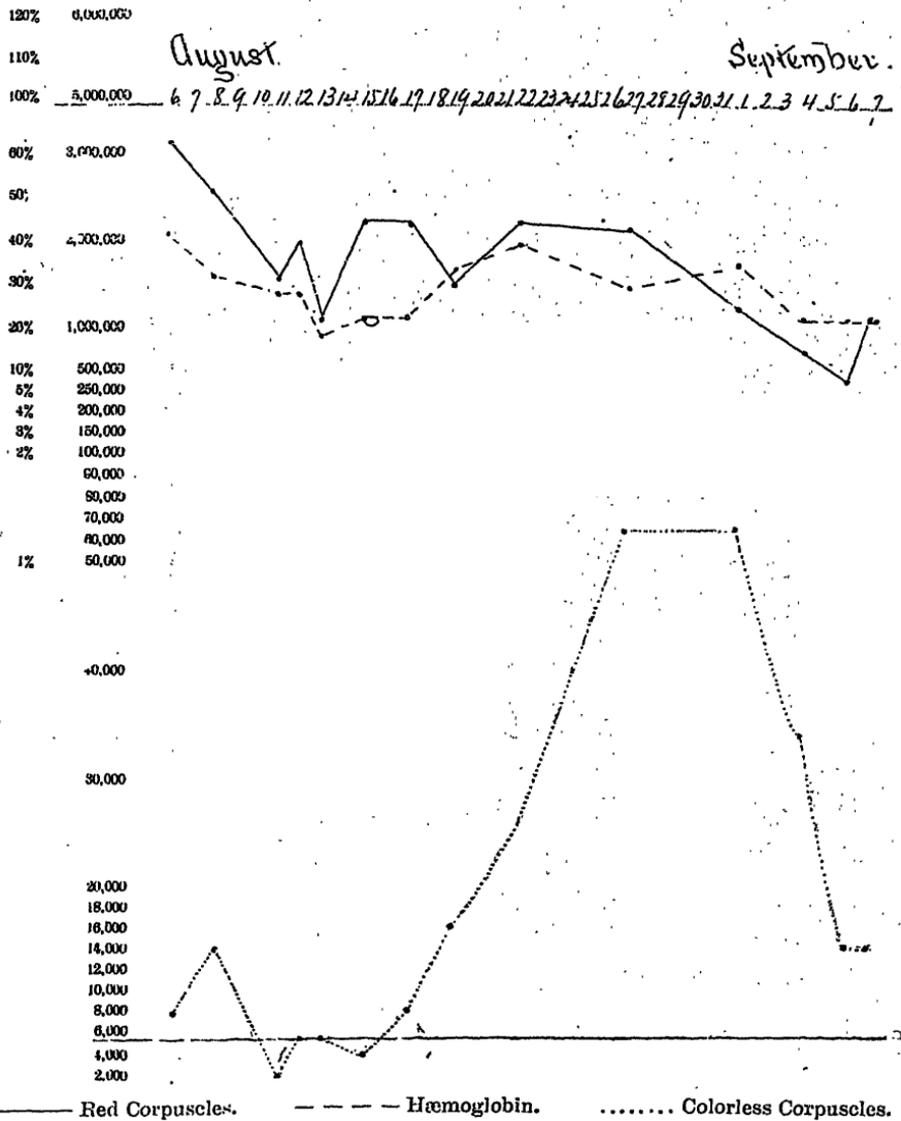
Diary.—After his admission to the hospital the patient lived but five weeks, and careful examinations of the blood were made on almost every alternate day, with a view to ascertaining the variations that might occur in a case resembling so closely that described by Ebstein as Acute Hodgkin's Disease.

As will be seen from the appended chart, there was an almost inappreciable variation in the estimates of the white blood cells during the twelve days following his admission, though the red cells and the hæmoglobin were both considerably diminished. During this period the temperature maintained a markedly remittent type, but the

the subsidence of the leucocytosis, there was a distinct increase throughout.

An autopsy was not permitted.

J. T.



Here then again, as in other cases with which we have met, the difficulty arises in discriminating satisfactorily between Acute Hodgkin's Disease and Acute Leuchæmia.

On the one hand we must recognize the fact that in the course of Hodgkin's Disease there may be a time when marked leucocytosis occurs, and yet we know on the other hand that in leuchæmia there is a marked variation from time to time in the degree of the leucocytosis. Nor in this case do the specific types of white cells afford an idea as to the nature of the malady, for in each case there may be mainly lymphocytes present. So far as the presence of excessive uric acid in the urine is concerned, authorities no longer concur with Eichhorst in regarding the symptom as a criterion for differential diagnosis.

From the clinical signs generally one might be urged to place the disease at once among the acute leuchæmias according to the classification recently adopted by Fraenkel, in which that malady is to be diagnosed not only, nor even mainly by the rapid course of the disease, but rather by the early appearance of all the main symptoms, enlargement of glands, asthenia, hæmorrhage, etc; and yet in his remarks the differentiation from Acute Hodgkin's Disease is not discussed.

CHART SHOWING RELATION OF LEUCOCYTOSIS TO PRESENCE OF URIC ACID IN THE URINE.

DATE.	RED CORPUSCLES.	HÆMO-GLOBIN	WHITE CORPUSCLES.	URINARY SEDIMENT.
Aug. 6..	3,100,000	42 %	8,000	Amorphous urates and phosphates.
" 8..	2,590,000	32 %	14,000	Amorphous urates.
" 11..	1,630,000	28 %	2,000	None.
" 14..	1,700,000	20 %	5,000	Few triple and amorphous phosphates.
" 18..	1,900,000	27 %	12,000	Triple and amorphous phosphates.
" 20..	1,550,000	32 %	16,000	{ Ammonium urates, amorphous phosphates.
" 22..	2,315,000	40 %	26,000	Mucus.
" 24..	2,250,000	35 %	40,000	Amorphous and triple phosphates.
" 27..	2,190,000	30 %	66,000	None.
Sept. 1..	1,265,000	35 %	66,600	{ Crystals of uric acid, amorphous urates.
" 4..	707,000	22 %	34,000	{ Crystals of uric acid, amorphous urates.
" 6..	440,000	22 %	10,000	Abundant crystals of uric acid.
" 7..	1,210,000	22 %	14,000	Abundant crystals of uric acid.
" 9..	{ Very abundant uric acid, ammonium urates.

RETROSPECT OF CURRENT LITERATURE.

Medicine.

Clinical Demonstration of Bacillus of Typhoid.

G. POLLAK. "Über den Klinischen Nachweis des Typhus-bacillus."
—*Centralblatt für Innere. Medicin*, August 1, 1896.

Writing from the clinic of Prof. R. v. Jaksch, in Prag, Dr. Pollak reviews a few of the various methods used in demonstrating the bacillus of typhoid fever, and gives the results in twenty cases in which Elsner's method, somewhat modified, was applied. This method, for clinical purposes, he strongly recommends.

The difficulty in demonstrating the presence of the bacillus in question arises, as is well known, from two causes, viz., its likeness to the bacterium coli, and the immense number of other micro-organisms in the intestinal tract, one of which, as pointed out by the writer, the bacillus *fæcalis alcaligenes*, in form, in movements, in reaction under staining fluids and in colony formation, presents like features with the bacillus of typhoid.

It may be differentiated, however, according to the reaction obtained in litmus whey. The whey is rendered turbid by the bacillus *fæcalis alcaligenes* at the end of 24 hours, and at the end of 48 hours it has an alkaline reaction, while the same medium is rendered acid by typhoid bacillus and remains clear, while again the bacterium coli renders the whey turbid and very acid. Turning now to consider the application of Elsner's method, the usefulness and conclusiveness of which, it would seem, is much diminished by the above statements concerning the bacillus *fæcalis alcaligenes*, Dr. Pollak claims for it a sure and ready method of diagnosis, even when used by those not specially accustomed to bacteriological work.

According to this article under review, Elsner's culture medium consists of 1 kg. of potatoe to 1 litre of water. These are boiled together with gelatine, and 2.5-3 c.cm of $\frac{1}{10}$ normal solution for every c.cm of gelatine acid are added. After filtration or sterilization one per cent. of potassium iodide is added and the medium is ready.

Pollak's method is to inoculate ordinary bouillon (3 c.cm) with the stools for examination and then to apply the same over the Elsner culture medium. After 24 hours the larger granular brown colonies of bacterium coli appear, and after 48 hours the brightly shining, finely granular colonies of typhoid bacillus are manifest. Upon the time difference Pollak lays not a little stress. The colonies of typhoid micro-organisms are arranged concentrically and present fine fringe-like edges. The author has taken great care in making control tests in the twenty cases reported upon. It appears from this article that this method does not fully decide the question, Are these reactions due to the typhoid bacillus? And need still exists for yet other tests to be applied in order that the conclusions may be final.

Discussion on Anæmia.

FREDERICK TAYLOR. "A discussion on anæmia: its causation, varieties, associated pathology and treatment."—*The British Medical Journal*, Sept. 19th, 1896.

In opening this discussion in the section of medicine at the sixty-fourth annual meeting of the British Medical Association, Dr. Taylor professed his desire to enter at once upon the obscure, debatable or novel points which the subject presented.

In anæmia the essential feature is a diminution in the total quantity of hæmoglobin, whether it is because of (1) the diminished quantity of blood, (2) the diminished number of red corpuscles, or (3) the diminished quantity of hæmoglobin in each cell.

The variations in plasma and leucocytes are not essential elements of consideration under this term. Secondary anæmias, those in which a cause is recognizable, are excluded, and only such forms sufficient causes of which are not manifest, viz., primary anæmia, occupy the author's attention. Chlorosis, pernicious anæmia and splenic anæmia, are the forms of anæmia discussed.

In his further introductory remarks Dr. Taylor contrasts these two forms, presenting briefly the generally accepted views concerning them, after which he turns to consider the causation of chlorosis, a very debatable point indeed. Nor is there much light upon this part of the subject when the author has ended. Admitting the fact of its great frequency in females and its almost complete absence in males, regarding amenorrhœa as secondary to it, and failing to find anatomical conditions suggested by Virchow in his theory of narrowing of the aorta, (which needs for its assistance as a causative agent the changes of puberty, and which must itself be active throughout life,) he is shut up to the mechanical action of the corset and the extra-

ordinary demands of puberty as active causative agents. Whether the one or the other is regarded as an etiological factor, many links in the chain of complete evidence are wanting, and while it may be complete in some instances, yet these are indeed so rare as to make them fall under the class of coincidents.

The view that chlorosis is due to the injudicious use of the corset is supported by the rest-in-bed treatment, thus all compression of the garments is removed. It is, however, by no means a conclusive point in the argument.

Discussion of the second cause, the extraordinary demands of puberty, throws no light on the subject more than that gained from the fact established by Dr. Lloyd Jones that at puberty the specific gravity of the blood of males becomes greater, while that of females becomes less, and that the fall of density is due to the diminution of hæmoglobin—but why is this? Are the observations made on a corset-wearing people?

The striking characteristics of the blood in pernicious anæmia, viz., the presence of poikilocytes, the great diminution of the red cells, the relatively increased amount of hæmoglobin, are found in all very severe anæmias. Many such cases recover, and by such an event the diagnosis is regarded as wrongly made, for a fatal termination seems essential in establishing the diagnosis.

The position is thus, if the case recover or if by chance or otherwise a cause for the extreme anæmia be found, at once the diagnosis of pernicious anæmia falls to the ground. Be it said, however, that Dr. Taylor pleads for a better basis of diagnosis touching the causative agent, but holds to the fatal tendency.

In the further discussion of this topic the views of Dr. W. Hunter and Dr. Stockman are presented. (Articles setting forth such views are reviewed in Vol. 24 of this JOURNAL, pp. 196 and 972.)

If in presenting the obscure, novel and debatable points in his discussion of chlorosis and pernicious anæmia, Dr. Taylor has shown how obscure and debatable these points are, his presentation of the subject of splenic anæmia shows equal difficulty and obscurity. Splenic anæmia is a disease characterized by anæmia of insidious onset, with marked splenic enlargement, with no leucocytosis, with blood of the chlorotic type, rarely with hæmorrhagic signs, and with a progressive tendency with fatal termination in a period varying from six months to four years. Its pathology is obscure, but the chief changes are found in the spleen, which "presents a kind of sclerosis or fibrotic condition, consisting in atrophy or sclerosis of the malpighian corpuscles and considerable fibrous thickening of the trabeculæ throughout the

organ." In some cases there is simultaneous enlargement of the lymphatic organs, and the occurrence of hetero-plastic lymphomata in other organs, as pointed out by Banti, who is disposed to regard primary splenomegaly as a splenic form of Hodgkin's disease.

The remaining part of Dr. Taylor's paper is occupied in discussing the treatment of these three classes of anæmia. In the treatment of chlorosis he lays great stress upon rest, regarding it as of utmost importance in order to secure a cure, while among drugs iron alone is mentioned.

In pernicious anæmia the use of arsenic is well established, and Dr. Taylor suggests that it is possibly due to its antiseptic action. Bone marrow may do good, but how? If pernicious anæmia is due to hæmolytic, any remedy directed toward the stimulation of bone marrow is not given on a correct theoretical basis, since it does not deal directly with the cause of the trouble.

Among the agents employed in the management of cases of splenic anæmia, oxygen and arsenic are recommended, while the operation of splenectomy has been followed in a few instances with good results.

This subject was discussed by several members of the section, the chief topic being the treatment of the disease. Prof. T. Gairdner and Dr. J. O. Affleck emphasized the fact that in pernicious anæmia good results often follow transfusion even of small quantities of blood.

Dr. A. Haig claimed that uric acid was always associated with chlorosis, while W. Begley Thorne, M.D., presented his views on the treatment under three headings, treatment by iron, treatment by diet and gastro-intestinal asepticism, and the treatment by the Schott methods. The physical treatment produced its results, he believed, through increase of arterial capacity, improved metabolism and the effectual excretion of uric acid and other toxins.

GRAHAM STEELL, M.D. "On a rare combination of physical signs met with at the apex of certain dilated hearts."—*The Practitioner*, Sept. 1896.

THEODORE FISHER, M.D. (London). "Remarks on the bruit de galop and its causation." *American Journal of Medical Science*, Sept. 1896.

E. M. BROCKBANK, M.D. "Causation of the double first cardiac sound." *British Medical Journal*, June 13th, 1896.

To those who are regularly observing the sounds of hearts, both normal and abnormal, any discussion concerning doubtful and obscure points is of deep interest.

The observers whose names appear above have recorded their views, in part at least, on the not infrequently observed and yet unsatisfactorily explained *bruit de galop*, while Dr. Brockbank sharply distinguishes between this and a double first sound, an explanation of the causation of which is the subject of his admirable paper.

Since the triple rhythm of the heart may be due to a re-duplicated first sound or a re-duplicated second sound, and since the extra sound may be an interpolated one, or one added to the second, and if "interpolated" coming close after the first it may well be termed systolic while, if immediately before the second diastolic, it can be readily understood how confusion has arisen respecting the "time" of the added feature. If there be any applicability in a term, the French have the right idea when in their use of *bruit de galop* they refer to that form of triple rhythm of heart sounds which has "special accent and pacing" like the sound of a galloping horse. It is plainly therefore a diastolic phenomenon which produces it, a re-duplicated diastolic sound. This idea prevails among most German authorities. The teaching upon this point is very obscure in the article above named which deals with its causation while the remaining articles clearly teach its diastolic character.

Before summarizing the corresponding views concerning its conditions, etc., under which this bruit is found it may be said that Dr. Brockbank quoting freely from the work of Roy and Adami and amply illustrating his views by cardiac diagrams and pulse tracings suggests the following as an explanation of the double first sound, an explanation allied to that which he would offer for the *bruit de galop*.

"The double first sound is caused by failure of the *musculi papillares* to retain under the intra-ventricular blood pressure the contracted and shortened condition which they assume during the ventricular systole of the cardiac cycle. This failure on the part of the papillary muscles allows the curtains of the auriculo-ventricular valves to rebound, and thereby cause a sound of sudden and forcible tension of the valve curtains and *chordæ tendinæ*. The abnormal sound forms the second portion, being due to the causes which produce the normal first cardiac sound."

The *bruit de galop* presents tactile sensations in very many cases. One may detect with one's hand over the heart a rise preceding the impulse and in some instances two shocks during diastole, corresponding to the double sound.

The variety of cardiac diseases manifesting the *bruit de galop* are pericardial, myocardial, and endocardial, but in the condition of muscular failure it is most frequently observed, whether due to toxins of diphtheria, typhoid fever or to overexcitation, due to alcoholism, arterio-sclerosis or other causes. Its prognostic value depends upon the cause of muscle failure and the experience of the observer.

W. F. Hamilton

Surgery.

Intradural Section of Nerves.

ABBE. "Intradural section of the spinal nerves for neuralgia."—
Boston Medical and Surgical Journal, October 1st, 1896.

It is nearly eight years since Dr. Abbe operated upon the first of three cases of intradural section of the posterior spinal roots.

The patient was forty-four years of age, and an iceman. Prior to this trouble he had no disease—rheumatism, malaria or specific. During the war an exploding shell left a small piece of itself in his left shoulder, which was extracted on the field, and left but a small flesh scar; never otherwise injured. Sometime afterwards he spent a day putting a zinc lining into a refrigerator, and on the night following he first had a throbbing pain, localized at a single spot on the posterior surface of the right forearm, above the middle. The pain kept him from sleep. It was continuous at the site, and about one week later there was added a paroxysmal pain, giving a peculiar twitching sensation in the thumb, index and middle finger of the same hand.

He was treated by electricity, blisters, counter-irritant and internal medication by excellent doctors, but his arm grew steadily worse. There seems to have been distinct muscular spasm with the sensation of pain.

A diagnosis of ascending neuritis was arrived at. The posterior interosseous and ulnar nerves were stretched. The pain was not improved. If anything it was worse.

At the patient's earnest request the arm was amputated above the deltoid insertion, and above any site of local pain heretofore complained of. The wound healed by first intention. When the arm healed there was found to be no abatement of the pain.

After further medical treatment, the pain still continuing, Dr. Abbe divided the sixth cervical nerve, both roots, outside the dura; the seventh, both roots, outside, and also the posterior root inside, and the posterior root of the eighth inside of the dura. Two or three ounces of spinal fluid escaped on opening the dura. The slit in the dura was sutured with fine catgut.

The patient had more or less pain in the arm during the next ten days, but it changed in character. It no longer seemed to go down

into the fingers. It ceased to go up into the shoulder as it once did. After eleven days the morphia, which he had been in the habit of taking, was altogether stopped, and he was allowed to get up.

His morphine habit was in abeyance for a year or two and he gained twenty pounds in weight. At the end of four years he complained that he still had some shooting pains in the stump and a drawing feeling in the fingers of the amputated arm. Seven years after operation he still complained of some pain, but was in good health.

The second case was a man, forty-five years of age. He dated the beginning of his trouble to exposure of his arm in a street car window after perspiring freely. The pain began a few days afterwards, between the thumb and index-finger, and grew steadily worse. The ulnar nerve was first stretched and afterwards excited, the pain becoming aggravated after each operation.

Then the posterior roots of the sixth, seventh, eighth cervical and first dorsal, were divided intradurally. Immediate relief from pain. Some return of pain in second week. The morphine habit entirely checked. Six years later there were relatively slight evidences of pain.

The third patient was a florist aged forty. He had evidently had some form of infantile paralysis, which was thought to have been infantile hemiplegia, resulting in athetoid paralysis of right arm and hand, and somewhat the same of the right leg. His right arm had been so useless for years from constant and excessive athetoid movements, with increasing neuralgia of the forearm that the forearm was finally amputated. The pain however did not abate; and the surgeon stretched his brachial plexus. The pain was not mitigated, and the incessant athetoid movements made it so unbearable that amputation at the shoulder was resorted to. The pain continued after this and seemed even worse.

Finally the posterior roots of the fifth, sixth, seventh, eighth cervical and first dorsal were divided intradurally, and a piece a quarter of an inch long cut from each. His condition was greatly improved.

Mr. Bennett of St. George's Hospital, London, divided the lower four posterior lumbar roots, and one upper dorsal for sciatic neuralgia (evidently an ascending neuritis of the lower extremity). Pain entirely disappeared, but spasms of muscles occurred at intervals. During the eight days following there was a progressive restoration of sensation of the anæsthetic area. The patient died suddenly of cerebral apoplexy on the twelfth. The post-mortem verified this as well as showed that no union of the divided nerve roots had taken place

Mr. Victor Horsley has reported two cases of spinal intra-dural resection of the posterior roots.

Mr. Sherrington has given us some very instructive animal demonstrations of the peripheral distribution of the fibres of the posterior roots of some of the spinal nerves. Most points on the skin receive their innervation from two or even three roots. Thus, for example, the nipple lies mainly in the territory of the fourth dorsal root, but the third and fifth roots contribute fibres as well, and only after destruction of all these roots, does the territory become anaesthetic. Thus the whole of a posterior nerve root may be destroyed and yet no distinct disturbance of sensation arise.

The two dangers of the operation are, shock from hæmorrhage, and sepsis. All cases of root section thus far reported have made excellent recoveries. The treatment of the dural incision should always be by immediate suture with fine catgut.

These cases of ascending neuritis are sometimes most intractable, and we seem to have in intra-dural section a remedy that may in properly selected cases, enable us to afford relief from pain which otherwise would render the patient helpless. Even in weak patients the operation has been devoid of risk. It is sound in theory.

There ought to be no risk in severing the posterior roots of the third and fourth cervical, as well as those of the brachial plexus, simply because they supply the phrenic, inasmuch as that needs motor supply only, and at the diaphragm has the opposite phrenic in reserve.

Geo. E. Armstrong.

Obstetrics and Diseases of Infants.

Uterine Hæmorrhage and Rupture of the Circular Sinus.

P. BUDIN. "Hémorrhagies utérines et ruptures du sinus circulaire,"
—*Presse Médicale*, 6th Aug. 1896, reviewed in *L'Obstétrique*
15th Sept. 1896.

Hæmorrhage occurring during the latter months of pregnancy, has usually been ascribed, either to vicious insertion of the placenta or to a premature detachment of portion of a normally situated placenta. Occasionally, however, not a sign of either of these conditions can be found, but a clot of variable size is observed, covering a tear in the coronary sinus, and extending a short distance within its lumen. In such cases the hæmorrhage no doubt comes from the ruptured sinus. The possibility of such an accident has been mentioned by Duncan and Jacquemier, without however giving any proof of its actual occurrence. Budin has been investigating this subject since 1893, and has collected 22 cases of hæmorrhage from ruptured sinus. The causes of rupture are not always apparent. The chief pre-disposing cause seems to be insertion of the placenta in the lower uterine segment, while sudden shocks, frights, jars, excessive fatigue or excitement, jolting over rough roads have apparently acted as exciting causes. Hæmorrhage is the chief symptom; it may be slight, moderate or severe, and may occur externally, internally, or both. It is difficult or impossible at the time to diagnose between hæmorrhage from ruptured sinus, and that from placenta prævia or partial detachment of a normally situated placenta; but a careful examination of the placenta after its delivery, enables a retrospective diagnosis to be easily made. Pinard lays considerable stress upon the occurrence of premature rupture of the membranes and spontaneous premature labor in placenta prævia, but in Budin's experience these symptoms have little diagnostic value. More reliance can be placed upon the slow and imperfect engagement of the presenting part, thickening of portion of the lower uterine segment together with thickening and rugosity of the membranes. The prognosis of ruptured sinus is serious for the mother and grave for the child; in Budin's 22 cases, one mother died and three children were dead born. Prophylactic treatment consists in guarding against excessive fatigue shock, violent emotion, rough travelling, &c. Hæmorrhage may

usually be checked by rupture of the membranes, but not always. If it persists, and dilation is well advanced, delivery should be completed as soon as possible by forceps or version. If dilatation is insufficient, a tampon should be applied.

Pujol reports four cases of hæmorrhage from ruptured sinus (*Archiv, de Gyn. et de Tocol.* June, 1896), in three of which there was vicious insertion of the placenta. He recommends artificial rupture of the membranes if labour has already begun, and the use of Champetier de Ribes bag. If the breech is presenting, one foot should be brought down and gentle continuous traction made until delivery is effected.

Three Successful Cesarean Sections on the Same Patient.

C. N. VON DE POLL. "Drei gluckliche Kaiserschmitte bei ein und derselben Frau,"—*Centralblatt fur Gynakologie*, 23 Mai, 1896.

The patient was a VI-para, æt 36. In her first three labours a putrid fœtus was born, the 1st by natural efforts, the 2nd, by means of instruments, and the third by decapitation. In her fourth pregnancy, she was delivered (12th February, 1886) by C. section of a living child, weighing 2850 g. In her fifth pregnancy, she was again delivered by C. Section (25th Sept., 1888) of a living child, weighing 3100 g. She continued menstruating regularly for seven years when she became pregnant once more. The last period began on the 11th May, 1895, and lasted fourteen days. On 1st Feb. 1896, she entered hospital and a living child weighing 3500 g. was delivered by C. section.

The operation lasted one hour and twelve minutes. There was slight elevation of temperature for a couple of days, otherwise the puerperium was normal, and the patient was discharged from hospital on the 19th day.

The pelvis was of the generally contracted, flat, rachitic type.

The following were the measurements:—

Between the Ant Sup. Spines.....	26	c.m.
“ “ Crests	26½	“
“ “ Post. Sup. Spines.....	8½	“
Conjugata Externa.....	16	“
“ Diagonalis.....	8	“
“ Vera.....	6.2 to 6.5	c.m.

Post-mortem Cesarean Section—Living Child.

ERDHEIM. "Sectio Cæsarea in mortua: Lebendes Kind."—*Centralblatt für Gynakologie*, 4th April, 1896.

A. A., entered the Vienna Krankenhaus on 19th December, 1895, suffering from such severe dyspnœa from the pressure of an enlarged

thyroid gland, that tracheotomy was performed at once. As extirpation of the gland was impossible on account of its retrosternal position, thyroid tablets were administered with partial relief of the symptoms. On 3rd January, a sudden tracheal hæmorrhage occurred, which proved fatal in a few minutes. As the woman was in the seventh lunar month, and the foetal movements were perceptible, C. section was performed immediately (four minutes after the mother's death) and a living child weighing 1400 g. was extracted. Although somewhat asphyxiated, it was soon resuscitated by Schultze's method and took nourishment readily. It was transferred to the foundling hospital, but died in 13½ hours of asthenia. The uterus contracted immediately after the extraction of the child, and a further contraction must have taken place subsequently, since at the autopsy the uterus was found to be scarcely larger than the size of the fist.

A Fatal Case of Puerperal Tetanus.

DRAPPIER. "Un cas de Tétanos Puerpéral."—*Archives de Gynécologie et de Tocologie*, Mai, 1896.

On December 30th, 1894, Mrs. J., æt 25 II-para, was confined at full term. The labour was easy and uncomplicated, lasting only six hours; the placenta was expelled spontaneously ten minutes after the birth of the child. An antiseptic intrauterine douche was given at the conclusion of labour, and hot vaginal injections of boiled water were administered daily during the puerperium. There was no rise of temperature at any time; the lochia were never offensive and had almost entirely ceased by the 8th day. The patient kept her bed for five days and was well enough to resume her household duties on the 3th day. There was slight soreness of throat on the 8th day, but it soon disappeared. Toward the end of the 9th day she again complained of sore throat, and slight difficulty in swallowing, and had a chill which lasted ten minutes. On the 10th day there was general redness of throat, and slight pain in the muscles of the neck, as well as torticollis. As these symptoms were thought to be rheumatic, sod. salicylat. was prescribed along with vapour baths and hot applications to the neck. The following day, she was much better, was free from fever and could swallow easily. On the 14th day she complained again of difficulty in swallowing and could not open her mouth; when seen by Dr. Drappier the head was bent forward upon the chest, the thighs flexed upon the abdomen, and the legs upon the thighs. It was impossible to change this posture. Tetanus was diagnosed, a hot intrauterine douche of Van Swieten's liquid was given, choral was administered by the bowel, and morphia hypodermically. The case

progressed favourably and on the 19th day she seemed much better; during the day, without any visible cause, she suddenly lost consciousness and in half an hour the abdomen became greatly distended. The pulse rose to 140 and the respiration to 35, and in two hours she died.

As there was no external wound, and as a foul discharge came away on two occasions while an intrauterine douche was being administered, it was inferred that the infection entered through the internal surface of the uterus. Upon enquiry it was found that the daily vaginal injections had been given by the husband, who was a farrier by trade, and consequently in daily contact with horses. Moreover, the room in which the patient was confined was in direct communication with a stable in which horses were constantly kept. All the conditions were favorable for the presence of the bacillus of Nicolaïer. The practical conclusion to be drawn from this case is that routine vaginal douching during the puerperium may prove dangerous by conveying infection directly into the uterine cavity. Douching should therefore be employed only when it is directly indicated, and then the strictest precautions should be taken to prevent accidental infection.

Puerperal Tetanus.

B. C. HIRST. "Three cases of puerperal tetanus." *The American Journal of Obstetrics*, July, 1896.

In the short space of three weeks, three cases of fatal puerperal tetanus occurred in the service of the University Maternity in Philadelphia. This institution is one of the best equipped and most carefully managed maternity hospitals in America. The building is new and admirably adapted for carrying out a rigid technique. The confinement wards are situated in well-ventilated, one story pavilions, isolated from the rest of the hospital. Each patient has a separate ward in which she is confined, and where she remains till convalescence is fairly established: she is then transferred to one of the large convalescent wards in the main building. Every precaution is taken to disinfect bedding, clothing, utensils, instruments, the person of the patient and the hands of the attendants. The only weak point in the technique in these cases, was that the water used for washing and douching the patients, was neither filtered nor boiled, reliance being placed upon the creolin or corrosive sublimate which were added to it. At that time the water supply was impure owing to heavy floods in the valley of the Schuylkill, and a careful bacteriological examination with inoculation experiments seems to verify the suspicion that the impure water was the infective agent. The practical lesson to be

learned from this unfortunate outbreak is, that the water used for washing and douching patients during labour and the puerperium should be boiled, if absolute safety is to be ensured. It is important also to note that chemical disinfectants can not be relied upon to destroy any germs which may be present in the water during the time the douche is being administered. An apparatus for the filtration and sterilization of the tap-water has been fitted up and it is to be hoped that no more cases will occur. In Philadelphia there are from 35 to 40 cases of tetanus every year.

Laparotomy in a New-born Child for Hernia of the Cord.

MARJANTSCHIK. "Ein Fall von Laparotomie an einer Neugeborenen wegen Hernia funiculi umbilicalis."—*Centralblatt für Gynäkologie*, 28 März, 1896.

Laparotomy is rarely performed in new-born children, only 31 cases being reported since the year 1836. The mother, æt. 24, III-para, was delivered with manual assistance, the child presenting by the feet. It was asphyxiated, but was resuscitated by Schultze's method in fifteen minutes. It was well developed and weighed 3100g. From the middle of the abdominal wall projected a swelling of the size of an apple. The upper border reached to the ensiform cartilage, and the lower to the umbilical cord. The base was surrounded by a thick band of skin resembling cicatricial tissue. The tumour itself consisted of a sac with thin transparent, bluish walls, lying over the liver, 8 cm. long and 6 cm. broad. The tissues of the umbilical cord (Amnion and Wharton's Jelly) and the peritoneum formed part of the sac-wall. The protruding intestine could be reduced and the margins of the opening approximated. Crying did not seem to alter the size of the tumour very much. On the second day the sac began to lose its transparency and assume a yellowish green colour. Operation having been decided upon, chloroform was administered and an incision made in the middle line the whole length of the sac (10 cm.). The amnion was dissected off; the umbilical vessels were freed of Wharton's jelly ligated and divided, and the exposed peritoneum removed. The prolapsed intestine was replaced and retained by means of compresses; the edges of the opening were freshened and sutured. The stitches were passed through the whole thickness of the abdominal wall, including the peritoneum. Sixteen sutures in all were introduced, four being superficial. The operation lasted 55 minutes, and one drachm of chloroform was used. The upper and lower extremities were found to be deeply cyanosed after the operation; the child was accordingly wrapped in wadding and surrounded

with bottles of warm water. It slept most of the day and night, crying only before a movement of the bowels. During the first day it took sugar water and then mother's milk with water. Brandy was given subsequently, and the bowels moved by injections. The temperature was irregularly high. Slight jaundice appeared and death occurred during the sixth day. The wound healed well, the margins being firmly adherent.

In commenting upon this case, the operator drew the following conclusions regarding the indications for treatment :

1. If the defect in the abdominal wall is so great that there is danger of the sutures tearing out, or if it is impossible to draw them together, one must

(a) Operate according to Benedict's modification of Olshausen's method, if the child is viable.

(b) Use the expectant method with antiseptic compresses and bands if the child is not viable.

2. If the opening is very small

(a) Use an ordinary ligature if the contents can be replaced.

(b) Do a radical operation (laparotomy) if the contents cannot be replaced.

3. If the opening is of moderate size, do a laparotomy.

J. C. Cameron.

Pathology.

The Relationship Between Inflammation and Sundry Other Forms of Fibrosis.

ADAMI. "On the relationship between inflammation and sundry forms of fibrosis."—The Middleton-Goldsmith Lecture for 1896, *Medical Record*, March 14th and 21st, and April 4th and 11th.

COATES and AULD. "On endarteritis deformans, or atheroma, and aneurysm, and their relations to each other."—*Journal of Pathology and Bacteriology*, July, 1896.

It is a curious fact that in practically all the recent text-books on general pathology there is no satisfactory treatment of the subject of fibrosis in general, or at all events no definite chapter devoting any appreciable attention to this in a systematic manner. And yet so common is its occurrence as a sequel to all kinds of influences, that it is rarely absent in one part of the body or another in persons who have attained their sixth decade. It is by no means uncommon to find the subject in general gracefully evaded and the discussion on the nature of the process avoided by the generous use of a confusing vocabulary, which naturally brings us in no way nearer to our goal in trying to understand in what category the changes are to be placed. This terminology includes such terms as sclerosis, especially arterio-sclerosis, cirrhosis, and even fibrosis, words which in themselves convey but little idea of the true nature of the process, though they do indeed explain the morbid condition present.

While it may, for example, be a matter of convenience to denominate the various thickenings found in the valves of the heart as sclerosis, or while again the vascular changes incident to old age and following upon some of the chronic intoxications may be conveniently referred to alternately by such terms as arterio-sclerosis and atheroma, yet the matter is quite different when the suffix "itis" is employed for the same conditions. While the former terms are each in themselves non-committal, the persistent use of the words "endocarditis chronica" and "endarteritis chronica" imply at once that the condition is of an inflammatory nature, and although more recent work is yearly rendering the contrary more obvious, the same nomenclature is maintained. It is with this conviction that Prof. Adami considers the subject in his remarks before the Pathological Society of New York, and ex-

presses his strong belief that the time has come to call a halt and to consider well in how far we are justified in classing many of these processes with the inflammations.

To begin with, a clear idea of inflammation is essential, and for a satisfactory definition we can refer back to the author's exhaustive article on the subject in Prof. Allbutt's *New System of Medicine*. Here, by means of a comparative study of the process, and following in part the lines of Metchnikoff, we are shown that there is in the process of inflammation something more than is conveyed in the older ideas. Even the classical definition of Burdon Saunderson must, to some extent at all events, yield to the newer researches of the past decade. Micro-organisms and their actions have been carefully studied, the effects of their chemical products noted, and all with the result that we obtain a clearer view of the process involved in the term inflammation. It is indeed something more than the mere "succession of changes which takes place in a living tissue as a result of some kind of injury, provided that this injury be not sufficient to destroy its vitality."

As the author has readily shown, the atrophic changes which occur in the detached retina as the result of trauma, are not of an inflammatory nature, and so too with many similar events. While, however, the definition as given indicates that inflammation is essentially a process, not a mere condition, it would seem that one may go still further and say that throughout the whole series of changes which an inflamed area undergoes, a definite purpose exists—that in the determination of blood to the part, the advent of the exudate and the leucocytes, and all the changes that are incident to the process, there is the definite effort at a restoration of the former condition. An inflammation, then, would be "the series of changes which constitute the local attempt at repair of actual or referred injury to a part."

There are those who would have us believe, in spite of the numerous proofs to the contrary, that an inflammation is essentially microbic. To such, one needs but refer the many undeniable scientific experiments which manifest how readily purely mechanical, chemical and other influences may equally well induce inflammatory changes, the same evidences of attempted repair.

To say, as does Prof. Coates, that inflammation is to be defined as the process brought about in tissues by the action of any irritating agent, seems equally unsatisfactory as the other referred to above. In discussing the subject of chronic inflammation the writer insists, too, that the process is far from being always reparative—that sometimes, indeed, it may be destructive—in verification of which is

mentioned cirrhosis of the liver and destruction of liver parenchyma. The example, it would seem, is nevertheless ill chosen. There would seem to be now more than ever a tendency to regard the cirrhotic process as an entirely secondary one, the primary lesion being a destruction of liver parenchyma. Such being the case, we have here an excellent example of attempt at repair, an attempt, it is true, which does not carry success with it, inasmuch as the reproduction of the original tissue falls short and the new formation of the lower grade cell predominate, viz., the fibrous tissue. Yet the truth remains that when the irritant has destroyed the liver cells there is induced an effort to repair the injury, and inasmuch as there is insufficient capacity on the part of the remaining cells to reproduce their kind completely, another tissue is formed to fill the gap, and for this process Dr. Adami employs the suggestive name "Replacement Fibrosis," of inflammatory origin.

In addition to this indirect mode of fibrous hyperplasia is another, more direct, where the irritant induces by slow and long-continued, as well as probably intermittent, action a primary increase of the fibrous connective tissue. Such forms, for example, are frequently seen in the development of thickened capsules of organs covered by peritoneum, in the capsules formed about old tuberculous foci, where the latter act as mechanical or chemical irritants, and, too, in many infective processes where the agent induces, as the first effect of its entry, a hyperplasia of connective tissue elements.

But these are not the only forms of fibrosis which occur, for under certain conditions, where it is difficult to see any inflammation, one often finds a true hyperplasia of connective tissue. When in the body certain tissues of the higher order are obliged to function more than usual, the effect may be seen in the development of more cells than normal, in other words hypertrophy, or more truly numerical hypertrophy, *i.e.*, hyperplasia occurs. Such for example is the common means of developing increased muscular tissue and the interesting question is discussed as to the possibility of so low a form of tissue as the fibrous being similarly capable. Can we, in other words regard the fibrous connective tissue as capable of possessing a definite function, in the narrower sense of that word, that is as carrying on a definite work? An affirmative answer would seem the most reasonable, basing our views, for example on the function of the valves of the heart, the lining membrane of vessels, etc. Under certain conditions it is shown that where evidence of inflammation is quite absent these structures may become distinctly increased and hyperplastic. The two conditions which favour this

process are mainly these. In the first place it is shown that where increased tension is induced within the heart artificially, there one obtains, under certain conditions, increased fluid driven between the tissue spaces into the valves, that as a result, small elevations are found, the sequence evidently of the strain. Roy and the author have repeatedly proved the possibility of such an experiment by ligaturing the aorta of dogs and rabbits.

What is thus produced experimentally, occurs too in all probability in certain diseased conditions. Thus for example in chronic renal disease, and in any other conditions where the tension is raised in the circulation there is an almost constant sclerosis of the valves, the result, the author believes, of a double process, viz., the increased strain on the valves, combined with an unusual amount of nutrient fluid being driven into the tissues, as a consequence of the abnormal circulatory tension.

Increased labour then for the fibrous tissue may result in overgrowth. The main function of connective tissue being to support and to bind together other forms of cells, it seems but natural that where abnormal support is necessary, nature will supply the required material by inducing hyperplasia, granting of course always that the condition of the system otherwise is in a satisfactory and healthy state.

And the history repeats itself in the same manner with reference to the arterial system, to the sclerosis which results there in a thickened intima with other changes. Just as the valves of the heart are to a large extent nourished by the blood circulating in its chambers, so too is the intima of the arterial system analogously provided with its necessary nutrition from the blood running in its lumen. As with the normal condition, so too with diseased states of the two analogous tissues, increased work implies hyperplasia of tissues, thickening of the intima, one form at least of the so-called endarteritis, a form which from this reasoning is not of the nature of an inflammation, but the result merely of prolonged high tension in the vessels and an over nutrition of their inner coats.

It is with considerably different views that Prof. Coates approaches the subject of arterio-sclerosis and atheroma and bases his views on an examination mainly of the cerebral arteries. The theories of Thoma are according to this author not tenable for any but the largest arteries while the whole condition is regarded essentially as a disease primarily of the intima. This inner lining of the arteries becomes affected by what he calls an "inflammatory hypertrophy," a term rather hybrid in nature perhaps, though explaining plainly his idea.

The tiny nodules found on the cerebral arteries resemble he believes.

similar inflammatory thickenings as seen in the cornea. These exert by constant pressure and impaction, an injurious influence on the media thus weakening that coat secondarily and predisposing to the formation of aneurysms.

While from the drawings that accompany the text there may be much in favour of this view, yet it cannot be but equally certain that the work of Thoma, Councilman and others proving the contrary must deserve more than an equal attention. That the media is primarily involved in the process of nodular sclerosis is too generally accepted to be easily disproved in spite of the examples cited, and altogether it must be agreed that the subject is still a bone of contention among many of the leading pathologists on both sides of the ocean.

C. F. Martin.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL. Such reprints should preferably be addressed to Dr. Kenneth Cameron 903 Dorchester street, Montreal.]

PERIODICALS.

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THE CANADIAN PRACTITIONER.

- The diagnosis of typhoid fever—G. R. Cruickshank, Windsor, Ont., p. 171.
Unusual features in the clinical history of adenoid disease—Price-Brown, Toronto, p. 377.
Missed abortion—F. R. Eccles, London, Ont., p. 462.
Treatment of syphilitic affections of the eye by mercury, potassium iodide, and pilocarpine combined—G. H. Burnham, Toronto, p. 397. (*From the Archives of Ophthalmology.*)

THE CANADA LANCET.

- Clinical notes on methods and new remedies in the treatment of diseases of the upper air passages—D. F. Chappell, New York, p. 380.
Extra-uterine pregnancy: four and half months; operation; recovery—D. J. Gibson, Belleville, Ont., p. 388.

CANADA MEDICAL RECORD.

- Why scarlatina is endemic in Montreal—Robert Wilson, Montreal, p. 469.
Causes predisposing to infection—A. J. Richer, Montreal, p. 476.

THE CANADIAN MEDICAL REVIEW.

- Diphtheria and its treatment—C. R. Charteris, Chatham, Ont., p. 1.
THE DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.
Dislocation of the acromial end of the clavicle, with report of four cases—Thos. H. Manley, New York, p. 33.
A plea for conservative oral surgery, with practical illustrations—G. Lenox Curtis, New York, p. 38.
An interesting case—A. M. Sutton, Nicola Lake, B.C., p. 42.
Whither are we drifting?—J. H. Hamilton, Hillsburgh, Ont., p. 44.

THE MARITIME MEDICAL NEWS.

- Annual Address to the Nova Scotia Medical Society—R. A. McKeen, Little Glace Bay, N.S., p. 207.
The future of cancer of the uterus—A. Laphorn Smith, Montreal, p. 213.

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- Notes sur un fibro-sarcôme du nerf sciatique—MM. Legueu (de Paris) et Marien (de Montréal), p. 385.
Traitement de l'éclampsie puerpérale—E. A. René de Cotret, Montréal, p. 387.

LA CLINIQUE.

- Fait clinique—Dr. Jéhin Prume, Montreal, p. 669.

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THE CANADIAN PRACTITIONER.

- A tumour of the medulla oblongata—J. E. Graham, Toronto, p. 549.
Treatment of puerperal sepsis—H. T. Machell, Toronto, p. 559.
Adenomyoma of the round ligament—Thos. S. Cullen, Baltimore, p. 572.

Aneurism of the aorta communicating with the left auricle—A. McPhedran, Toronto, p. 378.

THE CANADA LANCET.

The cause of mental impairment in children—J. Madison Taylor, Philadelphia, p. 443.

Observations on antiseptic therapy—O. McCullough, Erin, Ont., p. 449.

CANADIAN MEDICAL RECORD.

Scarlatinal Dropsy, F. W. Campbell, Montreal, p. 521.

The vaginal route for operations on the uterus and appendages, A. Laphorn Smith, Montreal, p. 526.

THE DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.

A plea for conservative oral surgery, with practical illustrations—G. Lenox Curtis, New York, p. 145.

Symphiseotomy and craniotomy—Charles Maygrier, Paris, p. 149.

Secondary section for intestinal obstruction—Dr. Davis, Victoria, B.C., p. 153.

THE CANADIAN MEDICAL REVIEW.

Lachrymal disease—J. H. McCassy, Dayton, Ohio, p. 31.

Administration of anaesthetics—H. H. Oldright, Toronto, p. 34.

MARITIME MEDICAL NEWS.

President's Address, Maritime Medical Association—P. Conroy, Charlottetown, P.E.I. p. 241.

President's Address, New Brunswick Medical Society—G. E. Coulthardt, Fredericton, N.B., p. 251.

L'UNION MÉDICALE DU CANADA.

Eclampsie puerpérale—Albert Laurendeau, St. Gabriel de Brandon, p. 443.

Traitement de l'éclampsie puerpérale (suite)—E. A. René de Cotret, Montreal, p. 453.

LA CLINIQUE.

Des varices de la vulve et des hémorrhagies consécutives à leur rupture—J. Ouimet, Valleyfield, Q., p. 1.

MEDICAL NEWS, (AUG. 8TH).

A case of suppurative cholecystitis, with rupture of the gall-bladder and general peritonitis, complicating typhoid fever—Henry B. Anderson, Toronto, p. 155.

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THE CANADIAN PRACTITIONER.

Address of the President of the Canadian Medical Association, James Thorburn, Toronto, p. 629.

Abdominal and pelvic operations for the relief of conditions incident to the puerperal state, J. F. W. Ross, Toronto, 636.

Hemorrhagic pancreatitis, A. McPhedran, Toronto, p. 650.

THE CANADA LANCET.

The cause of mental impairment in children (continued) J. Madison Taylor, Philadelphia.

Observations on antiseptic therapy, (continued) O. McCullough, Erin, Ont.

CANADA MEDICAL RECORD.

Streptococcic puerperal infection—injection of Marmorek's antistreptococcic serum—recovery, H. L. Reddy, Montreal, p. 569.

Tetany following scarlatina, J. B. McConnell, Montreal, p. 573.

One hundred and ten operations for retro-displacement of the uterus with subsequent results, A. Laphorn Smith, Montreal, p. 576.

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Occipito-posterior positions, Albert A. Macdonald, Toronto, p. 61.
 Mammary Carcinoma, A. B. Welford, Woodstock, Ont., p. 66.

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Extinction de voix guérie à la suite d'une hystéropexie, A. Charbonneau, Ogdensburg, N. Y., p. 513.

Traitement de l'éclampsie puerpérale, (suite) A. René de Cotret, Montreal, p. 514.

Traitement des affections syphilitiques du globe oculaire par les injections intra-veineuses de cyanure d'hydrargyre, Jéhin Prume, p. 526.

Treatment of Syphilitic Affections of the Eye by Mercury, Potassium Iodide and Pilocarpine Combined—G. H. Burnham.

Though pilocarpine has been used to a limited extent in syphilis, the combination of it with mercury and iodide of potash is little known.

The case reported was a man who had suffered from syphilitic inflammation of both eyes for nine months and had been receiving anti-syphilitic treatment with the local use of atropine. When he came under the observation of the writer his condition was as follows:

Left Eye.—Much conjunctival, sub-conjunctival, and ciliary injection, pain at times, aqueous turbid, many lymph dots on the posterior surface of the cornea, very many posterior synechiæ, some being broad and dense, with a thin deposit of lymph in the pupillary area. V = perception of light only.

Right Eye.—No letters of Snellen type at twenty feet, and only letters of No. XL of the same type at eight inches; cornea and aqueous very slightly affected, posterior synechiæ more numerous and broader, so as to form almost one solid ring of adhesion, and the lymph deposit in the pupillary area denser.

Mercury and iodide of potash were administered internally with atropine externally for four weeks, with the result of the eyes getting slowly worse. Then, in addition to the internal use of mercury and iodide of potash, pilocarpine was given hypodermically, beginning with gr. $\frac{1}{8}$ and gradually increased to gr. $\frac{1}{4}$. This was continued for three weeks, then after three weeks for two weeks more, and again in five weeks for two weeks longer. While in use the pilocarpine was given every day, unless the administration gave rise to nausea, headaches, or oppression over the region of the heart, when it was stopped for one or two days, or perhaps the dose reduced only. After one week an improvement could be seen, at the end of three weeks it was quite evident, and at the termination of fifteen weeks the vision

was $\frac{20}{30}$ Snellen. The posterior synechiæ had been steadily thinning, so that the broad dense bands began to look quite attenuated and web-like. After an interval of eight weeks the pilocarpine was again given ten times with marked benefit. The deposit of lymph seemed to be practically gone in the left eye and much lessened in the right. The vision was R= $\frac{20}{40}$, L= $\frac{20}{30}$. The mercury and potash had been used continuously.

The manner in which this combined form of treatment acted upon the long-standing iritic adhesions, when compared with the inertness of the powerful remedies, mercury and iodide of potash, alone, point to its use as of exceptional value in syphilitic lesions of long duration.

A Case of Fibro-sarcoma of the Sciatic Nerve--Legueu and Marien.

This case was reported and the specimen shown before La Société Anatomique de Paris. The patient, a strong, healthy man, aged 35 came under observation for a tumour in the right buttock, and which had been growing rapidly for three months. His first symptom had been a pain in the buttock, especially when sitting down; he also observed that the leg was easily tired and he felt numbness and tingling throughout the whole limb. He soon noticed the swelling, which had increased with great rapidity. On examination a firm tumour, regular in outline, and about the size of a foetal head, was found in the buttock, evidently under the gluteal muscles, it was freely movable in the transverse, but quite immovable in the vertical direction; there was pain on pressure shooting down the sciatic nerve. A sarcoma of the sciatic nerve, or one pressing upon the nerve, was diagnosed. One incision, 12 to 15 centimetres long, was made over the course of the nerve, and another, 8 to 9 centimetres, at right angles following the gluteal fold. The tumour was encapsulated and intimately associated with the sciatic nerve. On incising the capsule an attempt was made to separate the nerve fibres, but without success, and the nerve was cut above the tumour. It was then found that several nerve filaments spread over the capsule could be dissected out, and these were carefully united to the cut end of the nerve. The muscles and skin were sutured and an iodoform dressing applied. Next day there was paralysis and anæsthesia of the parts supplied by the sciatic nerve. The man made a good recovery. Four months later he could walk with a cane and follow his occupation. Microscopical examination proved the tumour to be a fibro-sarcoma. The result in this case was very satisfactory, for the writers, at the time of the operation, did not expect that the man would so regain the use of his leg as to enable him to follow his employment, and they

did not hope for a regeneration of the nerve before the return of a tumour so malignant.

A Tumour of the Medulla Oblongata---J. E. Graham.

Tumours of the medulla are of the greatest rarity. In the statistics of Guy's Hospital, as given by Fagge, among the brain tumours no mention is made of the medulla. Sokoloff collected seven cases of glioma, and cases have been reported by Osler, Glyn, de Jonger, Brissaud and Charcot, but the case reported by Dr. Graham is in many respects unique, as the tumour was extra-medullary and did not implicate the cerebellum.

The patient, aged 52, had been an active, healthy man, temperate in habits and possessed of a remarkably retentive memory. There was a history of severe attacks of typhoid fever, acute rheumatism and la grippe, but none of syphilis. During the attack of la grippe one day he suddenly fainted and struck the back part of his head against a window-sill. Some months later it was noticed that he was easily tired, became irritable and less able to endure cold than formerly. There was a slight but gradual loss of co-ordination, with a tendency to go to the left side; giddiness was also complained of. A numbness of the left side of the face suddenly appeared, followed by an extension downwards until the whole of the left side was affected, and this was accompanied by a peculiar feeling as if the parts were enlarged. This feeling was at first relieved by going into a cold room or by exposure. There was a slight loss of tactile sensation on the affected side, but the sensation of pain and of temperature were normal. The skin reflexes were normal, but both knee-jerks were slightly increased. No optic neuritis, but the hearing of the left ear not so good as that of the right. Vomiting was often very troublesome. Headache, both occipital and frontal, was present, but the pain in the back of the head was especially severe and extended to the left side of the neck and to the left arm near the elbow.

About ten days before death he took to his bed on account of the dizziness. The vomiting and pain continued and paralysis of the voluntary muscles of the left side increased, but never became complete. For two days before the end he could not swallow food without part of it entering the trachea. He lost his voice and the ability to cough up the free secretion which was caused by the irritation from food entering the trachea. There was severe pain in the left side of the chest and a few râles, followed by rise of temperature and rapid consolidation of both lungs at the back. His mind remained perfectly clear.

An examination of the head was made and nothing found in the

cerebrum, but situated in the pia mater, pressing upon the restiform body, was a tumour 15 mm. long and 5 mm. in its widest part. It was separated from the fourth ventricle by the posterior pyramid, and from the olivary body by a distinct column of fibres. Its upper extremity was on a line with the junction of the lower and middle thirds of the olivary body, and its lower extremity extended nearly one-fourth of an inch below, at a line drawn through the apex of the calamus. The tumour was circumscribed and could be easily detached from the subjacent structures. When raised, a cup-shaped cavity remained, formed by pressure and wasting of the fibres of the restiform body, which was about 4 mm. in depth, and in the longitudinal and transverse diameters the same as the tumour. On microscopical examination the tumour was found to be a round-celled sarcoma, part of which was freely supplied with blood-vessels. The short course of the disease was probably due to the fact that the tumour was of a rapidly growing character, and thus seriously interfered with the circulation in such an important nerve centre.

A Case of Suppurative Cholecystitis, with Rupture of the Gall-Bladder and General Peritonitis, Complicating Typhoid Fever--Henry B. Anderson.

In the August number of this JOURNAL there appeared two interesting articles on septic infection in typhoid fever (p. 104, p. 111). Yet another report, appeared during the month, of a case illustrating the power possessed by the typhoid bacillus to set up suppurative processes in parts distant from that which is usually regarded as the chief seat of the disease.

A man aged 67 entered the Toronto General Hospital with a history of being ill for two months with chills, fever, vomiting, diarrhoea and general abdominal pains. A diagnosis of malaria had been made on several occasions, though the blood was not examined. A blood examination was at once made, both before and after a chill, but no malarial parasites were found; there was a marked leucocytosis, the increase being in the polynuclears. The man was well-developed physically and mentally. Temperature ranged from normal to 102°; pulse soft and of low tension; tongue red, slightly tremulous, with a tendency to dryness; general aspect indicative of great suffering. Abdomen on the right side was full, prominent and tense, on the left side comparatively soft and relaxed. Palpation and percussion produced the most intense pain over the hepatic area in front and behind. On account of the suffering produced, it was impossible to define the area of hepatic dulness. No splenic enlargement discovered. Probable abscess of the liver, secondary to some intestinal lesion, was

diagnosed. There had been no history of gall-stones or jaundice. The intense pain and fulness on the right side continued and a localized swelling made its appearance beneath the ribs opposite the ninth costal cartilage and extended below it. On the fifth day the pain ceased and swelling disappeared and the patient felt great relief, only to be followed by general abdominal pain and tenderness. The pulse and temperature rose, he grew gradually worse, became comatose, and died on the eleventh day after entering the hospital.

The autopsy revealed a general peritonitis, with a considerable amount of brownish-yellow fluid in the cavity. The small intestines were bound together with recent inflammatory adhesions. The solitary glands were swollen and there was ulceration of a few Peyer's patches at the lower end of the ileum, the floors of the ulcers were clean and smooth. The cystic duct was obstructed by a number of small, faceted gall-stones. The mucosa of the gall-bladder presented a number of small ulcerated patches, one of which had ruptured. The spleen weighed 170 grams. Cultures in blood serum and in bouillon were made from the peritoneal fluid and from the interior of the gall-bladder, and pure cultures of the typhoid bacillus were obtained.

Kenneth Cameron.

Reviews and Notices of Books.

Archives of Clinical Skiagraphy. By SYDNEY ROWLAND, B.A., Camb., Late Scholar of Downing College, Cambridge, and Shuter Scholar of St. Bartholomew's Hospital, London; Special Commissioner to "British Medical Journal" for the Investigation of the Applications of the New Photography to Medicine and Surgery. A series of collotype illustrations, with descriptive text, illustrating the applications of the New Photography to Medicine and Surgery.

The object of this publication is to put on record in permanent form some of the most striking applications of the new photography to the needs of Medicine and Surgery, and certainly the illustrations are striking, as for instance that of a child, aged three months, where not only the bones are shown, but definite shadows are thrown by the heart, liver, and intestines. Each plate is described fully, the length of exposure noted, and the special applications of the method pointed out.

A Manual of Obstetrics. By W. A. NEWMAN DORLAND, A.M., M.D., Assistant Demonstrator of Obstetrics in the University of Pennsylvania, Instructor in Gynæcology in the Philadelphia Polyclinic, etc. Philadelphia, W. B. Saunders, 1896.

This is one of Saunders' *New Aid Series of Manuals*, prepared especially for the use of students. It is well got-up and is profusely illustrated, many of the best cuts being taken from the American Text-book of Obstetrics. The arrangement of the subject matter is novel, the book being divided into two parts, the first devoted to physiologic and the second to pathologic obstetrics. The metric system is used for measurements, the English equivalents being given in brackets. Noticeable among the more recent methods of treatment which are described, is Dr. Harris's method of rapid dilatation of the os uteri, illustrated by reproductions of the original photographs. A good feature in the book is the free use of tables of differential diagnosis, most of which are excellent. One of the best sections is that on the pathology of the puerperium, including hæmorrhage and sepsis.

J. C. C.

McGill Obstetric Note-Book. By J. CHALMERS CAMERON, M.D., Professor of Obstetrics and Diseases of Infancy, McGill University, Montreal, E. M. Renouf. 1896.

Much valuable obstetric material goes to waste for want of knowledge of how to record cases, the record of many cases proving of no value from lack of certain details in the report as published.

Prof. Cameron believing that a few cases carefully observed and

accurately reported are more profitable than a larger number carelessly observed, has compiled this note book, which should prove of value, not only to the student, but to the physician as well, affording an opportunity of recording in a brief though accurate and systematic manner cases of obstetrics.

The Note Book consists of blanks for ten case reports, with temperature charts for mother and infant.

Strassmann's outline diagrams for recording the results of external palpation, as used in Berlin, form a valuable addition to the book.

A number of serviceable diagrams and tables unite to enhance its value to the student.

The publisher's work has been thoroughly well performed.

D. J. E.

System of Surgery. Edited by FREDERIC S. DENNIS, M.D., assisted by JOHN S. BILLINGS, M.D., Vol. IV. Tumours—Hernia—Surgery of the Alimentary Canal—Appendicitis—Surgery of the Liver and Biliary passages—Of the Uterus—Of the Ovaries and Tubes—Gynaecological Surgery—Symphysiotomy—Surgery of the Thyroid—Surgical Peculiarities of the Negro—Surgery of the Female Breast—Use of the Roentgen's Rays in Surgery. Lea Brothers & Co., New York and Philadelphia.

This is the last, and in many respects, the best volume of the work which Dr. Dennis has so ably edited. Abdominal surgery in its various departments takes up the major part of the book, and is a department which is always of interest to the surgeon. Besides the chapters on abdominal surgery, other articles are devoted to tumours, the surgery of the thyroid gland, diseases of the female breast, the surgical peculiarities of the negro, and finally, that latest addition to the surgeon's methods of diagnosis, the Roentgen rays.

In writing on tumours, the editor has adopted a new classification which is based mainly on their origin and structural characters. He says that a classification based upon clinical features cannot be utilized with advantage. All tumours are divided into three classes, neoplasmata, cystomata and teratomata. Each class contains several orders and these are again subdivided into genera and species. Only the first class is given in full, the other two, the writer states, being too incomplete for publication. It is a long and cumbersome division, too much so for practical use, and in its incomplete state cannot be very useful to the student or practitioner. The article on Hernia, by William T. Bull, is a most valuable article, covering the subject fully. Bassini's operation is recommended as giving the best results. Perfect primary union is laid down as the most important principle in the success of all operations, cicatricial tissue having a tendency to give way before the pressure from within. Frank Hartley writes on appendicitis and Charles McBurney on the surgical treatment of this disease. The latter pronounces strongly against the

use of cathartics, an enema being used if the lower bowel requires evacuating. If it is decided to operate, he advises careful palpation after the patient has been anæsthetized in order to acquire as much information as possible before opening the abdomen, but he neglects to warn the operator of the danger of bursting an abscess and setting up a general infection of the peritoneum by being too thorough in the examination. The steps of the operation are clearly outlined, and the treatment given of such complications as are likely to be met with.

In writing on the surgical diseases of the ovaries and tubes, J. T. Johnson says that "extra-uterine or normal pregnancy would not exist before puberty or after the menopause," which statement, in view of the reported cases, is misleading. He strongly advises against exploratory puncture as a means of diagnosis on account of the danger of the procedure, incision being both safer and more satisfactory, but the exploration must not be carried too far. He repeats the aphorism "One's mortality in abdominal surgery is governed more by what he puts into the peritoneal cavity than by what he takes out of it." In suturing the wound the principal point is to bring like tissues to like, and it is immaterial whether this is done by one or three rows of sutures. He advises the wearing of a belt for a year after operation.

There are several printer's errors which ought to have been corrected but on the whole the work has been done excellently and we have been given a most useful book.

R. C. K.

Practical Points in Nursing for Nurses in Private Practice.

By EMILY A. M. STONEY, Graduate of the Training School for Nurses, Lawrence, Mass. : Superintendent of Training School for Nurses, Carney Hospital, South Boston, Mass. Pp. 456. Philadelphia : W. B. Saunders.

This book is especially intended for the use of nurses in private as distinguished from hospital practice. The first chapter on "The Nurse" contains many useful hints about conduct in the sick room. The next chapter is on the sick-room, and tells how to choose and arrange one, while the third chapter deals with the patient, special sections being devoted to the nursing of obstetric and gynecological cases.

Emergencies, both medical and surgical, come in for their share of notice, as also the care of children.

In the appendix are given rules and recipes for feeding the sick, a table of weights and measures, a table for computing the date of confinement, and a dose-list, the book being brought to a close by a glossary.

The book will be useful to both teachers and nurses, for it contains many useful hints how to make the best of what can be found in the house. Many a good nurse is quite lost when she gets into private work for want of the appliances to which she has been accustomed in the hospital.

R. C. K.

The American Academy of Railway Surgeons. Report of second annual meeting, held at Chicago, Sept. 25th to 27th, 1895. Edited by R. Harvey Reed, M.D., Columbus Ohio.

This contains some interesting papers, especially to railway surgeons. John E. Owens writes on "What should exclude applicants from railway service" a short concise paper in which the main points are taken up, colour blindness being especially dwelt upon. W. H. Buechner describes a new amputation at the knee-joint, which has been designed by Sabanejeff, of Odessa, and which is arranged so that the point of pressure is on the thickened skin over the tuberosity of the tibia. In the discussion following this paper many objections were raised to this operation, which indeed was received with very little favour. "The transportation of injured employees" is the title of a paper by Frank H. Caldwell and contains a description of the Plant hospital car, which is arranged for the treatment and transportation of patients suffering from serious injuries.

Such are a few of the papers contained in this book of transactions of a meeting which must have been most profitable and enjoyable to those taking part in it.

R. C. K.

Minor Surgery and Bandaging. Including the treatment of fractures and dislocations, the ligation of arteries, amputations, excisions and resections, operations upon nerves and tendons, tracheotomy, intubation of the larynx, &c.. By Henry R. Wharton, M.D., Demonstrator of surgery in the University of Pennsylvania, Surgeon to the Presbyterian Hospital, &c. Third edition, pp. 597. Lea Brothers & Co., Philadelphia and New York.

This book is so well and so favourably known that any criticism seems unnecessary. In the present edition the work has been so much extended that it is almost a misnomer to call it "Minor Surgery." The principal operations are all given, as amputations, excisions, ligation of arteries, &c.. but we fear that the descriptions of these operations are too short to be of much use to the student and therefore it would have been better to have kept the book within its previous limits. However, this in no way detracts from the value of the work as a treatise on minor surgery, a part which it most thoroughly performs.

R. C. K.

The Pharmacopœia of the Montreal Dispensary. 1896.

Although the dispensary was founded in 1843, this is the first time that the prescriptions in common-use there have been published. The "Pharmacopœia" is divided into departments corresponding to the various clinics, and the prescriptions are grouped under these headings so that reference is easy. It is a handy little book and contains many excellent combinations.

Pharmaceutical Items, and New Appliances.

It is intended under this column to take notice of and criticize new instruments or surgical appliances, pharmaceutical novelties, and such proprietary remedial preparations as conform to the irrefragable law of our profession, and make no secret of their composition.

Apenta Water.—For some months past we have made trials of an Hungarian aperient mineral water recently introduced by the Appollinaris Company under the name of Apenta. It comes to us from Uj Hunyadi Springs near Buda Pest in Hungary. Careful chemical analysis shows that it contains a very large percentage of both the magnesium and sodium sulphates, and is distinctly alkaline, after the dissolved carbonic acid has been driven off by heat. *The Lancet* (Mar. 28th, 1896) says of it: "Its composition in regard to its saline and active constituents, as far as we have examined samples obtained at different times and different places is constant, a point of some importance, since the practitioner is thus enabled to prescribe definite quantities for definite results." The mean composition in grammes per litre according to the analysis of the *Lancet* was found to be as follows: magnesium sulphate 23.40; sodium sulphate 16.32; sodium chloride 1.81; calcium carbonate 0.90; and calcium sulphate a trace. The spring has been placed under the control of the Royal Hungarian Chemical Institute, which ensures by State guarantee the constancy of its composition. Its taste is bitter, but not so disagreeable as it would be if the sodium sulphate were in excess. Natural mineral waters as a class are undoubtedly more effectual than artificially made waters which approximate to them in composition, and we have no doubt that Apenta will approve itself as one of our best natural aperient waters. It has already been considerably employed in this city and has given satisfaction.

Listerine.—This well known disinfectant is strongly recommended by many physicians, not only for external use, but also as an effectual, and not unpleasant internal antiseptic. In the States many physicians have employed it with success in the summer diarrhoea of infancy.

The Irvin half minute Clinical Thermometer.—We have seen this instrument and tested it. It has proved itself very sensitive and reliable.

Radnor Water.—This Canadian water is establishing for itself a reputation both through the States and in England as an excellent table water, free from all organic impurities. We are in receipt of a letter from a physician who has used it as a diuretic in nephritis, with satisfactory results.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, June 26th, 1896.

A. D. BLACKADER, M.D., PRESIDENT, IN THE CHAIR.

Dr. Florence's Reaction for Seminal Stains.

Dr. D. D. McTAGGART read for Dr. Wyatt Johnston a description of this method and demonstrated its efficacy. (See page 398.)

Discussion on the Etiology and Treatment of the Summer Diarrhoeas in Children.

The PRESIDENT opened the discussion with a brief *résumé* of the facts known in connection with the etiology of the disease. He briefly referred to the potent influence which the season holds over this class of disorders. Earlier investigators were inclined to attribute the great increase in the frequency with which it occurred, and in the fatality of the disease, to the prostrating influence of the summer heat on the nervous system of the infant. Although, possibly, one of the minor factors in its production, carefully kept statistics showed that there was no close connection between the degree of heat, as evidenced by the thermometer, and the amount, or even the fatality, of the disease, but it was noted that an average daily temperature of 60°F. is necessary before the disease assumes an epidemic form, and only when the minimum temperature for the day remains higher than this does the disease become very prevalent and severe.

A brief sketch was then given of the history of our knowledge of the relation between bacteria present in milk used as infant's food, and diarrhoeal disease, from which the irresistible inference was drawn that summer diarrhoea in the infant should be regarded not so much as a distinct disease *sui generis*, but rather as an intoxication or a poisoning, in which the symptoms vary according to the predominance in the affected milk or food of one or other form of pathogenic microorganisms. Under normal conditions in the healthy infant, the acidity of the stomach affords the only protection, although an imperfect one, against the entrance of living bacteria into the intestinal canal. Any conditions, therefore, lowering the tone of the stomach, or interfering with rapid and complete digestion; open wide the portals and remove the barrier which, at the best, is not an absolute one, against the

entrance of micro-organisms. While at the same time any food imperfectly digested owing, either to its having been supplied in too great quantity, or to its having been itself of an indigestible character, affords an excellent soil for their growth and development.

The results produced by the introduction of numerous forms of bacteria into the alimentary tract of an infant will vary

(1) According to their nature.—Experiments and clinical evidence show that some forms are much more toxic, owing to the character of the proteids eliminated by them, than are others.

(2) According to their numbers.—Undoubtedly an infant with healthy digestion and powers of rapidly absorbing its food may withstand the action of a considerable number of the less virulent species.

(3) According to the vulnerability of the tissues of an infant.—Infants under conditions of imperfect hygiene and delicate infants, have little resisting power and succumb easily. The comparative invulnerability of infants over two years is well marked and difficult to explain perfectly.

Just what forms are connected with special symptoms, or whether the bacteria normally found in the intestinal canal exert, under abnormal conditions, a deleterious or favourable influence, we are unable yet to say.

Regarding summer diarrhoea, therefore, as a form of intoxication and considering how imperfect our knowledge yet is of the exact action of even the principal forms of bacteria met with, it is not to be wondered at, that any exact classification of the summer diarrhoeas encountered in practice is for the present impossible. A classification founded on symptoms as a basis, was long ago discarded as insufficient and misleading. Attempts have been made to classify according to the various pathological lesions found after death, but this also has been found unsatisfactory. Cases running an acute course will show only slight pathological changes; in cases lasting from seven to ten days the lesions are more marked, but extend only to the superficial tissues; while in the more protracted cases we generally find that the deeper tissues have been involved, and that ulceration of some of the glandular structures has taken place.

Writing on this subject Vaughan says that it would be as unscientific to attempt a classification founded upon the pathological anatomy, as it would be to designate acute, sub-acute and chronic arsenical poisoning as desquamative, catarrhal and ulcerative gastro-enteritis.

Occasionally it would appear that we have to deal not only with an intoxication, the result of toxins, elaborated by micro-organisms in the intestine, but also with a distinct systemic infection. Czerny

and Moser detail the histories of some cases of gastro-enteritis in infants, in whom the presence of several forms of micro-organisms was revealed by a bacteriological examination of the blood. Before our own Society also, a paper has been recently read describing cases of systemic infection by the bacillus pyocyaneus.

The following provisional classification suggested by a Committee of the American Pædiatric Society goes probably as far as our present knowledge will permit, and may prove of service to us in arranging our thoughts during the discussion. It pre-supposes that an elevated temperature of short duration points as a rule towards functional and toxic disturbances, but if long continued, indicates inflammatory lesions.

Classification of the Summer Diarrhœa of Infancy, including all forms not pseudo-membranous or due to the presence of the amœba coli

1. FUNCTIONAL.	{	Nervous.—Exaggeration of peristalsis from depression of nerve centres by heat, sudden chill, fright, &c.	
		Irritation.—From reflex irritation due to the presence of some irritant, such as undigested and fermenting food in canal.	
		Eliminative or Toxic.—Due to the presence and elimination of some poison or toxine.	
2. ORGANIC.	{	Non-inflammatory.	{ Fermentive.—May be acid or albuminous; small intestine most affected. Mucous membrane generally in a state of desquamative catarrh which may be followed by inflammatory changes noted below.
			{ Toxic or Choleraic.—Due to presence and elimination of poisonous toxine. Small and large intestine affected. Mucous membrane in condition of desquamative catarrh.
	{	Inflammatory.	{ Catarrhal.—Includes the non-ulcerative form of follicular inflammation. Ileum and colon chiefly affected. Stomach frequently involved.
			{ Ulcerative.—Chiefly a follicular ulceration. Ileum and colon chiefly affected. Stomach not apt to be involved.

Either of the inflammatory varieties may occur as an acute primary disease or secondary to one of the previous forms, or as a sequence of one of the general infectious diseases.

Dr. D. J. EVANS described the mechanical treatment. (See page 296.)

Dr. F. R. ENGLAND read a paper on the dietetic treatment. (See page 292.)

Dr. G. GORDON CAMPBELL discussed the medicinal treatment, dividing the drugs used into two classes, those acting directly on the cause, and those of use to combat distressing symptoms.

In the first class were purgatives and bactericidal agents. Of purgatives, castor oil and calomel, in the speaker's opinion, were the most satisfactory, and a full dose of either one should be given at the outset of the attack to remove any irritating matter present in the alimentary canal. Calomel had the added value of being a very fair antiseptic, and when given in small oft-repeated doses, of not occasioning excessive purgation. In many cases no further treatment was required; where, however, the diarrhœa persisted, antiseptics could be given by the mouth in the hope of preventing the fermentative changes believed to be the cause of the disease. Of antiseptics, the great difficulty was to find one sufficiently powerful to arrest the development of the micro-organisms present in the intestine, and yet not irritate the mucous membrane of the stomach sufficiently to cause its immediate expulsion, or do permanent harm. These conditions were filled by no single bactericidal agent, and hence the number of drugs recommended was very large. Among those referred to were carbolic acid, salol, salicylate of bismuth, quinine, and resorcin, and the latter possessed the advantages of being soluble, pleasant to the taste, effectual and non-irritant, as much as three grains every three hours being permissible for a child one month old.

Of the second class, Dr. Campbell thought that bismuth in large doses was of undoubted service. Its action was difficult to classify, but was probably sedative and mildly antiseptic. On the use of opium, there was much difference of opinion, but he felt that, although checking the frequency of the evacuations was not curing the disease, in many cases it was absolutely necessary to allay the griping pain, tenesmus and watery discharge which were sapping the child's strength, and no drug could compare with opium in this respect. That, if possible, one must secure rest and freedom from pain for a few hours to enable the child to recover its strength. Hence in many cases its use was indispensable.

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THE MONTREAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

Since our last issue preparations have rapidly advanced for the meeting next August. The Executive Committee and various Sub-Committees, Reception, Excursions, Museum, Printing and Publishing, Soirée, Local Entertainments, General Purposes, Finance, &c., have been appointed and are at work. Already it has been brought home to everyone connected with the Association that there is abundance to be done, and that ten months is by no means too long a time in which to do it. In our next issue we hope to publish, not only a full list of the Local Executive and the various officers appointed to do the local work, but also a list of the various Sections determined upon, and of the officers, British and Canadian, appointed by the Council of the Association in the old country to conduct the various sections. In the meantime, information as to matters in connection with the meeting will be gladly supplied by the Honorary Local Secretaries, who are three in number: Dr. J. Anderson Springle, who is mainly charged with conducting Canadian and American correspondence; Dr. J. G. Adami, who will conduct all the correspondence with England and the Home authorities, and Dr. E. P. Benoit to whom is assigned all French and French-Canadian correspondence.

It may be well to point out clearly here that only those who are members of the Association, or who are specially invited guests of the Association, are allowed to take part in the meeting and to join in the discussions in the various sections. Membership in the Association, not only gives this right of attending the meetings of the Branch and the annual gatherings of members of all the Branches, but it includes a weekly delivery of the *British Medical Journal*, to the member. The annual subscription is \$5.50. To those who wish to become

members, we would suggest correspondence with the Honorary Local Secretaries, or more correctly, with Dr. J. A. Springle, who is also Secretary of the Local Branch in Montreal, or again with the Secretary of one of the Canadian Branches at Halifax, Vancouver and Winnipeg. Here it may be added that membership can in general be obtained by application endorsed by three medical men who are already members of the Association. Two of those endorsing the application must certify to fitness from personal knowledge. Blank forms for this purpose can be obtained from the Secretaries above-mentioned, and they would strongly suggest that those wishing to be present at the meeting next August, send in their applications within the next week or two, so that they may begin to receive the *Journal* with the beginning of the year.¹

It may further be noted that so soon as a sufficient number of members from any district, town or city, have joined one of the existing branches, it is competent for them to apply to the Council of the Parent Association, to be constituted into a distinct and separate branch of the Association.

In making their arrangements for this meeting, the Local Executive find themselves confronted by a recent ruling of the Parent Association that none but British subjects can be accepted as members of the British Association. It had been hoped by many in Montreal that the meeting would be thrown open freely to practitioners from across the line, and very possibly in any other year, the ruling would have been amended. In 1897, however, there occurs also the International Medical gathering at Moscow, and all those connected with the government of the Association feel that it would be a grave mistake, politically and otherwise, for the Montreal branch to even seem to be attempting to conduct a rival International Meeting. So as not to create offence, the Montreal meeting must be British and not Pan-Anglican. It has however, been the custom at the meetings of the association held on the other side of the Atlantic, to invite sundry guests, and acting on this precedent, the local branch will issue definite invitations to several of the leading members of the profession in the United States. The executive feels that hereby it may be placed in a somewhat invidious position, and that, however carefully guests are selected, there will still be those who resent the absence of an invitation. It is needless to say that the very greatest care will be taken to create the minimum of offence.

¹ We print as a separate editorial a notice received from the General Secretary of the Association.

We are glad to announce that the Government of the Dominion has generously offered \$5,000 towards defraying the expenses of the meeting of the British Medical Association in Montreal.

A suite of offices, very centrally situated at 2204 St. Catherine St., opposite the English Cathedral, has been taken for the business of the Association, and all letters for the local Secretaries should be addressed thither.

BRITISH MEDICAL ASSOCIATION.

ELECTION OF MEMBERS.

Any qualified medical practitioner, not disqualified by any by-law of the Association, who shall be recommended as eligible by any three members, may be elected a member by the council or by any recognized branch council.

Candidates seeking election by a branch council should apply to the secretary of the branch. No members can be elected by a branch council unless their names have been inserted in the circular summoning the meeting at which they seek election.

FRANCIS FOWKE,

General Secretary.

LISTER AND ANTISEPSIS.

The most able address, delivered before the Canadian Medical Association by Dr. John Stewart, of Halifax, and published in the last number of the JOURNAL, forms a peculiarly opportune introduction to a portion at the least of Sir Joseph Lister's presidential address to the British Association at Liverpool in September. That "powerful and able account of the great discoveries which in the last half century have wholly changed our knowledge and our practice," aroused keen interest throughout Great Britain and, we may add, throughout this continent, and formed the texts for innumerable appreciative references in the daily press to medical men and medical advance; for it brought home to the popular understanding the progress in diagnosis and in treatment that has resulted from the active utilisation of scientific methods in the study of disease.

To us the occasion was of singular importance, in that now for the first time Sir Joseph Lister gave to the world an account of the steps by which he was led to develop that method of wound treatment which, together with the employment of anæsthetics, form the brightest and most enduring landmarks of nineteenth century surgery, a method which has assured to him a reputation co-equal with that

of the greatest and most honoured of the fathers of medical science. Yet so brief and so modest, so impersonal, was Lister in the utterance of his own story, so wholly absent was the desire to magnify himself and the importance of his achievements that Dr. Stewart's address, detailing as it does, with all the love of an old pupil, the careful and laborious investigation, extending over long years, which prepared the way for Lister's great contribution to surgical practice, is a most useful adjunct to the story as told by the master—a kindly corrective to the self-depreciation which marks the master's utterance. To read Lister's own account, the evolution of antiseptic and aseptic surgery would appear the simplest, the most natural matter possible, depending only upon his having heard fortuitously, that carbolic acid—at that time a chemical curiosity—had a remarkable deodorising effect upon sewage. Not a word is said about his long-continued researches into the nature of the inflammatory process and the insight into the meaning and causation of suppuration, which he possessed in consequence; no indication is given that he was, to all intents and purposes, the first in our profession to recognise the untold value of Pasteur's early studies upon fermentation, the first to grasp and to confirm the idea thrown out by Pasteur that putrefaction is a form of fermentation, and that thus the local putrefaction of a wound is due to micro-organisms.

Incomplete though it is, Lister's recital of his achievements possesses a rare charm, and in these days of abundant self-advertisement is peculiarly refreshing. For this reason, and again from its special interest, we feel that we cannot do better than print it *in extenso*.

After discussing anæsthesia and Pasteur's researches upon fermentation and spontaneous generation, Sir Joseph continued :

"Pasteur's labours on fermentation have had a very important influence upon surgery. I have been often asked to speak on my share in this matter before a public audience; but I have hitherto refused to do so, partly because the details are so entirely technical, but chiefly because I have felt an invincible repugnance to what might seem to savour of self-advertisement. The latter objection now no longer exists, since advancing years have indicated that it is right for me to leave to younger men the practice of my dearly loved profession. And it will perhaps be expected that, if I can make myself intelligible, I should say something upon the subject on the present occasion

"Nothing was formerly more striking in surgical experience than the difference in the behaviour of injuries according to whether the

skin was implicated or not. Thus, if the bones of the leg were broken and the skin remained intact, the surgeon applied the necessary apparatus without any other anxiety than that of maintaining a good position of the fragments, although the internal injury to bones and soft parts might be very severe. If, on the other hand, a wound of the skin was present communicating with the broken bones, although the damage might be in other respects comparatively slight, the compound fracture, as it was termed, was one of the most dangerous accidents that could happen. Mr. Syme, who was, I believe, the safest surgeon of his time, once told me that he was inclined to think that it would be, on the whole, better if all compound fractures of the leg, were subjected to amputation, without any attempt to save the limb. What was the cause of this astonishing difference? It was clearly in some way due to the exposure of the injured parts to the external world. One obvious effect of such exposure was indicated by the odour of the discharge, which showed that the blood in the wound had undergone putrefactive change by which the bland nutrient liquid, had been converted into highly irritating and poisonous substances. I have seen a man with compound fracture of the leg die within two days of the accident, as plainly poisoned by the products of putrefaction as if he had taken a fatal dose of some potent toxic drug.

“An external wound of the soft parts might be healed in one of two ways. If its surfaces were clean cut, and could be brought into accurate apposition, it might unite rapidly and painlessly “by the first intention.” This, however, was exceptional. Too often the surgeon’s effort to obtain primary union was frustrated; the wound inflamed, and the retentive stitches had to be removed, allowing it to gape; and then, as if it had been left open from the first, healing had to be effected in the other way which it is necessary for me briefly to describe. An exposed raw surface became covered in the first instance with a layer of clotted blood or certain of its constituents, which invariably putrefied; and the irritation of the sensitive tissues by the putrid products appeared to me to account sufficiently for the inflammation which always occurred in and around an open wound during the three or four days which elapsed before what were termed “granulations” had been produced. These constituted a coarsely granular coating of very imperfect or embryonic structure, destitute of sensory nerves and prone to throw off matter or pus, rather than absorb, as freely divided tissues do, the products of putrefactions. The granulations thus formed a beautiful living plaster, which protected the sensitive parts beneath from irritation, and the

system generally from poisoning and consequent febrile disturbance. The granulations had other useful properties, of which I may mention their tendency to shrink as they grew, thus gradually reducing the dimensions of the sore. Meanwhile, another cause of its diminution was in operation. The cells of the epidermis or scarf-skin of the cutaneous margins were perpetually producing a crop of young cells of similar nature, which gradually spread over the granulations till they covered them entirely, and a complete cicatrix or scar was the result. Such was the other mode of healing, that by granulation and cicatrization; a process which, when it proceeded unchecked to its completion, commanded our profound admiration. It was, however, essentially tedious compared with primary union, while, as we have seen, it was always preceded by more or less inflammation and fever, sometimes very serious in their effects. It was also liable to unforeseen interruptions. The sore might become larger instead of smaller, cicatrization giving place to ulceration in one of its various forms, or even to the frightful destruction of tissue which, from the circumstance that it was most frequently met with in hospitals, was termed hospital gangrene. Other serious and often fatal complications might arise, which the surgeon could only regard as untoward accidents, and over which he had no efficient control.

“It will be readily understood, from the above description that the inflammation which so often frustrated the surgeon’s endeavours after primary union was in my opinion essentially due to decomposition of blood within the wound.

“These and many other considerations had long impressed me with the greatness of the evil of putrefaction in surgery. I had done my best to mitigate it by scrupulous ordinary cleanliness and the use of various deodorant lotions. But to prevent it altogether appeared hopeless while we believed with Liebig that its primary cause was the atmospheric oxygen which, in accordance with the researches of Graham, could not fail to be perpetually diffused through the porous dressings which were used to absorb the blood discharged from the wound. But when Pasteur had shown that putrefaction was a fermentation caused by the growth of microbes, and that these could not arise *de novo* in the decomposable substance, the problem assumed a more hopeful aspect. If the wound could be treated with some substance which, without doing too serious mischief to the human tissues, would kill the microbes already contained in it, and prevent the future access of others in the living state, putrefaction might be prevented, however freely the air with its oxygen might enter. I had heard of carbolic acid as having a remarkable deodorising effect upon

sewage, and having obtained from my colleague, Dr. Anderson, Professor of Chemistry in the University of Glasgow, a sample which he had of this product, then little more than a chemical curiosity in Scotland, I determined to try it in compound fractures. Applying it undiluted to the wound, with an arrangement for its occasional renewal, I had the joy of seeing these formidable injuries follow the same safe and tranquil course as simple fractures, in which the skin remains unbroken.

“At the same time we had the intense interest of observing in open wounds what had previously been hidden from human view, the manner in which subcutaneous injuries are repaired. Of special interest was the process by which portions of tissue killed by the violence of the accident were disposed of, as contrasted with what had till then been invariably witnessed. Dead parts had been always seen to be gradually separated from the living by an inflammatory process and thrown off as sloughs. But when protected by the antiseptic dressing from becoming putrid and therefore irritating, a structure deprived of its life caused no disturbance in its vicinity, and, on the contrary, being of a nutritious nature, it served as pabulum for the growing elements of the neighbouring living structures, and these became in due time entirely substituted for it. Even dead bone was seen to be thus replaced by living osseous tissue.

“This suggested the idea of using threads of dead animal tissue for tying blood vessels; and this was realised by means of catgut, which is made from the intestines of the sheep. If deprived of living microbes, and otherwise properly prepared, catgut answers its purpose completely, the knot holding securely, while the ligature around the vessel becomes gradually absorbed and replaced by a ring of living tissue. The threads, instead of being left long as before, could now be cut short, and the tedious process of separation of the ligature, with its attendant serious danger of bleeding, was avoided.

“Undiluted carbolic acid is a powerful caustic, and, although it might be employed in compound fracture where some loss of tissue was of little moment in comparison with the tremendous danger to be averted, it was altogether unsuitable for wounds made by the surgeon. It soon appeared, however, that the acid would answer the purpose aimed at, though used in diluted forms devoid of caustic action, and therefore applicable to operative surgery. According to our then existing knowledge, two essential points had to be aimed at—to conduct the operation so that on its completion the wound should contain no living microbes, and to apply a dressing capable of preventing the access of other living organisms till the time should have arrived for changing it.

“Carbolic acid lent itself well to both these objects. Our experience with this agent brought out what was, I believe, a new principle in pharmacology—namely, that the energy of action of any substance upon the human tissues depends not only upon the proportion in which it is contained in the material used as a vehicle for its administration, but also upon the degree of tenacity with which it is held by its solvent. Water dissolves carbolic acid sparingly and holds it extremely lightly, leaving it free to act energetically on other things for which it has greater affinity, while various organic substances absorb it greedily and hold it tenaciously. Hence its watery solution seemed admirably suited for a detergent lotion to be used during the operation for destroying any microbes that might fall upon the wound, and for purifying the surrounding skin and also the surgeon’s hands and instruments. For the last named purpose it had the further advantage that it did not act on steel.

“For an external dressing the watery solution was not adapted, as it soon lost the acid it contained, and was irritating while it lasted. For this purpose some organic substances were found to answer well. Large proportions of the acid could be blended with them in so bland a form as to be unirritating; and such mixtures, while perpetually giving off enough of the volatile salt to prevent organic development in the discharges that flowed past them, served as a reliable store of the antiseptic for days together.

“The appliances which I first used for carrying out the antiseptic principle were both rude and needlessly complicated. The years that have since passed have witnessed great improvement in both respects. Of the various materials which have been employed by myself and others and their modes of application I need say nothing, except to express my belief, as a matter of long experience, that carbolic acid, by virtue of its powerful affinity for the epidermis and oily matters associated with it, and also its great penetrating power, is still the best agent at our disposal for purifying the skin around the wound. But I must say a few words regarding a most important simplification of our procedure. Pasteur, as we have seen, had shown that the air of every inhabited room teems with microbes; and for a long time I employed various more or less elaborate precautions against the living atmospheric dust, not doubting that, as all wounds except the few which healed completely by the first intention underwent putrefactive fermentation, the blood must be a peculiarly favourable soil for the growth of putrefactive microbes. But I afterwards learned that such was not the case. I had performed many experiments in confirmation of Pasteur’s germ theory—not, indeed, in

order to satisfy myself of its truth, but in the hope of convincing others. I had observed that uncontaminated milk, which would remain unaltered for an indefinite time if protected from dust, was made to teem with microbes of different kinds by a very brief exposure to the atmosphere, and that the same effect was produced by the addition of a drop of ordinary water. But when I came to experiment with blood drawn with antiseptic precautions into sterilised vessels, I saw to my surprise that it might remain free from microbes in spite of similar access of air or treatment with water. I even found that if very putrid blood was largely diluted with sterilised water, so as to diffuse its microbes widely and wash them of their acrid products, a drop of such dilution added to pure blood might leave it unchanged for days at the temperature of the body, although a trace of the septic liquid undiluted caused intense putrefaction within twenty-four hours. Hence I was led to conclude that it was the grosser forms of septic mischief, rather than microbes in the attenuated condition in which they existed in the atmosphere, that we had to dread in surgical practice. And at the London Medical Congress in 1881, I hinted, when describing the experiments I have alluded to, that it might turn out possible to disregard altogether the atmospheric dust. But greatly as I should have rejoiced at such a simplification of our procedure, if possible, I did not then venture to test it in practice. I knew that with the safeguards which we then employed I could ensure the safety of my patients, and I did not dare to imperil it by relaxing them. There is one golden rule for all experiments upon our fellow men. Let the thing tried be that which, according to our best judgment, is the most likely to promote the welfare of the patient. In other words, Do as you would be done by.

“Nine years later, however, at the Berlin Congress in 1890, I was able to bring forward what was, I believe, absolute demonstration of the harmlessness of the atmospheric dust in surgical operations. This conclusion has been justified by subsequent experience; the irritation of the wound by antiseptic irrigation and washing may therefore now be avoided, and Nature left quite undisturbed to carry out her best methods of repair, while the surgeon may conduct his operations as simply as in former days, provided always that, deeply impressed with the tremendous importance of his object, and inspiring the same conviction in all his assistants, he vigilantly maintains from first to last, with a care that, once learnt, becomes instinctive, but for the want of which nothing else can compensate, the use of the simple means which will suffice to exclude from the wound the coarser forms of septic impurity.

“Even our earlier and ruder methods of carrying out the antiseptic principle soon produced a wonderful change in my surgical wards in the Glasgow Royal Infirmary, which, from being some of the most unhealthy in the kingdom, became, as I believe I may say without exaggeration, the healthiest in the world; while other wards, separated from mine only by a passage a few feet broad, where former modes of treatment were for a while continued, retained their former insalubrity. This result I need hardly remark, was not in any degree due to special skill on my part, but simply to the strenuous endeavour to carry out strictly what seemed to me a principle of supreme importance.

“Equally striking changes were afterwards witnessed in other institutions. Of these I may give one example. In the great Allgemeines Krankenhaus of Munich, hospital gangrene became more and more rife from year to year, till at length the frightful condition was reached that 80 per cent. of all wounds became affected by it. It is only just to the memory of Professor von Nussbaum, then the head of that establishment, to say that he had done his utmost to check this frightful scourge; and that the evil was not caused by anything peculiar in his management was shown by the fact that in a private hospital under his care there was no unusual unhealthiness. The larger institution seemed to have become hopelessly infected, and the city authorities were contemplating its demolition and reconstruction. Under these circumstances, Professor von Nussbaum despatched his chief assistant, Dr. Lindpaintner, to Edinburgh, where I at that time occupied the chair of clinical surgery, to learn the details of the antiseptic system as we then practised it. He remained until he had entirely mastered them, and after his return all the cases were on a certain day dressed on our plan. From that day forward not a single case of hospital gangrene occurred in the Krankenhaus. The fearful disease pyæmia likewise disappeared, and erysipelas soon followed its example.

“But it was by no means only in removing the unhealthiness of hospitals that the antiseptic system showed its benefits. Inflammation being suppressed, with the attendant fever, pain, and wasting discharge, the sufferings of the patient were, of course, immensely lessened; rapid primary union being now the rule, convalescence was correspondingly curtailed; while as regards safety and the essential nature of the mode of repair, it became a matter of indifference whether the wound had clean cut surfaces which could be closely approximated or whether the injury inflicted had been such as to cause destruction of tissue. And operations which had been regarded

from time immemorial as unjustifiable were adopted with complete safety.

"It pleases me to think that there is an ever-increasing number of practitioners throughout the world to whom this will not appear the language of exaggeration. There are cases in which, from the situation of the part concerned or other unusual circumstances, it is impossible to carry out the antiseptic system completely. These, however, are quite exceptional; and even in them much has been done to mitigate the evil which cannot be altogether avoided.

"I ask your indulgence if I have seemed to dwell too long upon matters in which I have been personally concerned. I now gladly return to the labours of others."

MCGILL UNIVERSITY MEDICAL LIBRARY.

We have received from the Librarian the following report, which we are glad to print, showing, as it does, that both in the number of those making use of the collection and of those contributing additional volumes the library has made marked advance during the past year.

The donations to the library during the past year include a valuable addition to the Obstetrical and Gynæcological Department from Dr. J. C. Cameron, comprising sets of rare and valuable journals.

The library is indebted to Dr. F. J. Shepherd for the gift of a very interesting collection of old letters from celebrated physicians, as well as some old Montreal Medical Tariffs, and to the editors of the MONTREAL MEDICAL JOURNAL for numerous unbound medical periodicals, etc.

The libraries of the Surgeon-General's Office, U.S. Army, Boston Medical Library, Ontario Medical Library, have been most generous in their contributions. To the College of Physicians of Philadelphia, St. Bartholomew's Hospital, Middlesex Hospital, Association of American Physicians, Johns Hopkins Hospital, Rhode Island Medical Society, Association of American Physicians, Medical Association of Central New York, St Thomas's Hospital, Geological Survey of Canada, and the Provincial Board of Health, the library is also indebted for contributions.

The library is indebted to the following authors for copies of their works:

- Dr. G. E. de Schweinitz—Diseases of the Eye.
- Dr. G. M. Gould—Borderland Studies.
- Dr. S. G. Hubbard—Biographical Sketch of the late Prof. Henry Bronson.
- Prof. Wesley Mills—The Dog in Health and Disease.
- Dr. W. Osler—Practice of Medicine.
- Dr. L. C. Webster—Female Pelvic Anatomy: Tubo-peritoneal Ectopic Gestation.

It has also received the following, for which it is much indebted to the contributors:

Dr. J. C. Cameron—Lectures on Obstetric Operations, by Robert Barnes, M.D.; Science and Art of Midwifery, by William Thompson, M.D.; Antiseptics in Obstetric Nursing, by John Shaw, M.D.; Lectures on Obstetric Nursing, by Theophilus Parvin, M.D.; First Lines in Midwifery, by G. Ernest Herman, M.B., F.R.C.P.; Handbook of Obstetric Nursing, by Francis W. N. Haultain, M.D., F.R.C.P. Ed., and J. Haig Ferguson, M.B., F.R.C.P. Ed.; *Traité du Palper Abdominal*, by A. Pinard, M.D.; English edition of the same, translated by L. Neale, M.D.; Manual of Midwifery, by Alfred Meadows, M.D., F.R.C.P.; American Text-book of Obstetrics; *Lehrbuch der Hebammenkunst*; *Grundriss der Gynäkologischen Operationen*, von M. Hofmeier; *Münchener Medicinische Wochenschrift*: Theses for 1886; ten volumes of the British Gynaecological Journal; twenty-two volumes of the American Journal of Obstetrics; three volumes of the London Obstetrical Journal; Complete set of the *Répertoire Universel d'Obstétrique et de Gynécologie*; three sets of the earlier numbers of the Montreal Medical Journal.

Dr. F. J. Shepherd—Medical Hand-book of Life Assurance, by James Edward Pollock, M.D., F.R.C.P.; New York Medical Record; Journal of the American Public Health Assoc.; Maritime Medical News; Canadian Practitioner; Cutaneous and Genito-Urinary Diseases; Canada Medical Record; *La Tribune Médicale*; University Medical Magazine; a large collection of pamphlets.

Dr. A. D. Blackader—Text-book of Practical Therapeutics, by Hobart Amory Hare, M.D., B.Sc.; Archives of Pediatrics; Transaction of Pediatrics; International Medical Magazine; four volumes of New York Medical Record; Pamphlets.

Dr. R. C. Kirkpatrick—Chronic Diseases of the Organs of Respiration, by John Meyhoffer, M.D.; Report of the Montreal Training School for Nurses; Life of Hayes Agnew, M.D., LL.D., by J. Howe Adams, M.D.; Treatise on Ulcers, by Benjamin Bell, M.D.; Mineral Springs and Health Resorts of California, by Winslow Anderson, M.D.; Observations on Certain Parts of Animal Economy, by John Hunter, F.R.S.; Annals of Surgery; Commentaries upon the Aphorisms of Dr. H. Boerhaave; Pamphlets.

Miss Flora McKay—Three volumes of the Cyclopaedia of the Practice of Medicine, by John Forbes; Description of the Jail Distemper as it appeared among the Spanish Prisoners, by James C. Smyth; Practice of Medicine, by John Galt, M.D.

Dr. J. G. Adami—Consumption: its Nature, Causes and Prevention, by E. Playter, M.D.; Introduction to the Osteology of the Mammalia, by William Henry Flower, F.R.S., F.R.C.S.; Elements of Embryology; A Course of Elementary Instruction in Practical Biology, by T. H. Huxley, LL.D.; Annual of the Universal Medical Sciences; Tr. of the Congress of American Physicians and Surgeons; Journals and Pamphlets.

Dr. W. Gardner—Journals.

Dr. Osler—Phonographic Record.

Dr. J. Stewart—Wiener medizinische Wochenschrift.

Dr. W. Johnston—Verhandlungen der Physikalisch-Medicinischen Gesellschaft; Pamphlets.

Dr. R. F. Ruttan—Animal Physiology, by Wesley Mills, M.A., M.D., L.R.C.P.; Pamphlets.

Dr. F. G. Finley—Animal Physiology, by Wesley Mills, M.A., M.D., L.R.C.P.; A Course of Elementary Practical Physiology, by M. Foster, M.D., F.R.S.

Dr. G. E. Armstrong—Boston Medical Journal.

Dr. E. Cola Hebbard—Philosophy of the Three Ethers, by William Thornton.

Dr. T. D. Reed—Materia Medica and Therapeutics, by John B. Biddle,

Dr. J. W. Flinn—Journals.

The number of readers making use of the Library from June 1st, 1895, to June 1st, 1896, has been 4,875.

During the year 400 new books and periodicals and 1,100 pamphlets have been added.

QUACK MEDICINES AND FORGED TESTIMONIALS.

We herewith print a letter received from an English physician, whose rising reputation has been seized upon by the unscrupulous vendors of a quack medicine, to push the sale of their nostrum.

We have heard of other instances of such bare-faced forgery. Only a few weeks ago a Californian newspaper was shown to us, containing what purported to be letters commendatory of another quack medicine from leading physicians associated with McGill University, from the late (though this was not mentioned) R. P. Howard and George Ross and from Dr. W. Osler. The forged letters were published thousands of miles away. In Dr. Ransom's case the testimonial was boldly distributed to those living in his immediate neighbourhood. The impudence of the whole matter is aggravated by the fact that Dr. Ransom is a man of singular culture, a writer of refined style, and a physician, who to our knowledge, has not undertaken the treatment of genito-urinary troubles.

Dr. Ransom writes to us,

THE PAVEMENT, NOTTINGHAM, ENGLAND, Sept 5th, '96.

SIR,—

There has this week been sent to medical men in England a pamphlet advertising an American nostrum called Sanmetto. In this pamphlet is what purports to be a testimonial from me.

This is an absolute Forgery, as I have never used or in any way recommended the drug.

I shall be obliged if you will kindly publish this disclaimer, and draw attention to this latest and most iniquitous development of business "enterprise." I enclose a copy of the testimonial and have to add that I am taking legal advice as to how to stop and punish the fraud.

Yours faithfully,

W. B. RANSOM.

The forgery is inserted in what appears to be a periodical advertisement entitled "The Witness Box" No. 4, published by the *Old Chem, Co.*, No. 15 Cedar Street, New York; London Office, 36 Basinghall Street, and it reads:—

HURRAH FOR SANMETTO.

W. B. Ransom, M.A., B.Sc., M.D., M.R.C.P. Lond., M.R.C.S., Fell. Roy. Med-Chir. Soc., Phys. Nott. Gen. Hosp., Balwell, Nottingham, England, says: Hurrah for Sanmetto! My results from its use in bladder cases astonished my confrères. In gonorrhœa (sic.) its effect is nothing short of magical.

PROCEEDINGS OF THE CANADIAN MEDICAL ASSOCIATION.

We present to our readers, in this number of the *JOURNAL*, an abstract of the able address delivered by Sir William Hingston at the *Hôtel Dieu Hospital*, before the members of the Canadian Medical Association.

We regret that the official reporter furnished us with such a brief and imperfect report of this address, as well as of Dr. Stewart's interesting clinic at the *Royal Victoria Hospital*, as appeared in our last issue.

ANTITOXIN COLLECTIVE INVESTIGATION (SECOND)
AMERICAN PEDIATRIC SOCIETY.

TO THE PROFESSION :—

The American Pædiatric Society are encouraged to ask the co-operation of the profession in a further collective investigation. Laryngeal diphtheria is believed to furnish a crucial test for antitoxin : the present aim is to ascertain (1) What percentage of cases of laryngeal diphtheria recover without operation, under antitoxin treatment ; (2) What percentage of operated cases recover.

The Society asks for records of *diphtheria involving the larynx whether operated or not, occurring in private practice in the United States and Canada, treated with antitoxin*. It is expected that cases occurring this year will be treated with reliable preparations of the serum, will be treated early and will be given efficient doses. The second report is designed to be a study of cases occurring between the closing of the first report, May 1st, 1896, and the closing of the present collective investigation, April 1st, 1897.

In order to secure data which shall make the tables complete, circulars containing blanks for ten cases have been printed and are now ready for distribution. It is desired that physicians shall fill out circular blanks as cases occur, not trusting to memory, and shall urge their friends having similar cases, to do the same. Circulars can be had by applying to the committee (address below). Several groups of cases in the first investigation arrived too late and were lost to the report. It is desired that circulars as soon as filled (ten cases) be returned to the committee. The collection of cases must close at the end of March, 1897.

For extra circulars (blanks), for returning circulars (filled) and for further information, address the chairman of the committee,

W. P. NORTHRUP, M. D.,

57 East 79th Street,

New York, N. Y.

October, 1896.

In connection with the above we are asked to re-insert the following :

THE ACTION OF THE SOCIETY UPON THE FIRST REPORT.

At the close of its presentation, the Society voted to accept the report of the Committee and after a full discussion it was decided to embody its conclusions in the following resolutions :

(1) *Dosage*. For a child over two years old, the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, 1500 to 2000 units for the first injection, to be repeated in from

eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval if necessary. For severe cases in children under two years, and for mild cases over that age the initial dose should be 1000 units, to be repeated as above if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units and not of the amount of serum.

(2) *Quality of Antitoxin.* The most concentrated strength of an absolutely reliable preparation.

(3) *Time of Administration.* Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given unless the progress of the case is favourable and satisfactory.

The Halifax branch of the British Medical Association, has commenced its usual winter session. Dr. W. Tobin has been elected President for the ensuing year.

NEW BOOKS, ETC, RECEIVED AND NOTED.

Supplementary Report on the success of Electrolysis in the treatment of Urethral Strictures. By Robert Newman, M.D. Reprint from The Journal American Medical Association, May 25th, 1895.

Transactions of the Association of American Physicians. Vol. XI, 1896.

An American Text-Book of Physiology. Edited by Wm. H. Howell, Ph.D., M.D. W. B. Saunders.

An American Text-Book of Applied Therapeutics. Edited by J. C. Wilson, M.D., and Augustus A. Eshner, M.D. W. B. Saunders.

A Practical Treatise on Materia Medica and Therapeutics. By Roberto Bartholomew, M.A., M.D. D. Appleton & Company.

Royal Infirmary Cliniques. By Alexander James, M.D. Oliver & Boyd.

Deformities. By A. H. Tubby, M.S. Macmillan & Co.

Practical and Operative Gynaecology. By J. Clarence Webster, M.D. Young J. Penland.

Section Cutting and Staining. By W. S. Colman, M.D. H. K. Lewis.

A Handbook of Surface Anatomy and Land Marks. By Bertram C. A. Windle, M.D. H. K. Lewis.