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## TUMORS OF THE SIGMOID.

BY

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From the foregut we get the stomach and duodenum to a point below the common duct, and the liver and pancreas. These organs derive their blood supply from the coeliac axis, and all are concerned in the preparation of food for absorption but do not themselves absorb. From the midgut we get the duodenum below the common duct, the jejunum, ileum, cœcum, ascending and transverse colon, all of which derive their nourishment from the superior mesenteric artery, and are concerned in the absorption and assimilation of food.

The derivatives of the hindgut are the descending colon, sigmoid and rectum. These organs are nourished by the inferior mesenteric artery and are concerned in the temporary storage of intestinal waste for convenient evacuation. This storage function is greatly aided by an anti-peristalsis which exists here except during defœcation.

The sigmoid is the natural fœcal container and is a later development showing the effects of this short heredity in the variations in size, shape, and length, as well as in function. Constipation largely concerns the sigmoid. The anatomical descriptions of the sigmoid by the Americans differ from those of English anatomists in three important respects: First, the English divide the sigmoid into two parts; the iliac which is six or seven inches in extent and closely attached to the iliac bone, having little or no mesosigmoid, and the pelvic sigmoid, sixteen or seventeen inches in length which passes across the midline of the body into the right pelvis before reaching the rectum. This portion usually has a long mesosigmoid and permits of great mobility.

The second important point of variance between English and American anatomists, is that the English include as part of the sigmoid all

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the intestine which has mesentery and which ends at about the third sacral vertebra; while the Americans name this distal portion the "first" part of the rectum.

Third, the American so-called "third portion of the rectum" is embryologically derived from the proctodæum or skin segment and embraces that muscular portion an inch or an inch and a quarter in length, described by Symington as the anal canal.

Embryologically the English view is the correct one as the rectum proper is derived from the cloaca which afterwards becomes divided into the bladder and rectum.

The sigmoid is only about one-half the calibre of the ascending colon, its sacculations are smaller and the longitudinal bands are greatly increased in width and strength. It receives its arterial supply from the sigmoid vessel, a large branch of the inferior mesenteric, and from the superior rectal, which is a direct continuation of the inferior mesenteric. Above, the sigmoid vessels anastomose freely with the left colic, and below with the middle hæmorrhoidal branches of the internal iliac. The lymphatic glands of the sigmoid are few in number and slow to take offence. This sparseness of lymphatics is, of course, a necessity because of the poisonous nature of the sigmoid contents, but this fact makes cancer of this organ less rapid in effecting glandular metastasis.

The lymph channels follow the arterial supply. The highest gland is the one described by Moynihan at the origin of the inferior mesenteric vessel.

Tumors in the iliac sigmoid are held closely in the iliac fossa. Tumors of the pelvic sigmoid are usually to be felt in the left hypogastrium and may often be moved to the right of the mid-line, or, by bimanual examination be discovered in the pelvis, or possibly directly palpated with the finger in the rectum if intussusception exists. If there is no obstruction there is much less gastrointestinal disturbance than with tumors involving the cæcum and ascending colon. In suspected tumors of the sigmoid, the bowel should be thoroughly cleared out in order to eliminate the possibility of mistaking scybalous masses for tumor. In doubtful cases anæsthesia, or the examination of the patient while in a warm bath to relax the abdominal muscles, is exceedingly advantageous. Tumors lying in the lower sigmoid can often be detected by the sigmoidoscope, and points of narrowing may be discovered by radiographs after introduction of bismuth mixtures.

Among the symptoms of tumor of the sigmoid must be placed disturbance of function causing irregularity of the bowels, and gripings attended by discharges of mucus, blood, and occasionally a little pus. These mucus discharges are not necessarily accompanied by fæces. Very

often there is an unsatisfied feeling, with straining, after the evacuation from the bowels. In the majority of cases the first real evidence of tumor is brought about by interference with the progress of the bowel movement, giving rise to pain and borborygus, accompanied by "stiffening" of the intestine and visible peristalsis. This partial obstruction is very significant. If it has existed for some time the distended intestine can be seen above the obstruction, the sequence being a crampy colicky pain, visible peristalsis, stiffening of the intestine immediately above the obstruction and gurgling sounds like water and air in a bottle.

The patient will nearly always be able to locate the seat of obstruction as all the forces of peristalsis are endeavoring to pass the intestinal contents through it, which tends to develop a local tenderness. Fragments of tumor may sometimes be found in the stool and examined microscopically.

Tumors of the sigmoid may be divided into two classes, benign and malignant.

The most common malignant tumor is the ring-like carcinoma producing a distinct constriction resembling a napkin ring. On superficial examination this constriction may be taken for a cicatricial stricture on account of its small size. Adeno-carcinoma, however, is quite common, projecting as fungous masses into the lumen of the bowel, spreading early to the peritoneum and contiguous parts. It is this latter growth which so often necessitates resection of loops of neighbouring intestine or a part of the bladder on account of adhesions.

Sarcoma of the sigmoid is a rare tumor. We have seen several of the stomach, two of the cœcum but none of the sigmoid, although such cases have been reported.

The more common of the benign tumors are tuberculosis and diverticulitis. Tuberculosis in the sigmoid is not so frequent as it is in the cœcum; it may be either of the hypertrophic or the ulcerous type. The hypertrophic form is rare, but if present will give rise to a well defined tumor. The ulcerous type is often multiple and usually not suitable for operation.

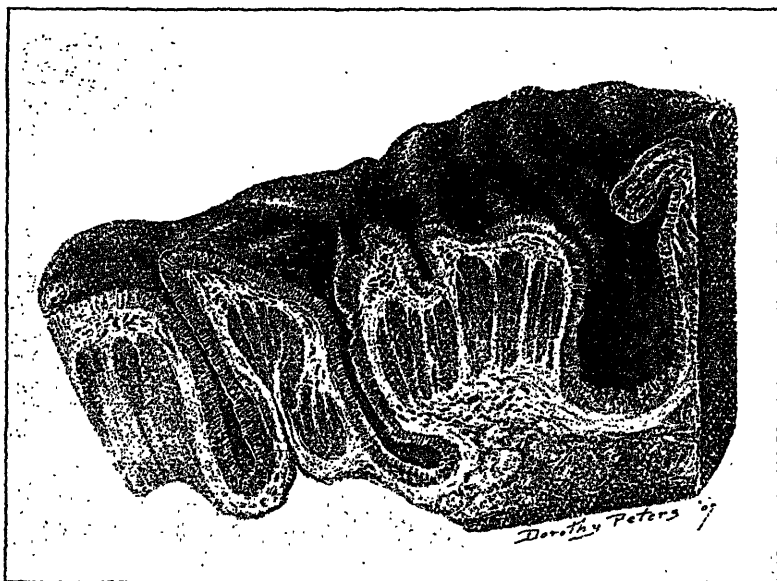
Diverticulitis (Fig. 1) is an interesting condition and has not been described surgically until within the last few years. Although these little pouches of mucous membrane projecting between the muscular coats have been known to exist anatomically, evidence as to their etiological relationship to certain tumors of the sigmoid of inflammatory origin, has been slow in developing. Diverticulitis is apt to be confused with malignant disease even after its removal unless careful microscopic examination is made; the inflammatory and cicatricial mass resembling cancer macroscopically. In one of our cases of resection for cancer of

the sigmoid, the malignant process began in a diverticulum which contained a faecal concretion. The specimen, however, showed diverticula which were quite free from cancer; illustrating the influence of chronic irritation in the production of the carcinomatous process.

Fibro-lipoma in the wall of the sigmoid is occasionally met with. We have had one such case which caused intussusception. Polypoid growths (adenoma) of a non-malignant character are not uncommon. On two occasions we have removed such growths through the sigmoidoscope with a snare, and once, by the transperitoneal method.

Giant colon or Hirschsprung's disease, and volvulus especially in its subacute form, give rise to gaseous tumors of the sigmoid, but of course are not true neoplasms.

*Surgical considerations.*—Access to tumors of the sigmoid is best obtained by incision through the left semilunar line unless the distal part



Diverticulitis of the sigmoid, showing several pockets.

of the intestine is involved, when a median incision is preferable. If a tumor is supposed to be malignant, a thorough examination should be made before operation to show that the lymphatics and local involvement are not beyond the possibility of removal, and in order to ascertain if the liver is free from metastasis. It may happen that the enlarged gland, if present, will be inflammatory rather than malignant.

Even if one or more coils of small intestine, or the wall of the bladder,

the uterus, ovaries and tubes are adherent to the sigmoid tumor, the case will not necessarily be hopeless. We have had permanent cures after resection of two separated sections of adherent small intestine as well as after resection of part of the wall of the bladder, and on several occasions we have coincidentally removed the uterus with the ovaries and tubes because of its involvement in such growths.

Benign tumors of the sigmoid give far greater latitude for operation than malignant growths. Diverticulitis and tuberculosis are, however, extremely liable to be complicated with intestinal or bladder fistulæ, which adds greatly to the difficulty of removal.

The most important technical feature to be considered in the removal of tumors of the large intestine, concerns mobilization. The large intestine has a long mesentery in all of its parts, although in certain situations, such as the ascending and descending colon, and iliac sigmoid, the outer leaf is very short and acts as a supporting peritoneal ligament. As this outer attachment contains no important structures, we have merely to incise it, lift the colon from its bed and draw it to the midline on the inner leaf of its mesentery which contains the nerves, blood vessels and lymphatics. In this simple way, the resection is made with ease. In mobilizing the sigmoid it should be remembered that the left ureter is adherent to the peritoneum which forms the inner leaf of the sigmoid mesentery just after it crosses the common iliac artery, and it should be identified and separated at an early stage of the operation.

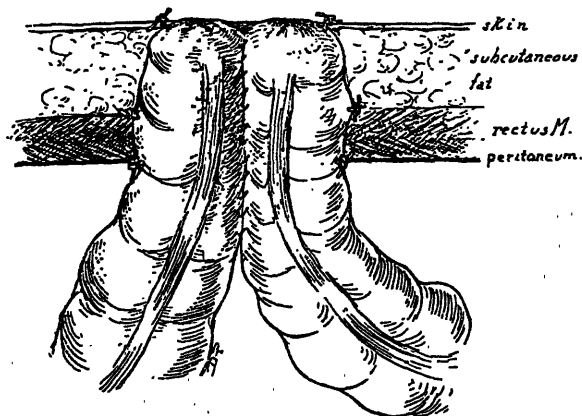
The next step in the operation concerns securing the blood vessels at their origin, especially in malignant disease. By raising the loosened sigmoid one can see the vessels where they rise from the inferior mesenteric on its inner mesenteric leaf, and catch and tie them. If necessary the inferior mesenteric itself may be caught and tied at its origin from the abdominal aorta. After dividing the vessels the entire mesosigmoid with the fat and gland-bearing fascia can be lifted cleanly from the posterior abdominal wall and removed with the intestinal growth.

If the patient is in good condition, the bowel not seriously damaged and both segments well covered with peritoneum, we practice primary resection and make an immediate end-to-end anastomosis. If the peritoneum is partly absent, as in the iliac sigmoid, a long lateral anastomosis is made not less than four inches in length, or occasionally an end-to-side union is made. As long as a large opening is secured the clinical results of these methods are equally good.

Occasionally a suture anastomosis looks unreliable, as though leakage might occur. If so, the intestine at the site of the union should be attached by a few sutures to the peritoneum in the bottom of the ab-

dominal incision, and some pieces of rubber tissue introduced making drainage to the surface, as a precautionary measure.

How shall we handle the intestine should there be much obstruction? In our experience, changes in the wall of the intestine caused by obstruction and leading to suture perforations some days after operation, has been the most common cause of death and it is almost an axiom in surgery never to resect an obstructed large intestine, even if the obstruction is moderate without employing protection against leakage, and when in doubt it is best to do a temporary enterostomy and resect later. In moderate chronic obstruction, we have found it advantageous to empty the distended colon by means of Monk's tube, resect and unite by the lateral method and finally fasten the site of the resection so as to leave it exposed in the wound after the Bloodgood method. If perforation then occurs it will be external. (See Fig. 2.)



Lateral anastomosis after the Bloodgood method.

A very good method is to bring the part of the intestine containing the obstructing tumor outside, and complete the operation as the first-stage of the Miculicz-Paul three-stage procedure. While we do not make use of this three-stage operation to the extent we did some years ago, in selected cases it gives excellent results. Until the tumor is thoroughly mobilized and the vessels divided, the technique is the same as in the usual method but instead of cutting the tumor away the two limbs of the intestine are attached to each other by sutures at a healthy point, and if it is more convenient, a separate lateral incision is made in the abdominal wall just long enough to enable the extrusion of the tumor. A few sutures on the inside attach the bowel to the peritoneum leaving the diseased sigmoid wholly exposed.

If it is necessary to relieve the obstruction immediately, the distal end of the gut caught with a clamp and the bowel divided half an inch beyond the skin and sterilized with the actual cautery at the mucous exposure. The proximal end is then caught temporarily in clamps an inch and a half beyond the skin incision. The entire tumor and attached intestine is cut away and a glass drainage tube with a flange or Paul's tube is passed into the proximal end of the bowel and tied tightly to hold in place. A rubber hose is attached to this drain carrying the intestinal contents into a convenient receptacle. If there are no immediate symptoms from the obstruction the tumor is not removed at once but is covered with a piece of rubber tissue and allowed to remain projecting externally until firm adhesions are formed. It is cut away on the second or third day leaving the proximal and distal ends of the intestine projecting from the wound like a double-barrelled shotgun. The final stage of the operation is then completed, on from the fourteenth to the eighteenth day, by passing a pair of strong clamps one blade down each intestinal lumen for three and a half to four inches, grasping the opposing walls of the intestine where they have been previously fixed by sutures. These clamps are left in position until they bite out the partition wall between, restoring the lumen. This usually takes place in from four to six days and the external opening gradually contracts and closes.

In acute obstruction with the patient in a serious condition, primary resection has an almost prohibitive mortality. After locating the tumor in these cases, a temporary colostomy is the wisest plan. Barker recommends a temporary ileostomy making a transverse incision in the ileum, introducing the tube and then fastening the ileum to the incision like a gastrostomy. In any event the enterostomy should be made at a point as remote as possible from the future operating incision.

Tumors of the distal end of the sigmoid are most difficult to remove. If possible an end-to-end anastomosis is made with the rectum, but as the rectal end is devoid of peritoneum, union is unreliable. It may, however, be aided by passing a three-fourths inch rubber tube with a lateral opening through the anus and rectum to a point three inches above the cut end and fastened in this position by a lateral catgut suture (Fig. 3). An assistant draws on the end of tube projecting from the anus until the cut ends meet. Interrupted catgut sutures unite end-to-end, the operator taking pains to accurately coapt the mucous membranes. The rectal tube is then again pulled upon until a one-half inch intussusception is produced, and a second seromuscular row of sutures is inserted. The tube is left in position for four to six days, coming away after the catgut has been absorbed (Fig. 4).

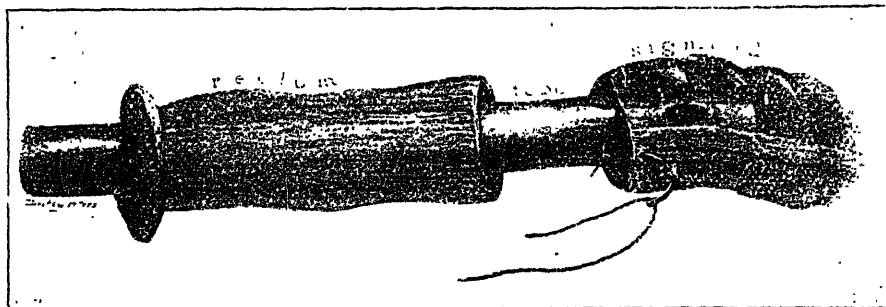
Occasionally a combined abdomino-perineal will be the best method,



the colon being brought down and attached to the sphincter muscles. In fleshy males this procedure is most serious, and in two such cases we successfully employed the posterior route with the parasacral incision removing the coccyx.

In bleeding tumors with marked sepsis in the female we have made the Quenne-Tuttle perineal resection of the rectum and lower sigmoid with great satisfaction.

In operating upon the sigmoid the bowel should be emptied 48 hours before operation and allowed to become quiet, as recommended by Hochenegg. This precaution is useful in two ways: First, the colon germs are very active in liquid stool and the mechanical difficulty of securing careful asepsis much greater than if the fæces are solid or semi-solid. Second, if the bowel is brought down and attached to the anal muscles the projecting end can be left completely closed from two to



Showing rubber tube passed through rectum into upper portion of sigmoid and fastened in place by catgut sutures.

eight days, often until complete primary union takes place. During this period of complete obstruction the patient should be nourished with strained soups and albumen water.

Results of operation for the relief of cancer of the sigmoid are very good. At the present time the immediate mortality is from three to ten per cent., depending upon the condition of the patient, and at least one-half of them can be expected to remain cured.

Thirty-four patients with sigmoid cancer have been subjected to resection of the sigmoid with the following results.

#### CANCER OF THE SIGMOID.

Number of cases .....	34
Male .....	22
Female .....	12
Age of oldest .....	71

Age of youngest .....	31
Average age .....	52
Patients of ages between 30 and 40 .....	5
Patients of ages between 40 and 50 .....	8
Patients of ages between 50 and 60 .....	10
Patients of ages between 60 and 70 .....	9
Patients of ages between 70 and 80 .....	2
Average duration of symptoms ..... years	2
Operative mortality (13 per cent.) .....	5
Patients dying 1 year or less after operation .....	3
Patients dying 1 to 2 years after operation .....	5
Patients dying 2 to 3 years after operation .....	1
Patients alive and well 1 year after operation .....	10
Patients alive and well 1 to 2 years after operation .....	5
Patients alive and well 2 to 3 years after operation.....	2
Patients alive and well 3 to 4 years after operation .....	3

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The prospective opening of the Queen Alexandra Sanatorium at Davos for the reception of patients early in this autumn was announced from the chair at the sixth annual meeting of the Council, held at 11, Chandos Street, Cavendish Square, W., on July 16th, by the President, the Lord Balfour of Burleigh, K.T., P.C., who has laboured so long and successfully in the difficult task of raising funds. A splendid donation of £25,000 lately received from a munificent sympathizer, who desires that his name shall not be published, not only supplies the amount required to complete the work and to open the sanatorium free from debt, but provides means for its scientific equipment and for future extensions. It should be mentioned that Lord Strathcona, with his well-known zeal in the promotion of all charitable and useful works, not long ago gave a donation of £2,000 for the purposes of the sanatorium. For the present the sanatorium will accommodate 54 patients, all in single rooms. But the public rooms are designed for a full complement of 120 patients. The Davos Invalids' Home, the original foundation of the late Mrs. Lord, which for so many years was the only representative of our national charity in Davos, has now ended its task and fulfilled the purpose for which it was initiated—that of developing into a National Sanatorium. The Home had been granted Her Gracious Majesty's patronage as far back as 1899.

# PARASITOLOGY.

BY

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*Mr. President and Gentlemen:—*

It is not the purpose of this paper to present to you some recent advance in our knowledge concerning any one parasite; its object is to insist upon the importance of animal parasites as producers of disease and to quicken your interest in them by showing that parasitology has led, and is still leading, to the discovery of facts of great value in the everyday practice of medicine.

Many common diseases, occurring in Canada, in men and animals are produced by infection, by living pathogenic agents. In most cases the agent belongs to the vegetable kingdom: consequently, a knowledge of the part played by bacteria and fungi in the causation of disease forms an important part of the mental equipment of a physician. Until recently animal parasites occupied a very insignificant place in the study of pathology and, save for a few worms, they were unthought of as possible pathogenic agents.

Pasteur's discovery of the world of germ life initiated a great research movement which sought for a living, infecting cause in every disease. Since the bacteria are by far the most numerous and the most easily detected pathogenic agents, it is only natural that they have been particularly well studied. Because of the enormous number of maladies which are produced by them, it was, indeed, at one moment, almost tacitly assumed that only bacteria could produce disease. As a result, several bacteria were described as the cause of malaria, and Laveran's belief that an animal parasite—a protozoon—was the cause of that disease, met with very little acceptance when he proclaimed his discovery in 1880.

Although the importance of his announcement was unappreciated at first, it eventually—like the work of Pasteur—became the starting point of a great research movement. Many observers commenced to study malaria in order to confirm and extend Laveran's observations. Malaria is a disease which occurs especially in warm climates; consequently, those who studied it had an opportunity to observe other, little-known, tropical diseases. At that time the pathology of these diseases had been little studied; so it has happened that the last few years have seen an extraordinary advance in our knowledge of tropical diseases and of the part played in their production by animal parasites and by the patho-

genic protozoa in particular. Today it is firmly established that low forms of animal life do produce diseases in living beings, all through the scale of existence, from the plants up to man.

It was not until 1898 that Ross, and those who followed him, described the method by which the malarial parasite is transmitted, through the bite of a mosquito, from man to man. Although Laveran made his discovery in 1880 and although it had been almost certain previously, that the bites of insects might transmit various diseases, it was not until the discovery of Ross was made public that pathologists fully appreciated that an animal parasite did cause one of the most important of human diseases and that it was transmitted from man to man by an insect; but once it was appreciated, many laboratory workers in all parts of the world turned their attention to this new field for research. In the eleven years which have elapsed since 1898, an enormous amount of energy has been expended upon the study of tropical diseases of all sorts and especially of those produced by pathogenic protozoa or transmitted by the bites of insects.

Through the accumulation of knowledge resulting from all this work, a new division—Animal Parasitology—has been made in the classification of Sciences. Chairs have been dedicated to it in several universities; papers without end have been written on it in every tongue and published in one of half-a-dozen journals which are devoted to it alone. Because of its importance in the practice of medicine in the tropics, Schools of Tropical Medicine have been established in Great Britain—where there are no less than three of them—in France, in Germany and in Belgium; Animal Parasitology forms a major part of the instruction in these schools. Only physicians who have taken the course, and won the diploma, offered by them are accepted by the governments of the countries concerned for service on the official medical staffs of their possessions in tropical climates.

Animal parasitology has done much to rob "climate" of its reputation as a producer of disease. It has shown that the unhealthiness of the tropics for Europeans is due not to meteorological conditions, but to the presence of parasites: that tropical climates favor the existence of these parasites is true; but heat, moisture, and miasmas do not in themselves produce the diseases formerly attributed to them.

A special training in animal parasitology is necessary for medical men, among other reasons, because special technique is required for the study of animal parasites. Of course, many of the methods employed in bacteriology are useful, but there is no doubt that much of the work done on the pathogenic protozoa has not been so fruitful as it might have been because it was directed by ideas acquired in a study of the bacteria. In

working with pathogenic protozoa, fresh specimens and specimens prepared by the most careful histological methods must be constantly examined, in the face of negative results, with a patience rarely necessary in bacteriology. Cultural methods are of comparatively little importance and at present the actual observation, with the microscope, of the things done by them is the most important of our methods of acquiring a knowledge of the pathogenic protozoa.

It is true that, up to the present, animal parasitology has done more to increase our knowledge of the diseases of tropical countries than of those which occur in temperate climates, but none the less it has afforded great advances in our knowledge of the latter. For example, syphilis has been shown to be due to an animal parasite, one of the protozoa,—the *Treponema pallidum*.

When the importance of the animal parasites as disease producers commenced to be appreciated, they were looked for in many of the diseases of which the causation was unknown; in many instances the search was successful and specifically pathogenic protozoa were found. There are, however, still many diseases, probably produced by infective agents, in which the nature of those agents remains unknown and even unsuspected (milk fever or trembles, the anæmias, onylai—an acute infection in Angola).

Bacteriology and cellular pathology made it evident that the diseases of men had everything in common with those of animals and that human pathology might learn much from a study of the disease processes in animals. These things have been particularly true of infections by protozoa and our practically useful knowledge of the protozoa, pathogenic for men, has been pieced together from observations made on protozoa, pathogenic and harmless, parasitic in insects, molluscs, fish, reptiles, birds and mammals.

In order to give some precision to the claims we have made for the importance of the animal parasites in the production of disease, let us consider the facts on which they are based. We will go over, first of all, the list of those maladies which have been shown, or are thought, to be caused by the unicellular animal parasites, that is, by the protozoa. (The multicellular animal parasites also produce important diseases, but it is impossible to even mention them in the limits imposed by this paper; consequently, we shall confine ourselves to a consideration of the pathogenic protozoa, a single division of the animal parasites.) Protozoa have been proved to cause the diseases of man mentioned in this paragraph. All the different forms of malaria are produced by one of the three varieties of malarial parasites which infect man. Two varieties of trypanosomes produce severe diseases in men in Africa

and in South America; one of these diseases is the frightfully fatal Sleeping Sickness. At least two species of the parasites called *Leishmania* are pathogenic in man: they cause the tropical sore known—among many different names—as Delhi boil and the invariably fatal Dum-dum fever or Kala-azar. That one form of dysentery and subsequent liver abscess is always associated with an amœba has been known for some years. Spirochætes cause at least two important groups of maladies; namely, yaws and the relapsing fevers; while to the closely allied *Treponema pallidum* is due one of the most dreaded of human diseases—syphilis.

In addition to these affections, where the pathogenicity of the parasites has been definitely proved, other human diseases exist in which the presence of protozoa has been described but their causal connection with the associated condition has not been proved, or else the lesions produced are comparatively insignificant or the condition is an exceedingly rare one. The following are instances of affections of this sort, which, consequently, have not been mentioned in the list of diseases proved to be caused by protozoa. Infusoria and certain flagellated protozoa have been described in connection with some types of dysentery: amœba and various ciliated protozoa have occurred in pus and body effusions: coccidia and certain other sporozoa have been seen in various positions in the tissue of the muscles and organs;—one of these, the *histoplasma capsulata*, has been described in Central America in connection with a disease somewhat resembling pulmonary tuberculosis; an unclassified parasite, certainly a protozoon, has been observed in an obscure febrile disease of men in North Africa.

Certain bodies have been described in constant connection with some diseases of uncertain causation; for example, the recognition of the bodies associated with hydrophobia and trachoma is practically diagnostic of these diseases. For various reasons, these bodies and appearances which are constantly seen in the exanthemata have been thought to be protozoa. *Molluscum contagiosum*, the fatal tick fever which occurs in Montana, typhus and yellow fever, as well as dengue fever and certain other fevers occurring in Japan and Southern Europe, are also thought, on more or less valid grounds, to be due to protozoa.

Just as there are many bacteria which inhabit the bodies of men and animals without producing disease, so there are protozoa which are parasitic in mammals without harming them. As might be expected, some of these harmless parasitic protozoa have been unjustly suspected of producing diseases with which they have been accidentally associated. For example, spirochætes, which are not infrequently seen in mice and

rats, have been described as the cause of experimental cancer in these animals.

Not the least of the benefits which have followed the wide-spread interest that has been manifested during the last ten years in the animal parasites, has been the collection of information concerning the geographical distribution of the diseases produced by them. Some of these diseases, formerly thought to be almost local, have been found to be distributed exceedingly widely. For example, Kala-azar—which was originally called Dum-dum fever after the name of the town in which it was observed first—has been found to occur almost everywhere in tropical and semi-tropical Asia, a disease practically identical with it occurs along the North Coast of Africa: the African human tick fever occurs in South America: trypanosomes have been found in cattle in Europe: in Canada, a widely spread and very serious cattle disease, characterised by hæmoglobinuria and caused by a piroplasma has been reported from British Columbia: in Alberta, sarcosporidia have been reported in cattle and horses and the fatal dourine, a disease produced by a trypanosome, exists among horses: trypanosomes have been found in wild rats and hares in Saskatchewan; the question naturally suggests itself whether the extraordinary periodical disappearance of hares through an epidemic of some nature may not be due to the presence of these parasites: and, lastly, there is much reason to believe that the fatal swamp fever of horses, which occurs in all of the prairie provinces, may be due to a protozoan parasite.

We have seen that the discovery that malaria is transmitted by a mosquito resulted in investigations which were carried on in all parts of the world; and these have shown that there are many diseases — in some of them the causative parasite is not known — which are transmitted from man to man by the bites of insects. Several of the protozoa transmitted by the bites of insects undergo a definite and necessary development within their invertebrate host before they are capable of being transmitted to their vertebrate host. Consequently, the fact that a disease is conveyed to a susceptible animal by a biting insect only after a definite period has elapsed since it fed upon an infected one is accepted as suggestive that the *causa causans* of the disease is a protozoon parasite.

The following list gives the names of human diseases transmitted by the bites of insects; when it is known, the parasite causing the disease is also mentioned: malaria is caused by one of the malaria parasites and is transmitted by a mosquito: yellow fever is transmitted by mosquitoes; its cause is unknown, but it is probably a protozoon: dengue fever is transmitted by mosquitoes; its cause is also unknown: it is suggested

that Weil's disease, acute infective jaundice, may be transmitted by the bites of mosquitoes: the trypanosome causing Sleeping Sickness is transmitted by the bites of tsetse flies: the South American trypanosome is transmitted by a bug related to that insect popularly known in this country as the "kissing bug": the spirochaete producing tick fever is transmitted by the bites of ticks; that causing relapsing fever very probably by the bites of lice and bed bugs: bed bugs are very possibly responsible for the transmission of kala-azar; it is suggested that they may also transmit typhus: a fever closely allied to dengue is produced in Southern Europe by the bites of one of the owl midges. Diseases not caused by protozoa which are transmitted by the bites of insects are plague, transmitted by fleas, and filariasis, transmitted by mosquitoes.

The ultimate object of the study of all diseases is evidently to devise means of combating them. Through the study of yellow fever and malaria, most efficacious methods of prophylaxis have been devised, by which these mosquito-borne diseases have been entirely suppressed in tropical districts, formerly heavily-infected by them. This has been done by destroying the mosquitoes which transmit the diseases. It is comparatively simple to do this, because during approximately ten days of their development sheltered collections of fresh water are absolutely essential to mosquitoes. By leaving no collections of water in which they can breed, these insects are absolutely destroyed and, since they are necessary for the transmission of these diseases, malaria and yellow fever do not occur where mosquitoes do not exist.

No such weak point occurs in the development of the tsetse-fly and it is impossible, by destroying it, to prevent the diseases caused by the trypanosomes it transmits. A good deal of work has been done therefore with the object of finding a drug which will be as efficient in the treatment of the trypanosomiasis of men and animals as is quinine in the treatment of malaria. Although the results of this work have not been altogether satisfactory, yet drugs have been devised which are strongly trypanocidal. It is certainly possible to cure many cases of experimental trypanosomiasis in animals: and a certain number of human cases, which were treated early and vigorously, have probably recovered from what would otherwise have been a fatal disease. At all events, more is now known of the mechanism of the action of trypanocides in the treatment of trypanosomiasis than is known of the action of drugs upon the parasite producing any other disease.

When it became known that syphilis was caused by a protozoan parasite, it was thought that the drugs which had been found to be of value in the treatment of trypanosomiasis might also have an action in it. The experiment was made and it was found that certain trypanocidal



preparations of arsenic and antimony were of very distinct value in the treatment of both experimental and clinical syphilis.

The two following advances in the treatment of disease, which have also resulted from the work done on the therapeutics of trypanosomiasis, have just been published. It has been found that one of the trypanocidal organic compounds is able to cure canine piroplasmiasis; the parasite causing this disease belongs to the same species as that which produces hæmoglobinuria in cattle. In spite of all attempts at treatment kala-azar hitherto has been an invariably fatal and steadily progressive disease; a few cases recently treated by "atoxyl" have apparently recovered.

In its growth our knowledge of animal parasitology is following the same order of development as did the study of bacteriology. In the earlier days of bacteriology, the description of the bacteria and of lesions they produce occupied most of the attention of laboratory workers; now, more time is spent on the study of the functions of bacteria and of the methods by which they produce lesions. Although much remains to be described and explained in the development of animal parasites, we are commencing already to learn something of their mode of action. Among the protozoa, in particular, it seems as though the investigation of the action and reaction between animal parasites and their hosts may afford results of great interest. So far as is known, an absolute immunity is rarely—if ever—acquired by a mammal against a protozoan parasite to which it is subject; but a comparative tolerance often exists between its host and a parasite which may produce in it a serious disease. This is shown by the following facts: adult natives in Africa may harbour malarial parasites for years without apparent symptoms; pathogenic amoeba may be carried about for months in the intestine of apparently healthy persons without provoking signs of dysentery; persons living in parts of England from which malaria is absent may have attacks of malaria after a period of from three to seven years since they were exposed to any possible source of infection: cattle may harbour piroplasmata for years without any sign of disease: horses, cattle and game may have trypanosomes in their blood for years and be in apparent health although the trypanosomes from them are virulent when subinoculated into other animals. In each of these instances, the parasites have actually been shown to persist over long periods in apparently healthy animals; it is suggestive that in syphilis, also a protozoon-caused disease, similar periods of abeyance may occur in the progress of the infection. The similarity cannot be over-looked between these observations and those recently reported where bacterial disease has been spread through "carriers" of typhoid and other organisms; that is, by persons who, while apparently healthy, harbour infective bacteria.

For these reasons alone it may be stated to be probable that a study of the relative active immunity which may exist between a mammalian host and a potentially virulent, protozoan parasite may add to our knowledge of the mechanism of immunity.

In conclusion, let an allusion be made to a combination of facts which suggests an interesting field for investigation. Malaria kills a large proportion of the children born to primitive native races which inhabit malarious countries: the death rate is high among calves born in herds of cattle which thrive, in spite of a more or less general infection with trypanosomes (*Trypanosoma dimorphon*), in a country where the tsetse-fly (*Glossina palpalis*) exists; it is probable that the calves die from trypanosomiasis: yellow fever is also probably caused by a protozoan parasite; children born in a country where it is endemic acquire immunity to it by means of slight, clinically unrecognisable attacks.

In all three of these diseases the immunity enjoyed by adults is an acquired one; it is not racial because natives of tropical countries, born in localities from which yellow fever and malaria are absent, are just as susceptible to both as are Europeans; again, cattle die of trypanosomiasis. There is no permanent immunity against malaria for negroes because blacks who have lived for some years in Europe may suffer severely from that disease on returning to Africa. In malaria and trypanosomiasis the immunity is only relative, for while the general health of the host remains good there may be occasional attacks of slight, indefinite fever, unaccompanied by diagnostic symptoms; if the host be examined during these attacks, the causative parasite will usually be detected.

The sum of all these facts is that a relative active immunity may be acquired by some mammalian hosts against the diseases produced in them by certain protozoan parasites. The immunity is not a permanent one and it is associated with the presence of the parasites in the host. This infection finds its expression in the host by occasional attacks of indefinite fever, clinically unlike the affection usually produced by the parasite concerned.

Bodies have been described in small-pox, chicken-pox, measles and scarlet fever with the suggestion that they are protozoa. Be that as it may, these facts are certain. In temperate climates many children suffer from, and some succumb to, infection by one or more of these exanthemata; some persons may pass through life without having had obvious attacks of some at least of them; but all persons have suffered either as children or adults, or both, from indefinite febriculæ. It is suggested that some of these febriculæ, like the indefinite fevers produced in adult, relatively tolerant negroes by malaria, may be the expression of a con-

stant infection by the parasites producing the exanthemata and that through such mild and unrecognized attacks the immunity of some persons to these diseases can be explained.

Finally, the fact that the vaccine against small-pox is so successful suggests a hope that a further study of its mode of action and of the mechanism of immunity in infections by protozoa may be the means of suggesting equally successful means of preventing other diseases produced by parasites belonging to the animal kingdom.

## MEDICINE IN CANADA.

BY

M. CHARLTON.

As the year 1832 marked a great advance in medical education in Lower Canada so it did likewise in Upper Canada. Especially was this the case in York (Toronto) where medical education was being zealously guarded and advanced by the Medical Board.

This Medical Board had been formed as early as 1818 by an Act of Parliament and it was within a year or two of its inauguration that it was successful in having the York Hospital started. About 400 acres of land had been set aside as early as 1817, by an order in council for a hospital.

In Dr. Scadding's "Collections and Recollections," he describes the hospital. "The old hospital was a spacious, unadorned, matter-of-fact, two-story structure of brick, one hundred and seven feet long, and sixty-six feet wide. It had, by the directions of Dr. Grant Powell, as we have heard, the peculiarity of standing with its sides precisely east and west, north and south. . . . The building exhibited recessed galleries on the north and south sides, and a flattened hipped roof." There was then no asylum for the insane. Mrs. Jameson, who had hoped that an Act would have been passed in 1836 for the erection of a provincial lunatic asylum, writing at the time, says, "At present these unfortunate persons either wander about uncared for, or are shut up in jails. Instances are known of pauper lunatics straying into the forests, and perishing there. The fate of those confined in the prisons is not better; the malady is prolonged and aggravated by the horrid species of confinement. . . . Dr. Rees has offered a block of land a few miles from Toronto for the site of an hospital or asylum for lunatics, but at present it seems the intention of the legislature to take the penitentiary at Kingston for an asylum, and erect another penitentiary on a different plan."

In 1824 this hospital was described as one of the largest buildings in the Upper Province, but by 1832 it was found to be too small, so rapidly had the little town of York developed.

It was in this same year that the students attending the hospital formed the "York Students Medical Society." A librarian was appointed and the sum of four dollars charged as an entrance fee to defray the expense and to assist in binding books for the society. Three years later the medical profession held a meeting at the hospital to form a medical library.

Some dissatisfaction seems to have been expressed by the citizens against the Board about the management of this Hospital. One of their complaints was that the said Board furnished no public reports of the Hospital.

The Board met quarterly for the purpose of examining those desirous of practicing medicine. From the lists which are given of those who passed and those who were rejected quite a number seem to have failed in satisfying the requirements of the Board. Among those who were examined were several from the McGill Medical College. These were granted their license.

In 1832 the Board issued a circular urging parents to see that their sons who intended entering medicine should have the best education obtainable, a strong point being made in favour of Latin.

Among other things the Board was interested in was that of hygiene, and they acted as the Board of Health for York. They waged warfare against the former crude methods of dealing with sanitary matters and urged the daily employment of scavengers. Unlike their confreres in Montreal they acknowledged the great superiority of the American cities in matters of sanitation.

Although the progress of York had been greatly retarded by the war of 1812 yet it continued to make such rapid strides that by 1834 it was incorporated as a city under its original name—Toronto. It was known by this name fifty years before Simcoe became its Governor. The name, Toronto, also occurs in some of the old French documents as early as 1686, and again in 1767, when Sir William Johnson mentions the name Toronto in a despatch to the Earl of Shelbourne and in 1788 the name is again mentioned by J. Collins, Deputy Surveyor of Canada. The name of York seems to have been given in honour of the Duke of York's victories in Flanders. From its incorporation as a city to 1844 the population was nearly doubled, there being 18,420 persons in 1844. From this rapid increase one realizes that the duties of the Medical Board were onerous.

Toronto now possessed a fine hospital, a bank called the Bank of Upper Canada, which had been opened in 1821, and the beginning of a University—King's College.

The project of a university for the town of York had been repeatedly urged upon the Home Government by Governor Simcoe. After a long and vehement debate for an endowed university the charter was sent over.

King's College was founded by a Royal Charter in 1827. "For the establishment at or near the town of York of a college, with the style and privilege of a university to continue for ever, to be called King's College, the chancellor, president and such professors of said college as shall be appointed members of the college council, to be members of the Church of England and Ireland, and they shall, previously to their admission into the said college council, severally sign and subscribe the thirty-nine articles of religion, as declared and set forth in the Book of Common Prayer". This college had the style and privileges of a university and was endowed by the King with 225,914 acres of land.

In after years amendments were made to the charter, which had been modelled after the English universities and which proved too exclusive for a young country. At a meeting of the Medical Board in 1837 they protested against the action of the governing body of King's College in not appointing any members of the medical profession.

There were now in Upper Canada two public hospitals, one in Toronto and the other at Kingston which was built in 1835. This latter hospital was of four stories and had beds for about 120 patients. Previous to this there had been a military hospital for the use of the garrison stationed there. During the war of 1775 it was used by Sir John Johnson as a place of storage for Indian presents. In 1790 the place was again used as a military hospital. The first classical school in Upper Canada was started at Kingston about 1785 by the Rev. John Stuart, and the first literature printed in Upper Canada was a novel at Kingston in 1824 called "St. Ursulas Convent," this was followed by a short poem published in 1826.

Stages from Montreal to Kingston began running in 1808 and from Kingston to York in 1812, but the only means the inhabitants of the Upper Provinces had of sending their wheat and other products to Montreal was by the bateaux, an extremely difficult and often dangerous voyage. The road from Toronto to Kingston had been begun by Governor Simcoe and after some years was finished by the Government.

Mrs. Jameson in her book on "Winter Studies and Summer Rambles in Canada," gives a vivid description of a journey in one of these stages and the awful state of the roads. One has only to read the description given by early writers to realize the difficulties the western people had to contend with in forming a connection either by land or water with

Montreal. In navigating Lake Ontario and the St. Lawrence River they employed 800 Durham boats and 1,500 bateaux.

In spite, however, of these drawbacks the early settlers were enthusiastic agriculturists, and as early as 1792 an agricultural fair was held at Newark (Niagara). Simcoe, who was then at Newark, encouraged the settlers in every way to study this most important branch. It was owing to his care that fairs and premiums were beginning to assume their place as part of the life of these settlers. In 1793 Simcoe offered ten guineas as a premium to the Agricultural Society of Upper Canada, as well as a copy of "Yonge on Agriculture," besides a number of other books from his own library, to encourage reading on the subject. Books were very scarce at this time, especially in Upper Canada, and frequently the only books to be found in the cabins were "Elliot's Medical Pocket Book" or "Recketson on Health."

From these early beginnings we find that by 1830 Upper Canada had become renowned as an agricultural country and in that year the Legislature passed an act "to encourage the establishment of Agricultural Societies in the several districts of the Province." When the people were able to subscribe a certain sum of money for these societies, the Government assisted them with a sum of one hundred pounds and upwards. In the wording of this act—"to encourage the establishment of Agricultural Societies," it might have read to encourage the said societies already formed as early as 1793 in Ontario. These societies paid especial attention in 1825 to importing a pure bred stock.

Upper Canada was favoured by Scotch immigrants on account of the inducements for agriculture, which were greater than elsewhere. As many as fifty thousand English, Scotch and Irish immigrated to Upper Canada from the years 1830-2.

In spite of the political agitation which disturbed the country previous to 1837, there was found to be in 1838 nearly a million and a half of dollars in the Upper Canadian banks. Toronto, Kingston, London and Hamilton were pushing ahead. By-Town (Ottawa) had its Rideau Canal in course of construction.

To show that quackery still flourished, there was published in Hamilton in 1832 by Samuel Thomson, a book with an astonishing title called, "New Guide to Health, or Botanic Family Physician, containing a complete System of Practice upon a plan entirely new, with a description of the vegetables made use of and directions for preparing and administering them to cure disease." His stock in trade consisted of about thirty vegetable preparations, and in time he had quite a number

of followers and these Thomsonians seemed to have practised regardless of the law. Their name was afterwards changed to "Eclectics."

As Mr. William Canniff's work "On the Medical Profession in Upper Canada," 1783-1850, is so well known to the medical profession we have only touched on some of the leading events in Upper Canada previous to 1837.

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## THE VON PIRQUET TUBERCULIN REACTION.

BY

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In a recent paper Baldwin, dealing with the von Pirquet reaction, states that he considers the cutaneous tuberculin reaction to be preferred to all others, and that only in cases of failure should recourse be had to the subcutaneous method.

The von Pirquet reaction, although perhaps not so easy of application and interpretation as the ophthalmic, is free from danger to the patient, and can be used in cases where the subcutaneous reaction would be of doubtful value or could not be applied.

To attempt to discuss the cause of this reaction and to enter into a discussion upon it is hardly the purpose of this paper, still a short review of some of the theories that have been advanced in explanation of the reaction would not, I feel, be out of place.

We are all familiar with the fact that the injection of a bacterial vaccine, while it may produce little or no effect in a normal individual, causes in the infected a depression in the opsonic content of the blood, the so-called "negative phase" of Wright. This blood change we have been able to approximately measure by means of the opsonic index, and we have seen that the drop in the opsonic power may be accompanied by marked constitutional symptoms, such as fever, malaise, etc. We have also observed at this time a local reaction at the site of injection.

Since Koch first described the effect of injections of killed cultures of the tubercle bacillus upon tuberculous animals, and as a result of his observations introduced the product, old tuberculin, for diagnostic and therapeutic purposes, many theories have been advanced to explain the phenomenon which is known to us all as a tuberculin reaction. Koch's own explanation was that the tubercle bacillus produced a toxin, which diffused into the surrounding tissues and there in concentrated form produced its most pronounced effects of coagulation necrosis and caseation, and that this necrosed tissue was surrounded by tissue upon which the now weakened toxins were not strong enough to produce necrosis.

Consequent to the injection of a dose of tuberculin, the added toxin, (for he considered tuberculin to contain toxin), permitted a further local and rapid spread of the necrosis, accompanied by constitutional symptoms.

Now there is good evidence to show that tuberculin does not contain specific exotoxin, and further we know that tuberculin does not produce necrosis, although under certain conditions it may lead to tissue change.

The tuberculin reaction is held by von Pirquet, Schick, Rosenau and Anderson, and others to be analogous to anaphylaxis, the tissue reaction of sensitized animals to a second injection of horse or other serum. In the case of tuberculin reaction, the infection takes the place of the first or sensitizing dose of serum and the injection of tuberculin corresponds to the second injection of serum. Von Pirquet's theory with reference to the early reaction to vaccination after small-pox, would not be out of place here and possibly has an important bearing. This author believes that the result of an infection is to bring about a change in the way the tissues react to a second infection by the same organism. He calls this altered tissue state "allergie." This may lead to hypersensitiveness or to temporary immunity, and is followed by a condition in which infection may occur but is combated by the formation of anti-bodies at the region of inoculation more rapidly and more easily than normally. Baldwin in this connection says that "revaccination is without result in the previously vaccinated child, because the virus fails to develop in the face of the prompt reactive inflammation which soon wears away. . . . We cannot interpret the local tuberculin reaction in any other way."

According to Marmorek tuberculin stimulates the tubercle bacillus to the production of a toxin, which he presumes can take place in the infected animal; this gives rise to local reaction and to the general systemic reaction of fever, etc. He does not regard tuberculin as containing toxins of the tubercle bacillus.

Bail's theory of aggrassin, Wasserman and Buck's complement fixation theory, and the above theory, can hardly be deemed conclusive, although they are of importance, and if time permitted might have been considered at length.

In this series of cases in which the reaction of the skin to tuberculin was tested, no particular type of case has been sought after, the cases have been taken as the requirements demanded, and the observer did not know in many instances the nature of the case he was dealing with.

Some of the cases subsequently came to autopsy, while others were operated upon and the diagnosis confirmed one way or another. Some errors have been made, and some of the readings may be open to question. Still, as a whole the results have been fairly regular.



While I admit that something may be gained by the use of various strengths of tuberculin, still, for purposes of comparison and to establish, if possible, for my own satisfaction, a reasonable standard of reaction, I considered that the use of a constant strength solution of old tuberculin would give the best results. Nor does the use of a constant strength tuberculin exclude comparison between the various grades of infection, for, if anything is to be gained from the intensity of the reaction, a fifty per cent. solution of old tuberculin will show all grades of reaction and conclusions may be drawn with more and more accuracy as experience increases. There is no doubt that there is some confusion as to the reading of the reaction and I must confess that it is sometimes rather difficult to arrive at a definite conclusion in the doubtful cases.

The method of procedure has been as follows. After the skin of the upper arm has been cleaned and disinfected, three minute scarifications, about two centimeters apart, are made one below the other, care being taken not to draw blood. A drop of fifty per cent. old tuberculin is then placed on the upper and lower scarified areas and a drop of water containing  $\frac{1}{2}\%$  formalin on the central area.

With a sterile glass rod the tuberculin is then rubbed into the upper and lower areas and with another rod the solution of formalin is treated in a similar manner. The areas are allowed to dry and a sterile dressing applied. The arm is examined in twenty-four hours and the result considered positive or negative on the presence or absence of the following signs: redness, vesication and induration.

A typical reaction would at this time have the following appearance. A centre of deep red colour showing minute papules, outside this a zone of lighter colour, sometimes yellow, and surrounded by an area of hyperemia, the whole being well indurated. The typical and positive reaction is always accompanied by hyperemia, but we frequently get pseudo-reactions which exhibit superficial redness and which are not accompanied by induration, and further, it is only in the very marked reactions that there is any considerable tendency to vesication. Redness then by itself does not constitute a positive reaction with a 50 per cent. solution of old tuberculin, there must be accompanying papulation, and induration. It is this induration, which in the typical reaction, by pressure on the capillaries of the skin, causes the yellow or paler area around the scarified area.

The cases in this series have been divided into four groups.

Group I.—Cases which showed definite evidence of tuberculosis or showed a tuberculous lesion at autopsy, 52.

Group II.—Cases which did not show any clinical or other evidence of tuberculosis, 27.

Group III.—Cases indefinite as to diagnosis, 14.

Group IV.—Seven cases of pleurisy with effusion, 7.

Group I includes in all fifty-two cases which showed definite evidence of tuberculosis of which nine gave a negative reaction. These negative cases were:—One case of tuberculoma of the cerebellum which came to autopsy, two cases giving the typical clinical picture of tuberculous hip disease, one case of tuberculous arthritis, one case of tuberculous spondylitis, two cases of advanced pulmonary tuberculosis, one case of extensive tuberculous peritonitis, which came to autopsy, and one case of tuberculous meningitis in which the tubercle bacillus was demonstrated in the fluid drawn by spinal puncture.

Of the nine negative cases four were cases of advanced tuberculosis, that is, they were of the type of disease in which reaction to tuberculin is not generally obtained. They were also cases which could be easily diagnosed clinically. This group then shows five other cases of tuberculosis which did not react to the test.

Group two numbers twenty-seven cases which did not show any clinical or other evidence of tuberculosis and in no case was a positive reaction obtained. This group would be of more value if the number of cases had been greater, but as far as it can be used it is satisfactory and shows that the reaction according to this method of application and reading is fairly reliable.

Group three, which includes fourteen cases indefinite as to diagnosis, is perhaps not so satisfactory. Four of these fourteen cases gave a positive reaction. They were one case of chronic colitis and three cases of irido-cyclitis.

The negative cases were, one case of indefinite glandular enlargement which clinically did not look tuberculous, and one case of suspected tuberculoma of the cerebrum which is probably tuberculous, but is not definitely so.

I find this the most difficult group to comment upon and I must admit that it is hard to draw definite conclusions from the results. With, however, the results of group one and two before us in which we see an error of only 10% as regards group one, and in which group two presents uniform results, I feel that the results in the cases of this group are approximately correct and have consequently been of considerable value as an aid to diagnosis.

Group four which consists of seven cases of pleurisy with effusion, all of which gave a negative reaction, is of considerable interest. These

cases may have been tuberculous and it is noticeable that no reaction was obtained. They have therefore been placed in a group by themselves and not under group one as negative cases.

It has been previously commented upon that cases of tuberculous disease with serous effusion do not in all cases react typically to tuberculin, and it is possible that, as regards the skin reaction, the type of case included in this group shows a similar variability.

To sum up I have found that of a hundred cases examined there have been 47 cases which have given a definite and positive reaction.

Of these cases 43 showed definite evidence of tuberculosis or showed a tuberculous lesion at autopsy, and four were cases indefinite as to clinical diagnosis.

Twenty-seven cases without evidence of tuberculosis were negative. Five cases of tuberculous disease in which a reaction might have been expected, did not react, and fourteen cases indefinite as to diagnosis reacted variably. Of these fourteen cases four were positive and have already been included in the recapitulation, and ten were negative.

By adding these ten negative cases, which it must be remembered have not been shown to be tuberculous, to the five tuberculous cases which were negative to the reaction, we have in all 15 cases which we might call tuberculous and which were negative to the reaction. This gives the highest possible estimate of error.

On the other hand we have the four indefinite cases which gave a positive reaction.

We see then that in this series of cases the reaction to tuberculin by the cutaneous method, when carefully carried out and interpreted, is not so common as we have been led to suppose by the reports in the literature, for, of one hundred cases examined only forty-seven gave a positive reaction, which figure is only a little above the estimated incidence (43.7 per cent.) of tuberculosis, according to McCrae, in the city of Montreal.

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# THE OCCURRENCE OF ADVENTITIOUS SOUNDS IN THE NORMAL CHEST.

BY

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Perhaps it would be better to entitle these notes the frequent occurrence of slight degrees of collapse in apparently healthy chests.

It is usually considered and taught that in auscultating the normal chest nothing should be heard of the respiratory tract but the breath sounds and the vocal resonance,—in other words there should not be any adventitious sounds present. And as a rule this is true. In many chests, however, if one listens carefully, especially during a full inspiration, there may be heard fine or even medium crepitations, and this when there are no symptoms or signs of anything organically wrong with the respiratory tract.

The most common situation in which these crepitations may be heard is in the little point of the left lung that lies immediately posterior to the cardiac notch, i.e., immediately behind and below the normal apex beat, but they may often be detected almost anywhere along the edges of the lungs, and especially at the bases behind. They are perhaps more common in children than in adults, but there is not much difference in this respect. They were heard recently in about one-third of all the children in the Children's Hospital who were free from signs of respiratory disease. Many of these children had been long in bed with hip, joint and other chronic surgical affections.

There seems to be wonderfully little reference in medical literature to these sounds considering how often they occur. A few authors mention that crepitations may be heard at the bases behind in weak people long bed-ridden. Thus H. A. Hare<sup>1</sup> says that "care should be taken that the fine crepitations sometimes heard in the chest at the bases behind in a person who has been long in one position in bed are not thought to be indications of pneumonia," and F. C. Shattuck<sup>2</sup> mentions such fine crepitations heard at the bases behind in people who have been long lying down, and says that they clear up on deep inspiration and are due to the unfolding of partially collapsed lung. Dr. Thayer, last May, at a meeting of the Association of American Physicians, in discussing one of the papers mentioned that he had often noticed crepitations in apparently normal chests and he thought that they altered with posture. Most, if not all, of the writers refer to such sounds as occurring in weakly if not

long bed-ridden people but they may frequently be noticed in out-patient and office practice in the apparently healthy and surely clinicians must subconsciously ignore them, as they are often too evident.

As to the nature of these sounds, it seems probable, as Shattuck mentions, that they are due to the unfolding of partially collapsed lung. That such may produce crepitations may be shown by the following experiments: 1. The lungs were removed from the body of a man who had died four hours before of malignant disease of the stomach with rupture into the peritoneal cavity. A tube was inserted into a bronchus and the lung was blown up while an observer auscultated over the lung. As the lung expanded a rush of fine and even medium crepitations were heard exactly like those that occur during life.

2. The same experiment was repeated, using the lungs of a young man who while in perfect health had been suddenly killed by a heavy object striking the head. The same crepitations were equally well observed.

3. A rabbit was chloroformed and the lungs immediately removed and treated in the same way and with the same result. Here the alternate expansion and collapse of ordinary respiration were imitated through the tube in the trachea and the crepitations were audible on both inspiration and expiration, but very much so in the former.

In ordinary quiet breathing, and many people breathe in no other way for long periods of time, only about 300 cubic centimetres of air, the so-called "tidal air," enter and leave the respiratory tract. If the individual likes he can inspire about 1,600 c.c. more than this. It follows that during quiet respiration a good deal of the lungs is not fully expanded. When this expansion occurs while the lungs are being auscultated the same cracklings are heard as were heard in the above experiments. Laennec<sup>3</sup> in describing moist crepitations well likened them to "the sounds produced by blowing into a dry bladder, or still more like that emitted by the healthy lungs when distended by air and compressed in the hand strongly." As above shown, similar sounds may be produced during the distension, and this more nearly represents what actually occurs.

Very often crepitations occur at the bases in weak people due to oedema, but such are of a very different nature and significance to the ones here described and they will not clear up with the same ease that those do which are due to partial collapse.

The recognition that such adventitious sounds may occur in practically normal chests is sometimes of value. This value consists chiefly in recognising that they are not of serious import. The sounds are, of

course, heard best with a phonendoscope, but may be readily detected with an ordinary stethoscope.

The location of these sounds, chiefly along the edges of the lungs, and especially just behind the cardiac notch; the fact that they readily clear up upon full respiration; the absence of causes of œdema and finally the absence of all symptoms and signs of respiratory disease usually make it an easy matter for one to recognize their true nature.

It would seem wise that people in whom such sounds are heard should be instructed to take regular breathing exercises.

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### A SPONTANEOUS SEROUS CYST FLOATING FREE IN THE ANTERIOR CHAMBER.

BY

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#### CASE REPORT.

On the 6th of December, 1905, Miss L. C., 21 years old, came to the Ophthalmological clinic at the Hôtel-Dieu. She complained of ocular fatigue at her work, dress-making, and called attention specially to her right eye, which was weaker than the left.

*Present Condition.*—Examination of the left eye in oblique light showed a slight pannus on the superior part of the cornea. Save for certain granulations in the cul-de-sac of the upper lid, the rest of the eye and its adnexa were perfectly normal.

More interesting was the condition found in the right eye. The first striking observation was the presence of a small cyst in the anterior chamber. The tumour was not perfectly round, but rather flattened in the antero-posterior direction, and measured about two and a half millimetres in its widest, and one and a half in its narrowest diameter. It was transparent, and a careful examination with Hartnack's glass allowed us to see that its capsule was greyish, dotted with pigmented spots, and traversed by small muscular fibres in the form of brown ramifications. The most remarkable feature in the case, which is perhaps unique, was that the cyst had no pedicle, but was entirely free in the anterior chamber. In fact, if the head of the patient was thrown forward quickly, the cyst could be seen to move upwards. The examination of the cornea

showed small opacities, as well as a slight pannus. The posterior part of that membrane was transparent and had undergone no change from its contact with the cyst. No trace of traumatism, or of perforation was present. The fluid of the anterior chamber was clear, and the iris was of the same brown color as that of the left eye. The iris bore well the frictions of the cyst-wall, and showed no inflammatory reaction. Contraction to light was normal, and there were no synechiæ. Dilatation was normal, and was not influenced by any reflex irritation. No pupillary membrane was present. The lens was perfectly transparent and the anterior lens-capsule had no pigmented areas.

After instillation of homatropine and cocaine the fundus of the eye was examined and found normal. Ocular tension was not increased. Examination of the upper lid showed a slight trachomatous infection.

The refraction gave the following result:

$$\begin{array}{rcl} \text{R.E.} & + 1 & - 3.75^\circ \text{ V} = 1/3 \\ \text{L.E.} & - 0.50 & 30^\circ \text{ V} = 1 \end{array}$$

Perception of color in both eyes was perfectly normal, as well as the fields of vision and the accommodation. There was no muscular asthenopia.

*Personal History.*—The patient said that one morning in January, 1898, she had noticed for the first time the presence of a small tumor in the right eye. The cyst caused no pain, and nothing else was noticed on that day any more than previously. Since that time, it had not increased in size and always preserved the same shape. The patient had not been incommoded by any inflammatory lesion caused by the tumour. She complained that on resuming the upright position after having bent her head forward, her right field of vision was obscured during the space of a few seconds. No history of ocular trauma was obtained. The patient was not the subject of any diathesis and enjoyed excellent health, the only illness she had had was smallpox at the age of four. It was as a result of this illness that the right cornea was affected following which the slight opacities remained. These opacities of the cornea amply explained the vision of  $\frac{1}{3}$ , especially with a mixed astigmatism.

As to the trachomatous lesion, she had never suffered therefrom and could give no explanation of it, she was even surprised when we gave her hygienic advice regarding it. There was no history of intestinal worms.

Her hereditary antecedents showed nothing of interest, nor could anything bearing on her case be elicited.

The diagnosis of spontaneous serous cyst was made, for it was evident that we had not to deal with the sac of a cysticercus, or any solid tumour.

Energetic treatment for the granular conjunctivitis was proposed for the purpose of preparing her for a removal of the cyst. Not only did she refuse operation, but even medical treatment, and she returned to her home with an order for glasses. On her return some time later she reported that she was well and perfectly satisfied with her glasses.

We have thought this communication interesting because we have not found similar cases in medical literature. Unhappily, this observation is not as complete as we could have wished, since there was no microscopic examination of the cyst in view of the refusal of the patient to allow operation. In view of the history of the condition, the cyst having suddenly appeared in the anterior chamber, we may be allowed to put forward a hypothesis to explain its presence in that situation. It is not the intention to make a long dissertation to support or refute the different theories of the formation of cysts of the iris.

Schmidt-Rimpler believes that most frequently they are formed by a crypt whose opening is obliterated and whose cavity is filled by a liquid similar to the aqueous humor.

Mackenzie and Bowman think that it arises from the presence of a fluid secreted between the muscular coat of the iris and its posterior epithelium.

According to de Wecker, these tumours are the result of a simple infolding or saccular deformity of the iris.

In our case, it should not be forgotten that we have here a spontaneous cyst, for there is no history of traumatism. It has assuredly developed in the posterior chamber, either upon the ciliary body or on the posterior surface of the iris. Treacher Collins has published observations with microscopic examinations of spontaneous serous cysts, adherent, which have developed on that posterior surface underneath the normal pigmented layer of the iris.

It is to-day admitted that the lining membrane of these cysts is not always composed of epithelium. In fact, the researches of Ch. Robin upon the subject show that sometimes the wall of a cyst of the iris does not possess epithelium, but only a material composed of fine, fatty, granules with a small number of pigmented cells.

According to the same author, the wall is formed by the tissue of the iris which seems to be doubled upon itself to give origin to a cavity. This opinion is also shared by Bowman.

In our patient, if this cyst has developed as have those reported by our English colleagues, if it has formed itself at the expense of the ciliary body or even of the posterior part of the iris according to one theory, it is not the less true that it has



had at some time a pedicle. This must have been filiform; and eight years ago, under the influence of some cause which cannot be determined, it has broken away from its point of attachment. Once free, the cyst being squeezed in the posterior chamber has naturally passed into the anterior chamber by the pupil. Very careful examination shows its anterior wall to be a little less convex than its posterior, and leads us to suppose that the pedicle was upon the posterior surface. The cyst, during the eight years it has lain in the anterior chamber, preserves its consistence by the renewal of its liquid contents, at the expense of the internal granular layer. Its external wall, surrounded by the aqueous humor, furnishes it by endosmosis with the elements necessary for the maintenance of its vitality. Thus its appearance is always the same and this iris, being accustomed to its contact, is not irritated thereby. If it will always be so remains a question.

Such is the hypothesis we advance on the subject of this mobile cyst in the anterior chamber, a condition so interesting by reason of its extreme rarity. Once more we express our regret at not having been able to operate upon this case and our consequent inability to present a microscopical report of the tumour with the clinical details.

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T H E

# Montreal Medical Journal.

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

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## TRANSMISSION OF DISEASE.

From the wide experience which Dr. Doty must have had as health officer of the Port of New York, one must conclude that his opinion upon the means by which infectious diseases are transmitted bears more than a little weight. He strongly combats what is known as the fomites theory which he defines as the belief that infectious diseases are constantly transmitted through cargoes of vessels, clothes, money, etc. While this theory is plausible and very popular there appears to be on investigation a constantly diminishing belief in it, since scientific bacteriological researches and the observations of practical sanitarians fail to support it. Dr. Doty points out that Yellow Fever is transmitted only by the mosquito, and that clothing, bedding and even the discharges of patients do not act as a medium of infection and are perfectly harmless. The mosquito, also, is the only medium of infection for malaria, while plague is communicated by the rats through the medium of fleas which infest them and fomites have but little, if anything, to do with the extension of the disease. He next discusses the transmission of Smallpox, Typhus Fever, Measles and Scarlet Fever, and points out in connection with Smallpox that the statements concerning the infection through the air being carried to a distance of half a mile or more, and that clothing which had been laid away for years may act as a medium of infection, and that persons have become infected in rooms which months previously had been disinfected,—these, says Doty, are statements accepted by practical sani-

tarians with a great deal of skepticism. Coincidences are chiefly responsible for the apparent proof of these statements.

In regard to Measles, Scarlet Fever and Diphtheria spreading to others from the clothing of well children, another explanation more plausible seems to be found in the fact now widely recognized that a child apparently well may communicate disease to others. Bacteriological examination alone demonstrates the fact that these children are carriers of infection.

In the case of Measles and Scarlet Fever, where the specific germ has not yet been discovered, a simple coryza or unnoticed desquamation may explain the infection. These results are constantly being presented where careful medical inspection is in operation.

Regarding rags used for commercial purposes and gathered from all parts of the world, frequently from where infectious diseases exist, the writer states that after giving this subject long and careful investigation, both in this country and in Egypt, he has yet to find conclusive or satisfactory evidence that such articles of commerce act as a medium of infection. There was no evidence found by English sanitary authorities working in Egypt to show that men, women and children constantly in contact with these rags in sorting rooms were more prone to infectious disease than those following other pursuits.

His investigations upon paper money as a medium of infection have a similar result. Those who handle such money, for instance in the Treasury Department of Washington, are not more prone to disease than others. The bacteriological investigation of paper money made in Yale University led to the conclusion that the bacteria present in paper money are nonvirulent, and that the forms most present are the air forms. From this it is concluded that money constitutes an unimportant factor in the transmission of disease.

The failure to arrive at uniform opinion regarding the transmission of infectious diseases is unquestionably due to the popularity of the fomites theory. No one doubts that in some unusual and rare instances, clothing, rags, and almost any article may transmit disease, but this is not the most important factor for practical sanitarians to consider. Indisputable evidence shows that infectious diseases are usually transmitted from the sick to the well, and another common means favoring such transmission, of which conclusive proof has been presented, is that well persons act as carriers of disease—insects carry disease.

This knowledge we now possess justifies a great diminution in disinfection hitherto performed, and Dr. Doty says that he has yet to meet with an instance where the delay and annoyance constituting an ex-

eedingly expensive process in order to disinfect the cargo of a ship, or to attempt to do so, was justified. From the practical standpoint, referring to sick room disinfection, there is but one agent that can be depended upon to destroy the organism, that is heat, either by boiling or by incineration, and the practical abandonment of the fomites theory not only does not, as many believe, involve danger, but substitutes for it a scientific, practical and successful means of dealing with outbreaks of infectious disease.

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### THE LAKE EDWARD SANITARIUM.

The province of Quebec at last is in possession of a Sanitarium for the cure of tuberculosis, and about this time circulars are being sent out to the physicians of the province calling for the recommendation of incipient cases of tuberculosis to the Institution. The Sanitarium building is now completely equipped for the accommodation of thirty patients, and we are able to state from personal observation that it is thoroughly up to date, and is outfitted in a first-class manner. Dr. W. E. Ainley, late of Lachine, previously of the Montreal General Hospital staff, is in charge as Medical Superintendent, and Miss Dodds, formerly of the Vermont State Sanitarium, of Saranac Lake, and previously of the Montreal General Hospital, is in general superintendence of the service of the house.

The Sanitarium has been built at a cost of about \$35,000, which, along with a considerable sum for its maintenance, has been subscribed by the citizens of the city of Quebec, with the exception of a single subscription of one or two hundred dollars from a Montreal citizen. It is well known how heavy are the claims made upon the English-speaking population of the city of Quebec, and it is greatly to their honour that they have so nobly supported the promoters of the Sanitarium scheme. A great debt of thanks is due from the province at large to the Hon. Richard Turner, the president of the board, whose work from the very inception of the idea until now has been unremitting.

It may be said of the building and furnishing, that every room in the Sanitarium connects with a balcony, and that in nearly every case the bed, if necessary, can be wheeled directly on to a balcony. The entire building is heated by steam, lighted by electricity, fitted with telephones, electric bells, and a complete system of fire protection and of fire escapes. In the engine-house near by are the pumps for the water supply and the dynamos for the supply of electricity. A large tract of land surrounding the building has been given by the province of Quebec, and it is hoped that the Sanitarium will become the centre of a system

of cottages, such as is in vogue at Saranac Lake. The hospital looks to the southward, over the beautiful expanse of Lake Edward, which, as is well known, is situated about one hundred miles north of Quebec on the Quebec and Lake St. John division of the Canadian Northern Railroad.

In the Sanitarium no free patients can be admitted, and this is not that the benevolence of the Founders is lacking, but that it simply cannot be done with the present resources. Every patient in the Sanitarium will receive the same food, attention and nursing, and all the rooms are counted as of the same value. No patient will be accepted who cannot pay seven dollars per week, which is about five or six dollars per week less than the actual cost of the patient. In consideration of this fact no patient will be admitted at the minimum rate of seven dollars, unless he carries a certificate from his clergyman and his physician that he is unable to pay a higher rate, but it is hoped that patients will be admitted who can pay the twelve or thirteen dollars a week necessary for their maintenance, or even more, as an offset to the expense incurred by their fellow inmates, who are less well able to pay.

We are perfectly prepared to hear some one criticize this Sanitarium, because it does not admit free patients, but if there are any such, we beg to remind them that it was not their money that built the Institution, and we think that it is a very generous thing that the citizens of Quebec should put at the disposal of the rest of the province room in this splendidly furnished institution. We trust that every medical man who has an opportunity, will recommend the right kind of case, because this Sanitarium is to cure incipient tuberculosis, and not in any sense to house dying consumptives. It is, therefore, necessary that great care be exercised, and that no patient shall be sent who has not a good chance of cure. And further, it is necessary that the physician exercise his judgment so that patients who will reap the benefit of this institution shall pay according to their ability. If these two points are carefully observed, we venture to think that the middle classes of the province of Quebec, and especially of Montreal, will have cause abundantly to thank the open handed citizens of Quebec for their liberality and generosity.

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#### THE WINNIPEG MEETING.

The Winnipeg meeting of the Canadian Medical Association, under the Presidency of Dr. Blanchard, with Dr. Steney Smith as secretary and stage manager, will stand out in the memory of those who attended it as more perfect in its arrangements and more smooth in its running than any of its predecessors. Lovely weather and genial western—or central—hospitality afforded to visitors one and all made the meeting

additionally memorable. The attendance equalled, nay, we believe, surpassed that at any predecessor. The impression left upon us was that the level attained by the Association is steadily and surely rising: that the general average of the communications in the different sections was better, the discussions more able, the influence of the Association greater than in previous years, good as have been the recent meetings. So much material was provided that it was possible to divide the work into five sections:—Medicine, Surgery, Obstetrics and Gynæcology, Eye and Ear, and the Laboratory Workers. The combined discussion was upon Nephritis, and here a thoughtful series of papers, medical and surgical, was followed by an excellent discussion opened by Dr. William Mayo, of Rochester. Of the social engagements the conversazione (and dance) at the Royal Alexandra Hospital, the afternoon reception on the grounds of Government House, given by the Lieutenant-Governor and Lady Macmillan, and the "smoker" were beyond praise. So good, in fact, was the last that the annual dinner held at previous meetings would seem to be doomed, even if other cities cannot hope to present the same intramural and extramural talent possessed by the capital of Manitoba. The chime of the "Man, Man, Man from Manitoba" still haunts us.

Of work accomplished for the profession at large that most deserving of notice was the determination eventually reached to establish an official journal of the Association. We believe that herein the Association is taking a step of the utmost importance for our profession here in Canada. At the same time we who have for all these years been engaged in medical journalism recognize very fully the seriousness of the step. We need a journal which shall interest and worthily represent the profession from one end of the Dominion to the other. This journal, high as have been its ideals, has never attempted such a task. We have, however, time and again found it difficult enough to interest our more limited clientele. When, as has happened on more than one occasion, we have accepted and printed a series of articles representing the most advanced work performed in our Montreal laboratories, we have found that those articles, while quoted with appreciation by medical papers in the States, in England and on the continent at large, have been too strong meat for the ordinary reader: when, on the other hand, we have unbent and attempted to afford a lighter and more varied fare we have been assailed with fear lest the reputation of the journal were being lowered. It is in short extraordinarily difficult to keep a medical paper on the highest level and at the same time to interest the ordinary reader in general practice. It is between this Scylla and Charybdis that the ship of the Association must be steered. That it is possible to accomplish the passage, witness the

journal of the American Association; all must depend in the first place upon who is appointed helmsman, and, in the second, upon the way in which the crew behaves, or otherwise upon the loyalty of the support given to the new journal by the profession during its early and perilous years.

Yet another matter of good augury was commenced at this meeting and must influence the policy of the Association and of the profession at large. We refer to the announcement that the four western provinces, British Columbia, Alberta, Saskatchewan and Manitoba, have reached a practical understanding to establish a common examination board, the details of the scheme alone remaining to be settled. There could be no better news. We know and we appreciate the fears of the different provinces, the relatively crowded condition of the profession in Manitoba, the fear manifested in British Columbia more particularly, but also in the other two provinces, that the country may become swamped with Manitoba men, the general impression throughout the West that the course and training at Winnipeg are not all that could be desired: the fear that as this is the only medical school in the West the standard of examination may have to be kept low. Knowing all this we admire all the more the broad spirit which has prevailed, and the spirit which regards the artificial boundaries of the provinces as no adequate reason why the Canadian practitioner may not pursue his beneficent work throughout the West. Let us assure our Western confrères that they are achieving that which must inevitably influence the whole Dominion and bring about what through political influences the Roddick Bill was prevented from accomplishing. If the West takes the lead the East must follow suit, and within a very few years we must see professional free trade from the Atlantic to the Pacific. We cordially congratulate our Western brethren over this notable advance.

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## Reviews and Notices of Books.

LECTURES ON HYSTERIA AND ALLIED VASO-MOTOR CONDITIONS. By THOMAS DIXON SAVILL, M.D., Lond. New York: William Wood & Company; London: Henry J. Glaiser, 1909.

In the preface to this work on Hysteria the author informs us that his wife has materially helped him in many valuable criticisms and suggestions. This practice of authors of medical works of obtruding their wives upon the notice of readers is a growing one, and is a stigma of hysteria in husband, or in wife, or in both. There might be some excuse for it in a work upon Hysteria did we not remember that from a woman you can learn nothing of women: they do not betray their secret. The most succinct statement upon the ætiology of hysteria is that with which lecture VII opens: "The essential and omnipresent cause of hysteria is an inborn and inherited predisposition to develop hysterical manifestations,"—which is much like saying that an arch-deacon is one who exercises archidiaconal functions. And yet the author arrives at the conclusion that a majority of hysterical phenomena are dependent upon a lesion of some kind, that this lesion consists of a vascular change in the part, and that this change is affected through the sympathetic system. We venture to think that the cause of hysteria lies much deeper than the vascular system; that, in short, it is an affair of morality. Up to a certain point the woman accepts her femininity and all that is implied thereby with unquestioning obedience. In time there comes a discontent with that negative condition of existence, and she becomes imbued with ideas which are foreign to her normal mind and opposed to her real nature. She puts on a superficial, sham self, which is but an imitation of the masculine morality. This new personality shows itself in self-confidence, independence, and assertiveness; but at the touch of some rough reality this artificial imitation flies in pieces, and the conflict between her real nature and this unnatural self produces those phenomena which are known as hysteria. It is a contest between what she knows to be true and what she suspects is false. Nor does the presence of hysteria in the male contradict this theory, since there are men with the nature of women as well as persons who are anatomically female and yet psychically male. Dr. Savill quotes Sydenham with apparent approval: "As to females, if we except those who lead a hard and hardy life, there is rarely one who is wholly free from them; and females, be it remembered, form one half the adults of the world." For so wide-spread a disorder there must surely be a more deeply grounded cause than a vascular lesion. This book contains everything



which has already been said upon hysteria; but it by no means plucks out the heart of the mystery.

**SEMMELOWEIS: HIS LIFE AND HIS DOCTRINE.** A chapter in the History of Medicine by SIR WILLIAM J. SINCLAIR, M.A., M.D., Professor of Obstetrics and Gynæcology in the University of Manchester. Manchester, at the University Press, 1909.

We imagine that it will be a surprise to most readers that, until the publication of this handsome volume of near 400 pages by Sir William Sinclair, there has been no adequate biography of Semmelweis in the English language, with the exception of a short monograph published by Dr. Duka in 1888. Even in Germany his "Aetiologie" was inaccessible until 1905, when Dr. Tiberius von Gyory of Buda Pesth under the auspices of the Hungarian Academy of Sciences published his collected works under the title "Semmelweis' Gesammelte Werke."

One turns at once to the book for an expression of opinion upon the fiction which has grown up chiefly in the United States that Dr. Oliver Wendell Holmes was the discoverer of the ætiology and treatment of puerperal fever. The author leaves one in no doubt. He pronounces these claims "mistaken and altogether groundless. Only misapprehension could have made such pretensions possible." At page 354 the author discusses the matter very fully and records the following opinion: "Holmes passed in review the work of others; he did not contribute a fact of his own personal experience or an original idea towards solving the problem of causation." However, he admits that Holmes' essay published in an evanescent Medical Journal in 1843 contained "rhetoric but very telling and useful rhetoric" in making known the discoveries of others.

The history of medicine in Vienna before the time of Semmelweis was one of detestable intrigue: "the methods of controversy were hateful and contemptible." Boer, the greatest obstetrician of his time, who had reduced the mortality from puerperal fever in the lying-in division of the hospital to .84 per cent, was removed on the pretext of insubordination; and in the first year of his successor, Klein, it rose to 7.8 per cent. His assistant was Semmelweis, who was described as "a young vigorous man of eight and twenty, somewhat florid, stout, and prematurely bald; he was frank and smiling with something almost puerile in his address." In this hospital there were two divisions. The medical students were restricted to one and the midwives to the other. The mortality in the one which the medical students attended was nearly ten per cent., and in the division which the midwives attended it was scarcely over three per cent. The accounts of the condition in the first

division are horrible. Women in their last agony declared they were perfectly well because they believed that the interference of a student or physician was a sure precursor of death. By a rigid process of reasoning Semmelweis arrived at the conclusion that the frightful devastation of puerperal fever was due to the cadaveric material adhering to the examining hands which had just been employed in the dissecting room and the dead-house. In May 1847 the practice was introduced of washing the hands in a solution of chlorinated lime and immediately the mortality dropped from eleven to three per cent.

It was ten years before Semmelweis finally resolved to publish a book upon the subject which occupied his whole life. He had "a congenital aversion from writing," an "inborn dislike for everything which can be called writing."

The life of Semmelweis was a long tragedy. He had a burning enthusiasm to lessen the woes of humanity. Opposition, contradiction, and neglect were his portion. Possibly there was something in his own character and conduct which incited strife and bitterness, though that makes the tragedy greater rather than less. Indeed there was evidence of eccentricity long before the mental derangement which clouded his last days. He died at the early age of 47 years.

In England alone did this discovery meet with respectful consideration, and it is fitting that this fine biography, the best in any language, should be written in English. The book is a valuable addition to the literature of medicine and Sir William Sinclair deserves the thanks of the whole profession for his labour in making it.

**EXERCISE IN EDUCATION AND MEDICINE.** By R. TAIT MCKENZIE, A.B., M.D., Professor of Physical Education, and Director of the Department, University of Pennsylvania. Octavo of 406 pages, with 346 illustrations. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, \$3.50 net; Half Morocco, \$5.00 net. Canadian agents, J. F. Hartz Co., Ltd., Toronto; W. B. Saunders Company, Philadelphia and London.

No person could be better equipped for writing a book upon exercise in education and medicine than Dr. McKenzie. To begin with, he knows how to write, and in the second place, he knows what he is writing about, two qualifications which cannot be over estimated. Dr. McKenzie is himself educated physically and mentally and he has educated students physically and mentally these fifteen years past. Also, he practised medicine in the hospital in the world at large, in the consulting room, and in the gymnasium. As if this were not enough—athlete, physician, writer, teacher, anatomist—he is an artist besides.

Dr. McKenzie followed the Arts course in McGill University to a conclusion. He graduated in medicine in the medical faculty of the same University. He served the usual term in the Montreal General Hospital. He was director of physical education, and practised, at first general and then special, medicine. For years he taught anatomy in the dissecting room. He faithfully recorded his observations in these various fields and reflected upon them. All these years he was pursuing an independent career in Art, until at length his sculpture was regularly exhibited at the Salon of Paris and the Royal Academy of London. In addition, he is a man of common-sense, scientific honesty, and good judgment, not drawn aside by the allurements of this system or of that, but willing and able to find in each the exact line between fact and pretence.

The book in question is precisely such a book as such a man would write. Dr. McKenzie set out to do a thing which was worth doing, which he knew perfectly how to do. He did it slowly and perfectly. In short the book is the man, a classic in the same way that Gray's Anatomy is a classic.

The illustrations are 346 in number and are for the most part from the author's own drawings, models, or sculpture. The masks which illustrate fatigue are modelled from life and are especially striking. Artistic care is evident even in the photographs of the most commonplace subjects, which makes the book as much a product of the studio as of the laboratory or gymnasium.

The literary presentation of the subject is worthy of like praise. It is clear, fresh, full, and pleasing, enriched with learning and illumined with flashes of wit. The book contains 24 chapters and deals with exercise in every aspect which it is likely to present to the physician or teacher, to the sick, the weak, or the healthy.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Volume III, September, 1909. Lea & Febiger, Philadelphia and New York, 1909.

The contents of this volume are: "Disease of the Thorax and its Viscera, including the Heart, Lungs, and Blood Vessels," by William Ewart, M.D., F.R.C.P. "Dermatology and Syphilis," by William S. Gottheil, M.D. "Obstetrics," by Edward P. Davis, M.D. "Diseases of the Nervous System," by William G. Spiller, M.D.

The September number of "Progressive Medicine" contains 329 pages and deals with four subjects: Diseases of Thorax, Dermatology and Syphilis, Obstetrics, and Diseases of the Nervous System. The contributors are: Dr. William Ewart, Dr. W. S. Gottheil, Dr. Ed-

ward P. Davis, and Dr. William G. Spiller. Tuberculosis, quite properly, receives a full consideration. Of Rosenberg's discovery of tubercle bacilli in the blood in tuberculosis the author says: "If it be confirmed that living bacilli occur in the blood of practically every tuberculous patient, then all other methods of diagnosis will sink into insignificance as relatively uncertain and late." Much stress is laid upon the observations of Miller and Woodruff recorded before the International Congress at Washington in 1908, with them 51 per cent. became infected. This suggests that the air and not milk is the vehicle in which the infection is conveyed. The review of tuberculosis of the lungs is a masterly one. The subjects of Dermatology and Syphilis occupy fifty pages and their treatment must be of great value to specialists, as it certainly is even to a general practitioner. In the review of "Obstetrics" there is an interesting statement, that podalic version was a common operation amongst the ancients and that all knowledge of it was lost for a thousand years until it was re-discovered by Paré. We imagine that all physicians who are alert for new methods and anxious for a judgment upon them will find "Progressive Medicine" a necessity. Its interest, however, for Canadian readers would possibly be increased if some mention were made of the work which is being done in this country.

**OBSTETRICS.** A Manual for Students and Practitioners. By DAVID J. EVANS, M.D., Lecturer on Obstetrics in McGill University, Montreal; Fellow of the Obstetrical Society of London. New (2nd) edition, enlarged and thoroughly revised. 12mo, 440 pages, with 169 illustrations. Cloth, \$2.25 *net*. Lea & Febiger, Philadelphia and New York, 1909.

It is now some ten years since we had the privilege of calling this book to the attention of the profession; it is only a few months ago that we had occasion to mention that a translation had appeared in the Chinese language. A work which survives so long in the choked field of obstetrics has by that very fact proved its worth. The main changes we note are that the sections dealing with implantation of the ovum, development of the placenta, and toxæmia have been re-written in accordance with the more modern knowledge of these subjects. There are many minor changes and revisions; the operation of symphysiotomy, we are glad to learn, has fallen into disuse. As a writer, teacher, and practitioner Dr. Evans has won an honourable place in his department of medicine.

**THE PRINCIPLES OF BACTERIOLOGY.** A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D., Professor of Hygiene, University of Pennsylvania. New (8th) edition, thoroughly revised. 12mo, 631 pages, with 100 illustrations, 26 in colors. Cloth, \$2.75, *net*. Lea & Febiger, Philadelphia and New York, 1909.

It seems a great many years since the present writer reviewed the first edition of Abbott's "Bacteriology," probably twenty, and this is the eighth time one has mentioned the appearance of a fresh edition. As one examines this, the latest, it is remarkable how little change there has been in the principles of the subject in all these years. With the exception of the articles on infection, immunity, phagocytosis, and vaccination the first edition would yet do very well as a safe guide,—and not for the beginner alone as the author so modestly suggests. It would seem certain that Abbott's "Bacteriology" has won a permanent place in the minds of students.

**MEDICAL JURISPRUDENCE.** Forensic Medicine and Toxicology. By R. A. WITTHAUS, A.M., M.D., and TRACY C. BECKER, A.B., LL.B. Second edition, Volume III. New York: William Wood and Company, 1909.

This volume, containing near 1,000 pages, completes the issue of this extensive publication. The subjects with which the volume deals are: Medico-legal Relations of Vision and Audition, and of Injuries to the Eye and Ear, by J. H. Woodward; Medico-Legal Relations of Insurance, by A. L. Becker; Medical Aspects of Insanity in its Relations to Medical Jurisprudence, by Edward D. Fisher; Mental Unsoundness in its Legal Relations, by Tracy C. Becker and Charles A. Boston; Care and Custody of Incompetent Persons and their Estates, by Goodwin Brown, revised by A. L. Becker; Medico-Legal Aspect of Marriages and Divorce, by A. L. Becker; Medico-Legal Relations of X-rays and Skiagraphs, by Albert G. Geysler; Medico-Legal Examination of Blood and other Stains and of the Hair, by James Ewing. An index of 70 pages completes the volume.

The volume opens with a list of cases which are cited. The list occupies fifty pages of double columns and must include 2,500 cases. It is proper to remark that the value of a decision depends somewhat upon the court in which it is given and somewhat upon the judge who delivers judgment. A jurist who relies absolutely upon the authority of a decision irrespective of its origin occupies a position which differs little from that of a Maccabean rabbi or a Chinese mandarin, by which is only meant that this book will have less authority outside of the United States than within. It will probably be of greater value to the lawyer

than to the physician, especially that part which gives a digest of the statutes of all the states upon the care and custody of incompetent persons. The respect accorded to expert medical evidence in the courts has not been increased by recent events in New York, an expert giving "evidence" on different sides according as he was paid for it. We trust that this important work will assist in restoring medical jurisprudence to its high place.

PHILADELPHIA GENERAL HOSPITAL REPORTS, edited by HERMAN B. ALLYN, M.D. Philadelphia: Printed by Dunlap Printing Company, 1909.

This is a publication entirely creditable to the Hospital from which it emanates in respect of quality of material and the arrangement of it.

NAVAL HYGIENE. By JAMES DUNCAN GATEWOOD, M.D. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1909. \$6.00, net.

This is the first book which we remember to have seen which deals with the hygiene of the naval force as apart from those measures which are employed in the army and in civil life. And yet the subject must be capable of separate treatment since this book upon it contains nearly 800 pages and weighs only a few ounces under five pounds. It contains eight coloured plates and 105 other illustrations. The author, Dr. Gatewood, is instructor in naval hygiene in the United States Naval School in Washington and medical inspector in the United States Navy. The very magnitude of the work is also a testimony to the growing magnitude of the navy with which it deals. There is a vast deal of information in the book upon every possible subject from ship-building to the proper method of cutting meat, cleaning fish and making bread. The author knows well how to interest his reader, even one who has no special knowledge of the subject. He writes clearly and agreeably and understands the handling of the long sentence, which is ever the mark of the experienced writer. On page 318 there is one sentence which occupies 21 lines of an average length of 12 words each. It would be hard to imagine a more complete book upon the subject or one which so evidently bears its authority with it.

THE BODY AT WORK, a treatise on the principles of physiology, 460 pages, with illustrations and index. Demy 8-vo. Price, 16s. net. By ALEX HILL, M.A., M.D., F.I.C.S.

In this book the author describes the phenomena of physiology in the light of the conclusions which modern science has drawn as to their interdependence and as to their causes. Its aim is to present a definite picture in which the broad outlines of scientific physiology, especially as

modified by recent research, are set forth in vivid language and maintained clearly in view without being obscured by a mass of detailed evidence.

Thus, while not professing to be a systematic text-book for the use of the medical student, the book appeals not only to the scientifically minded who wish to become acquainted with the developments of recent physiology, but also to a wide circle of both teachers and learners who are more especially interested in its medical applications.

**THE OPHTHALMIC YEAR BOOK, Vol. VI.** By EDWARD JACKSON, M.D., G. E. DESCHWEINITZ, M.D., and THEODORE B. SCHNEIDEMAN, M.D. Published by the Herrick Book and Stationery Company, Denver, Colo., 1909.

This valuable synopsis of the literature of Ophthalmology published during the year 1908 is a very useful work for the specialist. Every succeeding year the work is assuming larger proportions, and although much of the matter written during the year borders upon twaddle, yet one has to take the chaff with the wheat, if one wishes to secure the more valuable material. The book represents a vast amount of work in the digesting of the material at the command of the editors; this is thoroughly done, and a useful catalogue of the books and original articles published during the year is appended.

J. W. S.

**SEVEREST ANÆMIAS, THEIR INFECTIVE NATURE, DIAGNOSIS AND TREATMENT.** By WILLIAM HUNTER, M.D., Edin., F.R.C.P., Physician and Lecturer on General Pathology and Morbid Anatomy, Charing Cross Hospital; Physician to the London Fever Hospital. Volume I, with historical schemes, charts and plates. Macmillan and Co., Limited, St. Martin's Street, London, 1909. The Macmillan Company of Canada, Ltd., Toronto. Price, \$3 net.

Dr. William Hunter has devoted many years to the study of the severe anæmias, and is inclined to be dogmatic upon certain points; many of these are elucidated in the present volume. The subject of this volume, Addisonian Anæmia, is better known to many under the name Pernicious Anæmia, which term, however, Dr. Hunter wishes to render obsolete. Perhaps he is right, but whether he will succeed is doubtful: he points out that many kinds of pernicious anæmia are not Addisonian anæmia, but it seems to the reviewer that on this continent the terms are synonymous, and to those who have learned their medicine in the last decade we doubt if there is any distinction between the terms. Dr. Hunter thinks, perhaps reasonably, that there is a cruelty to the patient

in using a term of such evil omen, and for this reason would drop it. Whether this will succeed remains to be seen.

Throughout parts II, III and IV, the author stands firmly for the name Addisonian Anæmia, and here he is undoubtedly right. Addison described the disease in 1822 fully, correctly and lucidly. In 1871 Biermer confounded it with many other anæmias and made a mess of the whole affair. The world with its usual lack of wisdom began to talk about Biermer's anæmia, when they meant Addison's anæmia, and Biermer himself has since more than once shown that he had no definite conception of the Addisonian, apart from other severe anæmias. As often happens, his compatriots at once dubbed the disease Biermer's anæmia, quite ignoring the fact that is beyond cavil, namely, that Addison had done all that Biermer did, better and fifty years earlier. Dr. Hunter fights a good fight for his British predecessor, and must be admitted to have all the right of the argument.

With the controversial ground cleared, part B deals with the pathology of the disease, especially with hæmolysis. Much of this work is from the author's own hand. The iron pigment deposited is a definite part of the process, and its distribution largely in the liver as compared with the spleen (a reversal of the usual state of affairs) is distinctive. This is an initial not a terminal symptom, and persists.

In etiology, the author points out the frequency of glossitis, and other infective lesions of the alimentary tract. This is undoubtedly a point of prime importance. Finally, the bone-marrow changes are dealt with, and the hæmatological characters of the disease. An excellent bibliography and index complete the volume.

The book has a great deal, perhaps too much, of historical reference, for less would have proved the writer's contentions; but the historical, as well as the purely technical parts, come from the pen of one who has more knowledge of the disease at his command than has any other man, and it is always a pleasure to read the work of a man who knows to the most precise degree about what he is writing.

J. McC.

**THE RECTUM. ITS DISEASES AND DEVELOPMENTAL DEFECTS.** By SIR CHARLES BALL. Oxford Medical Publications, D. T. McAinsh & Co., Toronto.

This work, published in 1908, is undoubtedly the best, at present, in the English language on the subjects covered by its title. The suitability of its form, binding and printing makes of the reading a pleasure and the illustrations are accurate and clear. The anatomy and development of the rectum are fully and clearly given and yet in so few words as to suit the needs of even a junior student. Throughout the work the



author exhibits a wise conservatism, as shown well in this distrust of the complicated specula that have been often highly recommended for the diagnosis of high rectal diseases. The statement of his results after excision of the rectum for cancer, while not encouraging, point to the necessity of an earlier diagnosis. His chapters on the treatment of pruritus ani and on rectal prolapse are worthy of careful attention.

This work cannot be too highly recommended not only to surgeons but also to general practitioners and student. C. P. K.

HANDBOOK OF DISEASES OF THE RECTUM. By HERSCHMAN, 1909.  
C. V. Mosby Co., St. Louis, Mo.

The author commences his work with a chapter on the anatomy of the rectum, and this, as it is practically a reprint of Ball's work on "diseases of the rectum," is good. He omits any reference to the development of the rectum and nowhere mentions any of the congenital defects of the rectum or anus. The work is characterized throughout by a want of completeness in every subject mentioned and by the insertion of a large number of useless plates. The text drops into italics on the slightest, and one might say on no, provocation. The author shows a marked desire to coin new and useless words. When one finds that a chapter is devoted to the examination of fæces with a view to determining such conditions as "alcoholic stools," one feels that the author has wandered far afield. This work is without the slightest reason for being in existence. C. P. K.

OSLER'S MODERN MEDICINE. Volume VI. Lea & Febiger, Philadelphia and New York, 1909.

Almost half of the sixth volume of this now well known system is devoted to the urinary system. Dr. J. McCrae in his introductory article deals with the physiology and pathological physiology of the kidney. He succeeds, in a somewhat difficult subject, in placing before the reader an excellent synopsis of existing views, and what is of no less importance in indicating many features in which current knowledge is defective or uncertain. Anomalies of the urinary secretion is dealt with by Dr. Garrod, but in less detail than is often found in the larger textbooks on diagnosis. A chapter on uræmia by the same author is more interesting and gives a clear account of the theories, symptoms and treatments of this protean disorder.

The section on nephritis by Dr. J. B. Herrick is in every way an excellent one, being thoroughly practical as well as giving prominence to theoretical considerations and experimental results. The usual classification into acute, acute parenchymatous and chronic interstitial ne-

nephritis is retained, whilst the last named is subdivided into primary interstitial nephritis, secondary contracted kidney and the arterio-sclerotic kidney. The writer insists, however, on the impossibility of sharply defining these classes either pathologically or clinically. The clinical manifestations of nephritis are described in detail and there is little left unsaid in these paragraphs. A somewhat fuller discussion of the relationship of the kidneys to the changes in the heart and vessels would have proved acceptable, but the author has evidently preferred to devote his space to the more practical aspects of his subject.

The bacteriology of the Infections of the Urinary Tract and Pyogenic Infections of the Kidney are discussed in a well written article by Dr. F. R. Brown, whilst Dr. H. H. Young writes on Tumors of the Kidney, Urinary Lithiasis and Calculi and on Genito-Urinary Disease with Disease of the Prostate. The frequency of carcinoma of the prostate, to the recognition of which the profession owe so much to Dr. Young, is duly emphasized.

Dr. Dock's article on the ductless glands is very complete and is particularly valuable in introducing the numerous recent advances in our knowledge of this subject.

Under the heading of Diseases of Obscure Causation are included Hodgkin's disease, Arthritis Deformans, Osteomalacia, and Adiposa Dolorosa.

The chapter on Arthritis Deformans, by Dr. Thos. Macrae, is an excellent account of the pathology and clinical features of the disease. The joint changes are regarded as probably due to bacterial toxins, and the deleterious influence of infections of distant parts is quoted in favor of this view. The skiagraphs and plates illustrating the text are well chosen and helpful.

Vaso-motor and trophic disorders are treated by Doctors Osler and Emerson. Raynaud's disease, by the former writer, is written in a graphic and simple style, and the main features of the disease are presented in such a way as to prove of much value to the teacher and student. The usual gloomy prognosis in this malady is brightened by a description of milder types of the disease ending in recovery. The chapter on Angio-neurotic oedema is a valuable contribution to a subject to which the author has devoted several important papers.

A short chapter on the Medical Aspects of Life Insurance, by Dr. Greene, concludes the volume. It is regrettable that no statistics bearing on the insurance of impaired lives are introduced. Carefully compiled results from the archives of the large companies would do much to place the selection of risks on a more scientific basis.

The volume, as a whole, is a credit to the editors and contributors, and is well up to the high standard already set in the earlier volumes of the system.

A TREATISE ON THE PRINCIPLES AND PRACTICE OF MEDICINE. By ARTHUR R. EDWARDS, A.M., M.D., Professor of the Principles and Practice of Medicine and Clinical Medicine, Dean of the Faculty in the Northwestern University Medical School, Attending Physician to Mercy, Wesley Hospital, etc. Second and thoroughly revised edition, illustrated with 100 engravings and 21 plates and containing 1,257 pages. Lea & Febiger, Philadelphia and New York.

The first edition of this book appeared in 1907 and was given a brief and favorable review in this Journal in August of that year. In closing the notice written at that time we remarked that the work should pass through many editions. The early appearance of the second was at once a commendation of the book and of the author's activity and desire to keep abreast of the times. With his characteristic directness of style, Dr. Edwards succeeds in giving a "vastly greater amount of information in a space decreased by 70 pages." This information comprises new chapters on cardiac arrhythmias, cardiac neuroses, tropical splenomegaly; references to the use of anti-meningitis serum of Flexner and Jobling, recent epidemics of meningitis and poliomyelitis, the spirochæte of syphilis, the status of tuberculin therapeutically and diagnostically.

The contents are comprised under eleven sections, the arrangement of which differs but slightly from that in the former edition,—the section on Intoxications and Sun-stroke terminating the book where that on Diseases due to Animal Parasites was found in the first edition. We have much pleasure in commending the book as one helpful to students and practitioners alike.

W. F. H.

COMMON DISORDERS AND DISEASES OF CHILDHOOD. By GEORGE FREDERIC STILL, M.A., M.D., F.R.C.P., Professor of Diseases of Children, King's College, London. Cloth, 731 pages, with illustrations. Price, \$5.50. Oxford University Press, London, 1909.

This rather modest little book is of interest as giving us the mature ideas and views of one of the leading English pædiatricians. Dr. Still declares in his preface that this is no systematic treatise or textbook, but that he has chosen to be selective and discursive as it suited his bent, and he has carried out this idea in a very fascinating manner. Perhaps the most interesting chapters are those written not about definite diseases but about commonplace conditions and symptoms in children, such as

are seldom considered in ordinary text-books. Sections on "dental caries," "teeth-grinding," "bilious attacks so-called," "fever of obscure causation," "nervous children," "disorders of speech," and "morbid habits in children" will be found of great value to any ordinary practitioner.

The illustrations and charts are unfortunately very few in number; those that are present are well chosen and illustrative. The sections on infant-feeding and disorders connected therewith are very short and concise, but clearly written, the writer naturally following the teaching of the English school. It is chiefly in connection with the nervous diseases that Dr. Still exercises his claim of being discursive. Chapters on "Mongolian Idiocy," "spasms nutaus," "habit spasm," "the cerebral palsies," etc., are especially complete and illustrated with a great wealth of statistics and clinical observations.

Altogether the book is one of the most interesting of those recently published on the subject of children's diseases from a clinical standpoint, and will be found to furnish many valuable hints to anyone specially interested in the study of children.

**MANUAL OF DISEASES OF THE EYE.** By CHAS. H. MAY, M.D. Wm. Wood & Co., New York, 1909. Price, \$2.00 net.

The appearance, after so short an interval, of another edition of this text-book is evidence of its deserved popularity. The present writer, in reviewing the last edition of the work, stated that he considered the success of the book was in an appreciable measure due to its convenient size; and he again notices with satisfaction that, while the recent advances in ophthalmology have been carefully incorporated in the volume, this has not been done at the expense of one of its best features.

W. G. M. B.

**POLITZER ON THE EAR.** New (5th) edition. A text-book of the Diseases of the Ear, for students and practitioners. By PROFESSOR DR. ADAM POLITZER, Imperial-Royal Professor of Aural Therapeutics in the University of Vienna; chief of the Imperial-Royal University Clinic for Diseases of the Ear in the General Hospital, Vienna, etc. Translated and edited by Milton J. Ballin, Ph.B., M.D., Assistant Surgeon, New York Ophthalmic and Aural Institute, and Clarence L. Heller, M.D. Fifth edition, enlarged and thoroughly revised. Octavo, 892 pages, with 337 original illustrations. Cloth, \$8.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1909.

It is with great pleasure that we take the opportunity of review to bestow unqualified praise upon this work. The present edition was made

necessary by the rapid advances made in recent years especially in our knowledge of the pathology and operative treatment of suppurations in the internal ear and knowledge of the functions of the labyrinth. The functional tests for the condition of the labyrinth have been very carefully worked out and studied in the author's clinic, and so his reports of these results will be welcomed by all. The discussion of the various diseases is most thorough and unbiased. All sides of the questions are dealt with impartially, and where the author gives his own judgment on some obscure point it is done with a modesty that is doubly admirable in so great an authority. The book is a veritable mine of literary reference, invaluable to the specialist. The sections of the suppurative conditions of the middle ear spaces and their complications, which will perhaps be of most interest to the general practitioner and surgeon, are dealt with in a clear and comprehensive manner which leaves nothing to be desired. The translators, Drs. Ballin and Heller, deserve due share of praise for their most excellent work of translation. It only remains to offer our word of congratulation to Prof. Politzer on the appearance of this new edition of his great work and to wish it a full measure of well-merited success.

E. H. W.

A TREATISE UPON OPERATIVE TECHNIQUE (in French). By CHAS. MONOD, Professor of Surgery in the University of Paris, and J. VAUVERTS, Surgeon to the State Hospitals of Lille, France. Second edition of second volume.

The second edition of the second volume of this now well-known work upon operative technique has just appeared. The second edition of the first volume appeared about 9 months ago. The whole work has been completely remodelled and has been brought right up to date in all matters surgical.

This volume deals with the surgery of the mouth, œsophagus, intestines, liver, pancreas, prostate, testicle and lastly with the female generative organs. The authors have not attempted to give a complete enumeration of all the surgical methods that are in or out of vogue, but have exercised a wise choice based upon a wide experience, of the best surgical procedures, which they outline in detail, and then later describe in what particulars other methods differ from these and what are their chief indications. Perhaps it is to be regretted that the reasons which governed them in their choice have not been discussed, but one must admit that to have discussed a plan of attack in given cases would have drawn the authors into the domain of surgical therapeutics; again to have treated of the merits of operations would have been to enter upon the subject of surgical results, and the work could no longer have been pub-

lished under its proper title of "A Treatise upon Surgical Technique."

Monod and Vauvert's work is a reliable outline of all the surgical procedures now acknowledged by surgeons in general to be worthy of a place in a volume of this kind. There is a strong tendency for certain operations (and this applies to all the branches of the less exact sciences) to live in text-books, from decade to decade, long after they have ceased to be applied by surgeons of repute. Fortunately the authors have had the requisite courage to strike through many of these and to consign them to well-deserved oblivion. Monod, with his wide experience in surgical matters, was perhaps best fitted at the present day to carry out this policy of retrenchment.

Every new procedure is, on the other hand, outlined with a clearness that leaves nothing to be desired. To those who have studied anatomy in the English schools a difficulty will present itself in the differences of anatomical nomenclature, but these after all are few in number and are readily overcome.

The bibliography at the end of each chapter is one of the most valuable assets of the work, for it is complete and covers the whole of the literature of surgery.

The work is a remarkably complete and valuable one in which those interested in surgery will find a detailed and most accurate description of all present day surgical procedures, and the 2,337 plates (mostly black and white) add much to the value of the volume as a reference book of surgery.

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## Retrospect of Current Literature.

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### OTO-LARYNGOLOGY.

UNDER THE CHARGE OF DRs. BIRKETT AND JAMIESON.

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SIR FELIX SEMON. "Remarks on a Case of Pneumococcus Invasion of the Throat, upon which Laryngeal and Pulmonary Tuberculosis Supervened." *British Medical Journal*, June 26, 1909.

In this article Sir Felix Semon presents in detail an account of the course of a grave case of pharyngo-laryngeal ulceration, the infecting agents being the pneumococcus and the bacillus of tuberculosis.

The writer had previously in the *Medical Magazine* (December, 1908) described two cases of pneumococcus invasion of the throat, their chief characteristics being profound asthma, ulceration of the affected parts, an almost entirely afebrile course, and complete absence of swelling of the cervical lymphatic glands.

The two earlier cases had run protracted courses, but in the end recovered completely except that some scarring remained at the sites of the ulcers. Accordingly, to the third patient a favorable prognosis was given, but unfortunately in this case, himself a physician, a secondary infection by tuberculosis took place, and death resulted.

This patient was under observation from October, 1908, till April, 1909.

At the onset there was found only swelling of the lingual tonsil; but in the second month a tiny ulcer appeared on the left wall of the throat, cultures from which yielded an almost pure growth of the pneumococcus.

In December there developed an acute œdema of the mucosa covering the arytenoids and the epiglottis. The condition varied from day to day, and once there was slight dyspœa.

The patient was inoculated in January with a pneumococcus vaccine prepared from his own cultures, but he received no benefit from this.

Soon afterwards his condition became much aggravated. Fresh ulceration occurred in the pharynx and over the arytenoids, and the ventricular bands "were either covered with some ashy-grey deposit or were infiltrated." Examination of the lungs revealed slight dullness and harsh expiration "on the right side, corresponding to the spine of the scapula."

Now, and apparently for the first time, tubercle bacilli were found in small numbers in the sputum.

From this time on the patient went downhill rapidly, and died in the end of April, whether of pulmonary tuberculosis or of pneumococcus infection or of both combined being undecided.

Scrapings of the ulcerated surfaces were examined at different times, and the reports of the findings were of no slight interest.

Thus on the 9th of February "Dr. Bulloch reported the extremely remarkable result he had obtained from the scrapings of the patient's pharyngeal and laryngeal ulcers which I had effected two days previously. Whilst the *pharyngeal* specimens were simply teeming with *pneumococci* without any evidence of tuberculosis, the scrapings taken from the ulcerated spots on the *arytenoid* cartilage contained large clumps of *tubercle bacilli*. . . . . together with very numerous pneumococci."

A subsequent report from Dr. Collins, dated March 24th, runs as follows:

"*Posterior Part of Tongue.* — Scattered single and one large clump of tubercle bacilli, some pneumococci, and a few staphylococci and streptococci.

"*Pharynx.*—A few tubercle bacilli and a few pneumococci.

"*Epiglottis*.—Numerous tubercle bacilli, singly and in small clumps, numerous pneumococci, some staphylococci.

"*Sputum*.—Numerous tubercle bacilli, a few cocci, and short bacilli."

Sir Felix Semon traces the case from a primary pneumococcus stage, through the period where a secondary tubercular infection gained a foothold in the larynx, to the terminal condition where the pharynx showed "enormous improvement," but a terminal pulmonary affection marched steadily forwards.

He feels justified in presenting the fullest details "to assist further observers, and to enable them to build up a clinical picture of the disease."

H. S. M.

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