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INTUSSUSCEPTION, WITH REPORT OF A CASE.*

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FRIDAY evening, February 8th, Edgar B., aged eight months, had a sudden pain in the abdomen, referred, more particularly, to the umbilical region. He suffered slightly during the night, was restless and slept poorly. Saturday morning the child was uncomfortable, but in no great pain. In the afternoon some blood was passed per anus. From this time till Sunday afternoon there was tenesmus and several discharges of blood and mucus. On Sunday afternoon medical aid was sought and the information given that the bowels were not right, that the patient had passed blood, but had not a fæcal evacuation on Saturday or Sunday. A request was made for tablets to regulate the bowels. I ordered a normal salt solution per rectum and tablets of calomel to be administered in small doses till improvement.

The child's condition was not seriously regarded by the parents, and it was not till Monday morning at two o'clock that I received a full account of the case. The message at this hour was that there had been no movement of the bowels since Friday, that the child was straining, and though in no great pain, was restless. I expressed the opinion that the symptoms described indicated a serious condition, and intimated that the child should be seen at once. I felt convinced that the cause of the trouble was an intussusception.

The child's appearance was fairly good, and except for fretfulness a serious state would not have been credited to the little one. The abdomen was not tense, nor rigid, and offered no resistance to the examining hand. Palpation did not reveal any unusual condition, but an examination per rectum encountered a tube-like structure on the left side in the region of the sigmoid flexure. There was a ring-like extremity with a central opening and resembled the feel of the os uteri. With the index finger of the right hand fixing the lower extremity of the tumor, it was possible to define the intussusception with the fingers of the left hand.

Immediate operation was urged, but the parents failed to realize that a condition so tolerable needed a procedure so radical. I advised a consultation, and to save delay stated the case to the consultant, Dr. Hay,

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over the 'phone, and asked his opinion. It was then agreed that the method which presented the best hope of recovery was an operation for the immediate relief of the obstruction. In one hour the child was ready for operation, and I opened in the median line. The crescentic-shaped tumor was found to extend from the left hypochondrium to the brim of the pelvis, with its lower extremity near the sigmoid flexure. The intussusception was of the enteric type, and involved the jejuneum in its upper part. The sheath slipped easily from its intussuscepted portion as the peritoneal surfaces were bathed freely with a serous fluid. The surfaces were darkly congested, were free from adhesions, and gave promise of a quick return to their normal conditions. On the reduction of the intussusception the distal portion of the bowel was immediately inflated with air, which offered much difficulty to the return of the exposed part to the abdomen and the subsequent closure of the wound. With the easy reduction of the tumor, the short time of the operation and good quality of the pulse, a reasonable hope for recovery was entertained. A few hours preceding operation the vomiting was more frequent and continued after the operation. There was a general paresis of the bowel and it was found impossible to restore the peristaltic activity, though numerous and patient efforts were made. The vomiting became more frequent and towards the latter part of the afternoon the collapse was marked, and gradually increased till 7 p.m., when the little one died.

Two features which mark the enteric type of intussusception were absent in this case, viz., extreme pain and pronounced collapse. Their absence must be regarded as a contributing factor to the unfavorable termination. If present they would have indicated in a striking manner the serious nature of the malady and alarmed the parents to seek immediate relief. It seems that the impulses which incite a peristalsis are in the young more easily blocked and return less readily than in adult life, when the peristaltic action asserts itself more powerfully and is less easily subdued.

Intestinal obstruction, of which intussusception is but a single cause, may be produced by many conditions. They may be briefly enumerated:

I. Strangulation by bands or through apertures;
   (*a*) False ligaments;
   (*b*) Omental cords;
   (*c*) Meckel's diverticulum;
   (*d*) By normal structures abnormally attached;
   (*e*) By slits and apertures, including internal hernia.

II. Volvulus.

III. Stricture: 1. Congenital;
2. Cicatricial; from
ulcer of typhoid origin;
ulcer of syphilitic origin;
ulcer of dysenteric origin;
ulcer of tubercular origin;
ulcer of traumatic origin;
hernial origin;
3. Cancerous.

IV. Tumors: By tumors and foreign substances within the bowel; Fibroma, lipoma, sarcoma, etc.

V. Obstruction by pressure of tumors and other diseased conditions external to the bowel.

VI. Fæcal concretions.

VII. Intussusception.

Intussusception may be defined as the obstruction of the bowels by the invagination of ensheathing of some segment of the bowel in another.

This condition may occur in the small intestine, the large intestine, or the junction of these. We have, therefore, the

Enteric, in the small intestine;

Colic, in the large intestine;

Ileo-colic, at their junction.

The ileo-colic is the site of the large percentage of cases, and varies with different observers from 46 to 76 per cent. The enteric type has a percentage of 6 to 30 per cent.; the colic from 9 to 18 per cent.

Frequency. The occurrence of intussusception is limited chiefly to the first two years of life, and of this period the large percentage is within the sixth to eighth month. Of a series of cases the occurrence was as follows: First four months, 28 cases; fourth to sixth month, 113 cases; sixth to ninth month, 71 cases; ninth to twelfth month, 18 cases.

Causes. 1. Thin intestinal walls;

2. Great mobility of colon;

3. Intestinal derangements, as indigestion and diarrhœa.

4. Nothnagel's vivisection experiments have proven that the condition is produced by irregular muscular contractions. The application to the bowel of a constant current causes a spasm of the circular muscular fibers and a consequent elevation of the distal fibers.

The increase is formed by the lower part advancing over the upper portion. To permit of this the mesenteric attachment must be either long, stretched, or lacerated. The result of the ensheathing is to produce a curved tumor with the concavity directed towards the spinal attachment

of the mesentery. The pressure and consequent circulatory obstruction increases with the length of tube involved. The result ultimately may be a gangrenous or sloughing bowel and a percentage of cases record the passing of this separated portion of bowel, which varies from a few inches to a foot or more in length. This occurs about the end of the second week.

Symptoms. 1. Pain. This usually comes on suddenly, with such severity that the child shrieks out. The area of pain is over the umbilicus and the pain is intermittent in character. 2. Vomiting is more frequ in the acute attacks than in the chronic type, is usually persistent, uncontroliable, and projectile in character.

Tumor. A tumor is, as a rule, found on the right side of the body when seen early, but later is found on the left side in the region of the descending colon. The course of the intussusception may be that of the ascending transverse and descending colon, and may be found to project from the anus. The shape is round in outline, curved in its longer axis, and frequently described as sausage shape. The apex has in its earlier history a round central opening, but later, with the increasing pull from the mesentery, the aperture is slit-like.

Course. In the large majority of cases the course is under seven days' duration. Some of the chronic cases have, however, lasted over four weeks. In these there are irregular disturbances of the bowels, but none of the urgent symptoms of the acute cases. Termination may be by spontaneous recovery, which is indeed remote. In these there is a sloughing of the bowel and the inflammatory union of the neck and intussuscipiens being accomplished at the site of the constriction.

Recourse may be had to treatment, non-operative or operative.

Prognosis depends on the duration of the intussusception and the age of the patient. In a series of cases up to 1870 the mortality was 84 per cent. From 1870 to 1891 the mortality was reduced to 59 per cent. It will be seen that the mortality is in direct proportion to the duration of attack.

Diagnosis. A sudden, severe pain in the abdomen, intermittent in character; arrest of fæcal contents; the passage of blood and mucus, with tenesmus, with vomiting and collapse in a child under two years, is a complete picture of this type of obstruction.

In volvulus there is a marked abdominal distension, due particularly to the distension of the loop of bowel involved. So great is this that it is often necessary to puncture the bowel and permit of the escape of gas to handle the intestine to advantage. In all intestinal obstructions there is a marked collapse, and an accompanying pallor, together with a small, thready pulse.

The initial vomiting contains stomach contents only; later bile is in evidence, and in the final stage fæcal contents are or may be present.

These contents are in relation to the severity and duration of the case. The temperature is as a rule subnormal. An intussusception in the small enteric type is distinguished from one in the colon by a more acute onset, earlier and severer pain; vomiting also earlier and severer, and the constitutional symptoms more marked.

It was taught until recently that the diminution of the volume of the urine was in proportion to the length of intestine involved, distal to the obstruction. More careful and extended investigations have, however, shown that no such relation exists.

Treatment. Non-operative: Under this heading is included inflation of the bowel by water, air, hydrogen, or carbon dioxide.

With the use of water a catheter of appropriate size is employed and a reservoir of water to a height of five feet is permittd. A column of greater height is attended with danger.

The injections of air have been used by American surgeons, some of whom prefer the hydrogen or carbon dioxide.

The English surgeons scarcely consider the non-operative treatment seriously, and the following objections by an eminent authority seem to voice the general opinion:

1. It is only useful within the first twelve hours, and if the surgeon places much reliance on this method he may be led to try it long after the time for its success has passed.

2. Even when applied early, it does not succeed in over fifty per cent. of cases.

3. This method is accompanied by the uncertainty whether the procedure is successful, and many valuable hours are lost, as it requires time to demonstrate its success.

4. The patient is exposed to a double shock should this method fail, as laparotomy then has to be resorted to and is more likely to prove fatal.

5. This method is of no use in the enteric or ileo-colic form, and it is not possible to diagnose these.

6. The method itself is not harmless, and with lack of care may actually kill the patient.

7. The recurrences are not infrequent.

Operation. This requires for most cases a median incision, as this will meet the needs of the majority. The intestines should be packed away from the side of the obstruction. This is necessary, as the reduction should be attempted under full observation of its state, i.e., whether gangrenous or not. The tumor is seized in the palm of the hand and the thumb and index finger press against the lower extremity, or apex, and as it recedes or slips away from the grasp it unrolls the intussuscipiens. This will have to be done with great care to avoid rupture of the bowel

or the removal of its coats. On no account must an attempt be made to pull out the intussusceptum. The greatest difficulty may be encountered at the apex when from swelling the intussusceptum is wedged and locked into its sheath. In some cases it will be impossible to effect this reduction and we have a tumor irreducible and either gangrenous or non-gangrenous.

In the irreducible but non-gangrenous it is permissible to unite the bowel above the obstruction to that below. This has been called the short-circuiting operation. When the bowel is gangrenous, however, it must be removed and one of three procedures presents. According to Moynihan

(*a*) The whole mass may be excised and an end-to-end or lateral anastomosis done;

(*b*) Jessett's operation—the removal of the invaginated portion through an incision in its sheath;

(*c*) Resection and formation of an artificial anus may be performed.

In (*a*) the end-to-end operation is done unless there is much disparity in the lumen of the bowels involved—in this event the lateral operation is chosen.

Jessett's operation: An incision is made in the sheath close to its junction to the intussusceptum at the neck. The invaginated portion is pulled through the wound or excised if possible without drawing out the imprisoned portion. A running stitch holds the edges of the excised intussuscepted and returning portion together. The incision in the sheath is closed. As an additional security the sheath may be stitched to the intussusceptum as it enters.

Resection, with the formation of an artificial anus, is unsuited to the conditions of childhood, and should therefore be practised only when other measures are for some reason utterly impossible.

In intussusceptions involving the colon where there is undue mobility of the meso-colon, it is well to unite the cœcum to the peritoneum of the right iliac fossa. In many of these cases the mobility is owing to the lack of secondary fusion of colon to posterior abdominal wall.

In the enteric type the mesentery may be folded on itself. A catgut thread is applied to the mesentery proximal to the obstruction and a continuous Lembert suture is run through the peritoneal covering of the mesentery to a point distal to the tumor. These sutures are not in a straight line, but opposite the obstruction include a wider area of the mesentery between the attachment and the intestine. As these sutures pass only through the peritoneum they do not obstruct the circulation of the mesentery. The effect of these sutures is to shorten the mesentery, more particularly opposite the tumor, and tapering off to the exit and entrance of the sutures.

It is only necessary to briefly refer to those irregular contractions which occur ante-mortem and are found after death and referred to as post-mortem intussusceptions. There may be as many as twelve in a single instance. These have little chemical significance. Some cases are also recorded in which Meckel's diverticulum has become inverted into the lumen of the intestine. The peristaltic action has forced this onward, forming in its advance the apex of an intussusception, pulling the ileum after it. The average length of this fætal vestage is two and a quarter inches, and is situated about thirty inches proximal to the ileo-cœcal valve.

ARTERIOSCLEROSIS.*

By JOHN FERGUSON, M.A., M.D., Toronto.

MR. CHAIRMAN and Gentlemen,—The subject upon which I wish to engage your attention for a few minutes is by no means a new one. The literature upon the subject of arteriosclerosis has become a very extensive one; and all I can hope to do on this occasion is to gather up the main features of what is known regarding the clinical and pathological state covered by the term, hoping that these remarks may lay the foundation for a fruitful discussion. Should such be the case, my object will have been attained. As tuberculosis claims many in the promise of youth, so high arterial tension has its victims among the best that are past mid-life.

The term arteriosclerosis, introduced in 1834 by Lobstein, is vague, and other names have been suggested. Gull and Sutton called the condition arteriocapillary fibrosis, Virchow designated it endarteritis chronica deformans, Thoma speaks of it as angiosclerosis, Haller named it atheroma, and others have given it such names as sclerotic arteritis, chronic arteritis. In 1876 Friedlander called it endarteritis obliterans.

No one for a moment will doubt the importance of this morbid condition. Any disease which causes as many deaths in the prime of life as does arteriosclerosis may well claim a share of our thoughtful consideration. It is only by retaining a healthful condition of the arteries that we can hope to reach a green old age with the enjoyment of a fair share of mental and bodily vigor. Some may exclaim that old age is not desirable, and to such we would say you can attain your object by living a life over-indulgences in foods and drinks, coupled with manifold cares and anxieties. But to those who take the more rational view of desiring length of days with wisdom and health, it can be safely proclaimed that arteriosclerosis is among the most preventable of the diseases to which

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the term preventive medicine is applicable. As Sir James Barr has well said, "if men were as anxious to live well as they are to live long, they would perhaps more frequently attain their end."

Did time permit, much might be said on the history of this subject. Among the earliest writers upon diseases of the arteries must be mentioned Lobstein, who used the term arteriosclerosis in 1834, followed by Haller, Scarpa, Bezot, and Kreysig. These men advanced the inflammatory theory as the cause of the arterial changes which they o served.

About the year 1844, Rokitansky, the great Vienna pathologist, opposed this view, and held that the changes in the vessels were due to some material in the blood which became deposited in their walls and proved detrimental to them. This humero-pathological theory of Rokitansky was supported by Donders and Jansen, but just as stoutly opposed by Engel and Neumann.

The microscope now became an instrument of precision, and by its aid many important observations were made. Resse, who gave much study to the histological changes, advanced the view that the degeneration in the vessels was caused by interrupted nutrition and new connective tissue formation.

Virchow threw all the weight of his great name and the conclusions gathered from his enormous data against the humeral theory of Rokitansky and many of his successors. The name which he gave the changes in the arteries, namely, endarteritis chronica deformans, clearly shows that he espoused the inflammatory theory of Lobstein and those who had written prior to the time of Rokitansky. Virchow claimed that two main changes occurred, namely, a simple degeneration, and an atheromatous degeneration. The first he rgearded as a passive occurrence, while the second was an active formative process. The hyperplasia of the intima and the sclerosis of the vessels he taught to be the results of chronic inflammation.

Cohnheim and his school elaborated the inflammatory theory. They tried to show the part played in the process by the white blood corpuscles and the vasa vasorum. To Cohnheim much credit is due for his efforts to clear up the way by which the intima received its nutrition from the blood, and in what way its tissue could be penetrated by the leucocytes. But in what way perverted nutrition, or the invasion of the intima, led to atheroma still remained unexplained. Cohnheim and Virchow held that the various morbid changes, however, were caused by errors in nutrition and the passage of white corpuscles from the vasa vasorum.

At this stage of the discussion Traube came on the scene with his mechanical theory that the cause of the arterial changes was high blood pressure. Rindfleisch and his school argued that the alterations found in

the vessel walls were due to a slowing of the blood current. These pathologists, Rindfleisch, Stronganow, Koester, and Talma, were unable to trace any connection between the vascular media and the non-vascular intima, and, therefore, thought that the latter was seriously affected by a slow blood stream. This led these men to advocate anew Resse's theory of interrupted nutrition.

Durante, Trompeter, and Krafft added to the discussion by showing that the media is always involved about the same time as the intima, and that the vasa vasorum are the real agents in maintaining the nutrition of the vessel walls. By the experiments made by Durante, it was shown that stoppage of the flow in the lumen of the vessel did not affect its nutrition; but that a similar condition in the vasa vasorum at once caused degeneration.

These various theories bring the subject to the position taken by Thoma. His theory has been well named the compensatory process. He divides arteriosclerosis into primary and secondary. In the primary there is a yielding of the vessel from loss of elasticity. The vessel is widened and the blood stream slowed. Connective tissue is formed in the deeper layers of the intima to restore the original relations. As age advances this thickening goes on regularly in keeping with the slowing of the blood current. In this way an adjustment is effected between the heart, the vessels, and the blood. In the secondary form of arteriosclerosis the change has its origin around the vasa vasorum, or in the small arteries. These changes in the small vessels may be nodular and local, or diffuse. When the vesels yield at points they may bend at these points, and in this way the tortuosity noticed in arteriosclerosis is explained.

This very ingenious theory of Thoma, which rests upon an unproved hypothesis of slowed blood stream and a lost vessel elasticity, has been keenly contensted by Beneke, Marchand, Fuchs, Huchard, Gibson, Councilman, and others. They think it is pushing the mechanical theory too far, and are strongly inclined to look for the causes among more general and constitutional states and tendencies. These later teachers cannot agree with Thoma that when the blood stream becomes slowed down either by dilatation of and lost elasticity in the vessels, or by resistance to the onward flow of the blood from any change in the tissues, there is established a compensatory endarteritis.

These brief remarks on the history of the subject bring us to what may be called the present and more rational view of the etiology of arteriosclerosis. And I think we may admit that the following are the factors that stand in the relationship of cause and effect:

1. Long continued straining of the coats of the vessels affects nutrition and elasticity. The periods of rest are shortened and those of strain

lengthened. The circulation in the vasa vasorum is interfered with and the process of inhibition of nutriment by the intima disturbed. At the same time there is hypertrophy of tissue in the media. The strain upon the tissues of the media affects the lumen of the vasa vasorum, and, therefore, the nutrition of the entire vessel. Barr has pointed out that when the arteries are under high tension the vasa vasorum are compressed and the flow of blood through them is impeded. The arterial walls tend to undergo degeneration for lack of proper nutrition. As a result of this malnutrition irritative processes ensue with the proliferation of cells in the intima. These cells undergo degeneration, giving rise to atheroma or atheromatous ulceration or calcification. There can be no doubt now but that this much of the mechanical theory is fuly sustained.

2. Long continued nervous strain, anxiety, and worry can raise the arterial tension, and, as a result, malnutrition, with all its evils, takes place in the walls of the vessels. This position is now too well established to require proof or to admit of contradiction. The tension need not be continuous. The intermittent form, as in strong emotion, may induce thickening in the vessel walls.

3. Excessive indulgence in food is a potent factor in the causation. The overworked vessels under high tension, and irritated by the products of a faulty metabolism, are placed in the conditions most prone to induce degenerative changes in their walls. Watch a man's habits of eating and you can pretty certainly forecast the future of his arteries. Over-indulgence in foods, especially meats, have caused more deaths prematurely than alcoholic beverages, and in saying this I am not advocating bibulous habits.

4. The influence of heredity must not be lost sight of. Arteriosclerosis has been noticed as a truly family disease. The teachings of Sir W. Gowers on abiotrophy apply here. There are certain parts of us that tend to decay and grow old too soon. Such is seen in many nervous diseases and I think the same thing applies to the vascular system. Early senility, myocardial disease, cerebral hæmorrhage, bear evidence of the fact that there is an inherent lack in the vitality of the arterial system, indeed in the whole vascular system. The noble tissue has not enough vital rubber, as it has been put by Osler.

5. It is now quite established that long continued exposure to cold and damp will cause the disease. These act upon the skin so as to cause high tension, as evidenced by the increased urinary flow. There is also the retention of poisons in the system which the skin should eliminate.

6. Much has been said upon the effect of viscosity of the blood since Clifford Allbutt introduced the term. No doubt the blood does vary in viscosity. The thin blood of the anæmic and the thick blood of the ple-

thoric persons are well known. The tarry blood of the cholera patient will not flow at all through the small vessels. It has been proven by cryoscopy that the freezing point of blood varies a good deal, owing to the varying quantities of solid constituents therein. The normal freezing point is — 0.56, and this is lowered in cases of arteriosclerosis, and has been found to run about — 0.565 to — 0.66. If the blood is viscous the heart will have more to do and there will be potential high tension.

7. Sex plays an important part in the causation of arteriosclerosis, or rather in the form of it. Men suffer much more frequently than women. The mode of life, work, habits, etc., of men tend to produce the general form of the disease, whereas the more emotional nature of women is prone to give rise to the abdominal form of the trouble. When the life of a woman approaches in form that usual to men, she is liable to the general form of the disease. The sudden changes of blood pressure in women due to emotion affects the aorta and the arteries in the splanchnic area rather than those of the periphery.

8. We are all familiar with the effects of age. Gradually as the years go by the arteries lose their elasticity, and as they do so the heart has added work thrown upon it. It has been well shown, however, that this latter phase is lessened materially by the tendency of the inelastic vessels to dilate. The ages at which sclerosis comes on vary very much. It has been observed in a pronounced form in youth, and scarcely detectable at 80, due no doubt to the facts that the machinery was not overloaded on the one hand, and that it was kept clean of refuse and waste on the other.

9. Race and country conditions bear a close relationship to the causation of the disease. The negroes are prone to atheroma and sclerosis of the arteries. It is very common among whites in the United States. On the other hand, it is very rare among Orientals. Races and countries who live mainly on vegetable foods suffer but little.

10. A very important group of causes is the toxic. Over this phase of the etiology of arteriosclerosis much has been said and written. Its importance cannot be overestimated. Unless the thickening of the arteries is wholly due to high tension the quality of blood must be reckoned with as it flows in the capillaries and bathes every tissue. For the sake of clearness in stating the case, the toxic agencies may be divided into the following groups:

(*a*) The various infectious diseases, as typhoid fever, syphilis, rheumatism, the colon bacillus, and others. It has now been well established that typhoid fever and syphilis stand in very close relationship to arteriosclerosis as cause and effect. Lately some excellent work has been done on the etiological relationship of the colon bacillus to the sclerosis; but more proof is yet required before an opinion can be pronounced. In some

way these infections throw into the blood toxines, or derange the metabolism of the body so as to induce the various changes in vascular sclerosis. Syphilis, according to Bromwell and Diver, cause a general arteritis, including the vasa vasorum.

(*b*) Certain agents introduced into the system have been said to cause arterial sclerosis. Among these may be mentioned lead, caffeine, theobromine, purin bodies, theina, adrenalin, glycæhæmia, mercury, alcohol, digitalis, ergot, and especially nicotin. These may act in two ways: first as poisons and irritants they act on the vessels, inducing arteritis; and secondly, by causing and keeping up prolonged high tension, which is admittedly a cause of sclerosis. The part played by alcohol is in dispute, but I think the consensus of opinion is on the side of it being a cause, notwithstanding the work of Cabot. The faulty metabolism present in gout is undoubtedly a cause; but this again resolves itself to the causes of gout, which are pretty much the same as those causing arteriosclerosis.

(*c*) Lately, much attention has been paid to the influence of the various glands of the body, such as the suprarenals, the hypophysis cerebri, the thyroid and the kidneys. There is now no doubt that the thyroid gland principle reduces arterial tension, and that the active substances of the adrenals raise it. The adrenalin does more than raise the arterial tension, and, in this way, cause sclerosis of the arteries. In addition to this, by acting as a toxic agent on the arterial walls and setting up an arteritis, it causes degeneration and calcification. It has been shown that adrenalin acts on arteries with vasomotor nerves, but the recent experiments of Barr and Hunter also show that it acts directly on the muscle fibres of the vessels. It would, therefore, contract the cerebral, coronary, and pulmonary arteries where the nerve supply is either absent or very slightly in evidence.

The high tension in myxœdema is no doubt due to the lack of the active principle of the thyroid gland. High tension may result, therefore, from defect, as well as from an excess of glandular activity.

It has also been proven by Batty Shaw that when the kidneys are inflamed an extract is given off from them that enters the blood and causes high tension. Here we have an explanation for the high tension in nephritis, and the arterial changes that are so constant in chronic Bright's disease. We can all recall the stop-cock theory of Sir George Johnston, but it failed to carry conviction to the minds of many pathologists. If Batty Shaw and others are correct in the view that the diseased kidneys send into the blood a powerful pressor agent, we can at once understand why the arteries sclerose in chronic Bright's disease. We must wait a little yet, but I think this is the true explanation. What I say here

applies to high tension and sclerosis following renal disease, and does not imply that there may not be a reverse process, with high tension and sclerosis, prior to the renal disease. Batty Shaw has obtained a renal extract which causes high tension when injected into the blood of an animal. Schæfer, Oliver, Shaw and Barr have shown that there is a powerful pressor agent in the posterior lobes of the pituitary body. Whether it plays any part in the etiology of arteriosclerosis or not is not yet settled.

As to the varieties of the disease, different writers have given us different classifications. John M. Cowan, of Glasgow, divides the condition into the focal or nodular and the diffuse. Clifford Allbutt speaks of the toxic, the hyperpietic, and the involutionary. Alfred Stengel gives us the presenile, which he divides into the acute and the chronic forms, and the senile. Joseph McFarland treats of the condition under the terms acute and chronic. Osler contents himself with the simple division into the nodular, diffuse and senile, while Edwards makes two forms, the nodular and diffuse.

On the morbid anatomy I shall say but little. Of the focal form of the disease I would call your attention to two types. The first is that of endarteritis obliterans. This form affects the smaller arteries, and is very frequently of syphilitic origin. The nodule may completely close the lumen of the vessel and in this way prove of extreme importance, shutting off the blood supply from the area of distribution. The key note to the changes in this form is to be found in the words cell proliferation, with subsequent degeneration, though gross fatty and calcareous deposits of atheroma do not occur. Various infections, other than syphilis, as scarlatina, smallpox, enteric, etc., may cause this form, and it has been held that it may be caused by trauma. Thoma's theories suit this form only, if at all any form. The second type of the local form is what is called atheroma, or endarteritis nodosa or deformans. These atheromatous patches are usually present in the elderly, though their size and number vary very greatly. They vary from that of a pin's head to plaques as large as a quarter of a dollar. They are usually of a greyish or yellowish color, but if calcified are whitish. Sometimes they are soft or translucent, often opaque and firm. Ulceration is not uncommon, from which may arise trombé. The aorta suffers most frequently from this form of the disease. The coronary, cerebral and peripheral arteries are affected oftener than those of the viscera, the pulmonary circulation being least liable. In advanced cases all the coats are involved. The intima is always thickened. In the early stage, spindle, stellate, and round cells are scattered between the laminæ, while the lining endothelium remains intact. In the later stages, hyaline, fatty, granular, mucoid, or calcareous changes may be found. The elastic

tissue shares in the hyperplasia and many fine fibrils can be seen. These in time undergo granular degeneration, and often break up into little masses. The media is thinned and the muscle fibres atrophied. The connective tissue is markedly increased, but the cellular elements are few. The vasa vasorum are frequently increased in size and numbers and may penetrate into the intima. In early cases the adventitia may be thickened and cellular, and in the advanced stage sclerosed with hyaline tissue and degenerate elastic fibres.

It cannot be held that these focal forms of atheroma are local forms of arteriosclerosis. The latter is associated with increased tension, while atheroma is commonly quite apart from this tension and cardiac hypertrophy. Infections can only be responsible for a small number of these cases, as no trace of infection may be discoverable in advanced examples of atheroma. The location of atheroma in the aorta, the coronaries, the vessels of the abdomen and the extremities goes far towards establishing the view that these focal forms are largely of traumatic origin. The many causes of high tension plus the systolic wave may produce damage to the vessel walls.

In the diffuse form all the arteries and capillaries, and, according to some, the veins, are involved. The vessels may be seen standing out, their lumen patent, and their walls distinctly and uniformly thickened. The larger vessels may appear whitish and translucent and their consistence firmer than usual, the aorta is thickened and may show many atheromatous patches. In the intima there is marked hypertophy of the elastic fibrils, and there may be two or more continuous laminæ evident. In cases of longer standing, when degenerative changes have occurred, the elastic tissue becomes granular, the connective tissue hyaline and nucleated, but fatty and calcareous changes, so common in the patchy form, are rarely seen. In the media there are always changes. It may be simply thickened with an increase of its muscle, elastic, and connective tissues. Sometimes it is thinned with atrophy and fatty changes in the muscle fibres. In other instances the connective and elastic tissues are in excess, but the muscle fibres are degenerate and few. The connective tissue is usually hyaline or granular, and nucleated, and the overabundant connective tissue degenerate and granular. The adventitia in the early stage is thickly nucleated, while in older cases it is usually hyaline and sparsely nucleated. The elastic tissue is excessive.

The changes in the adventitia are usually constant. If the media is thickened and fibroid the intima may be little altered, whereas if the intima is atrophied the media is usually hypertrophied. Medial hypertrophy is usually present throughout the entire arterial system, with a tendency to fibroid changes.

In the capillaries certain changes are observed. Their walls on section present a double contour, they may be several times their normal thickness, and the lumen is somewhat narrowed.

The diffuse form of arteriosclerosis is frequently found in connection with renal disease, but may exist independently. The common feature of the condition being continued high tension, which Cowan thinks must be accepted as the immediate cause, though Profesor Lindsay holds that a toxæmia is the more important factor. In other words, Cowan contends that the high tension, however caused, gives rise to the arterial changes, whereas Lindsay and others hold that the toxic agents in the blood cause much of the alterations from the normal by perverting the nutrition. This leads to hypertophy of the media and adventitia, and to irritation and cellular proliferation in the media. These nutritional changes may be accelerated by the quality of the blood contained in the vessels and fed to them through their vasa vasorum. The diffuse forms of arteriosclerosis are manifestations of a general disease, and in this respect differ from the focal forms of atheroma.

My own opinion is that when degenerative changes commence in the arterial walls it is the elastic tissue which suffers first. The nutrition of this tissue is less stable than that of the muscular elements, and will be the first to give evidences of a departure from the normal. I am quite satisfied that this degenerative process may be caused by toxic agents in the blood affecting the vitality of the elastic tissue, or by hypertension either continuous or interrupted, interfering with its blood supply and proper periods of rest.

The clinical course of arteriosclerosis varies much. In some cases it is fairly acute, while in others it is extremely slow in its advance. Not having too close regard for the senile type, we must be on the alert for vascular changes in those of mid-life, or the presenile form. It may show its worst effects in the aorta or coronary vessels. The terrible effects of disease of the coronary arteries on the myocardium are only too well known. Early in the case there is frequently a sense of oppression over the thorax and a feeling of dyspnœa, which later on may become typical angina.

The arteries of the brain and cord may undergo the main degeneration. During the progress of the vascular changes there may be transient monoplegias, extensive palsies, convulsive attacks, or generalized epileptiform seizures. There may be steady loss of memory and mental capacity. In the cord, attacks resembling myelitis may occur.

Arteriosclerosis may affect seriously the abdominal organs, giving rise to the renal, hepatic, pancreatic, and intestinal types. Many of the cases of chronic renal disease are arterial in origin. The disastrous effects

of degeneration in the blood vessels on the digestive organs are now beginning to be fully appreciated, and should be sought out, and properly treated. Diabetes has been alleged to be due in some instances to sclerosis of the pancreatic arteries.

Arising from the diffuse form of arterio-capillary fibrosis, we have a variety of anæmia that has been styled pseudo-anæmia. There may be also a gradual loss of weight, and a tendency to digestive derangements. The nervous system does not escape. Attacks of pain, especially in the head, are not uncommon, and severe forms of neurasthenia are admittedly due to it.

As disease of the arteries kills a few in the early periods of life, many in mid-life, and most of us in advanced life, it behooves us to be on the lookout for its first manifestations.

The diagnosis is easy in the advanced cases, more difficult in the middle stage, and very difficult in the inception of the trouble. But if our treatment is to be of much avail, it is here that the diagnosis must be made.

There are four symptoms for which we must be on the watch. These are increased blood pressure, an increased heaviness and lengthening of the first heart sound, an accentuated second heart sound, and an increase in the tidal wave of sloping ascent and delayed decline. But we must remember that in tumor of the brain, in some diseases of the lungs, in overwork, in toxæmia, and in nervous strain there may be prolonged high tension without sclerosis; and so we must be on our guard. But as high tension usually precedes the sclerosis, if we treat the tension we may never be called upon to treat the sclerosis. Add to these symptoms the gradual failure of vigor, the presence of pseudo-anæmia, the increased flow of urine of low specific gravity, and the presence of the well recognized etiological factors, and it will be within the range of possibility to make a working diagnosis of reasonable certainty.

If we have not been able to follow Thoma in all his views on the pathology and morbid anatomy of the changes in the arterial system in sclerosis, we can concur in the following statement: "By avoiding the causes of increasing blood pressure, by proper hygiene and regimen, serious and fatal vascular disease might be anticipated. If it became possible to recognize arteriosclerosis sufficiently early, it would be easy to limit the danger of rupture of blood vessels and aneurysmal formation."

From what has been said the treatment will be readily surmised. In the first place, reduce the strenuousness of life. Take off some of the load, and this applies to mind as well as body.

On the matter of diet much has been said, and yet it all comes down to this—moderation. Let milk and vegetables, as urged by H. Senator and Schrœtter, constitute the basis of the dietary. I would urge the elimination of all alcoholics. Tea, coffee, and tobacco, if taken at all, should be taken in great moderation. The effect of a pipe in raising tension is unmistakable. Butcher meats and meat soups had better be left largely alone. All the proteids required can be obtained from the vegetable world.

Among the drugs, many have been vaunted. The chief of these are the iodides, the citrates, the benzoates, the sulphates, sulphites, the nitrates and nitrites. There appears to be a widespread belief in the efficacy of the iodides, and, though some claim that they are of no value, I cannot concur in this opinion. Though it is not a drug, yet it may be mentioned here. It is held by high authority that chloride of sodium is a pressor agent and ought to be used with much care, and calcium chloride avoided. Of late Poehl's sal physiologicum, Trunecceck's serum, antisclerosin, and arteriosclerosis tablets have been advocated. They all contain mainly sodium chloride, sodium sulphate, sodium phosphate, sodium carbonate, magnesium phosphate, and glycerophosphate of calcium. The nitrites and nitrates are helpful, and calomel in half-grain doses for a week and intermit, then giving it again, is a good remedy.

The proper regulation of exercise must not be omitted. An indolent life is most injurious to these cases, and the proper taking of baths, especially warm to hot baths, is most useful. Early rising should be encouraged. Severe cases are greatly benefited by a period in bed.

Of one agent in the treatment of high tension I wish to say a word. Too little attention has been devoted to the use of the thyroid gland extract. Of all the means which we have at our command for the control of high arterial tension, I know of none equal to it.

Two classes require special mention, the obese and the diabetic. In the former, sugar, starch, and farinaceous food must be excluded and more proteids allowed. In the diabetics with sclerosis nitrogenous foods must be given more freely, while the carbohydrates must be carefully restricted. For these two classes milk, some lean meat, gluten bread and green vegetables must be the mainstay in diet. Some egg may also be permitted.

In the words of W. P. Heringham I conclude: "Meanwhile there is one lesson that middle age has always to learn, and that is that it must be moderate, and that moderation means for it something very different from the ordinary meals of healthy and active youth."

> "Ill fares the land, to hastening ills a prey,
> Where wealth accumulates and men decay."

ON THE SYMPTOMATOLOGY OF ACUTE ABDOMINAL DISEASES.*

By JOHN PATRICK, M.A., M.B.,
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GENTLEMEN,—My first word must be one of thanks to you for the honor you have done me in selecting me to preside over the meetings of the Society this the fifteenth session. I suppose there is no man amongst us who does not cherish some ambitions. It is not given to us who work and live in the east-end of Glasgow to let our ambition direct itself towards being the Prime Minister of the country, or winning the Derby, or becoming President of the Royal Society, no matter how prominent our position in local politics, or how enthusiastic our sporting inclinations, or how keen our scientific insight. But every man of us ought to be ambitious to do something for our own Society, and in due time gain his promotion to the President's chair. I feel, therefore, that in occupying this position to-night I have satisfied one, and that not the lowliest, of my ambitions. And I hope that in the new session the conduct in the chair will be quite worthy of its former occupants—men whom we all love and honor—and that the enthusiasm and energy of the chairman will be supported by like qualities in the members, coupled with due forbearance for mistakes and faults which will inevitably occur.

I have chosen for the subject of an address to open the session a study of some points in the symptomatology of acute abdominal diseases for several reasons. The first and main reason is that the variety of the symptoms is so great, their vagaries sometimes so extraordinary, that no attempt to reduce them to uniformity seems worth while, and if now it appears a hopeless task to make them conform to type, perhaps some day clinical surgery will become an exact science, and diagnosis will be as precise as in phthisis, and diphtheria, and cerebro-spinal meningitis. A second reason is that, both in private practice and in hospital, I have blundered in diagnosis and treatment, so that my motives have not been altogether disinterested. And the third reason is that a true appreciation of the nature and significance of abdominal symptoms by the family practitioner is of vital importance in diagnosis, and an absolute necessity if a reasonable chance of success is to be given the operating surgeon. For the surgeon, in a large proportion of such cases, is completely dependent on the observations of the doctor, who generally sees the patient before he becomes too ill to give an accurate account of his symptoms, and he often possesses valuable information gained in his previous acquaintance with the patient. Not only is the dependence of the surgeon on the observations of the doctor complete, but the surgeon may often too

* Presidential address delivered to the Glasgow Eastern Medical Society, 2nd October, 1907, and reprinted from the *Glasgow Medical Journal*, January, 1908.

readily accept the diagnosis. And cases may be sent with "ready-made" diagnoses, and unnecessary operations performed. For example, let me quote the case of a young woman sent this summer to the Royal Infirmary with a note from the doctor to say that she suffered from perforation of a gastric ulcer. The surgeon saw no reason from the patient's symptoms *on admission* not to accept the ready-made diagnosis. But after a fruitless search for a perforated gastric ulcer, tried another likely region, and found a perforated appendix.

It is, however, a much more harassing state of affairs for the surgeon to have a case sent to hospital with no diagnosis, no note of symptoms, no indication whatever that a trained observer had seen the case at all. It is an everyday occurrence for cases to be sent to our large infirmaries, obviously suffering from acute abdominal symptoms, so ill that accurate diagnosis is impossible, and we know that very many of these cases have been in charge of medical attendants perhaps for several days. No man will be blamed for a wrong diagnosis, but any man is blameworthy who does not observe symptoms accurately, and note his observations so that another may be guided to a correct diagnosis. I shall not readily forget the case of a man of 45 or thereby, sent into the surgical wards of the Western Infirmary, obviously suffering from a very grave illness and too ill to tell anything about himself, without a note of any kind from the doctor in attendance. The professor found only this symptom, that no urine had been passed for some hours, and that none was in the bladder. His provisional diagnosis was "suppression of urine," and the patient was transferred at once to the medical side. At the post-mortem examination, a perforated gangrenous appendix, with peritonitis, was found. I met the doctor, who sent the case in, shortly afterwards, and his scorn at the inaptitude of the distinguished surgeon was of the loftiest, forgetting that, however faulty the diagnosis of the surgeon, his own neglect to give such information as he possessed (and from what he said it was sufficient to have altered the whole treatment of the case) was not one whit less deplorable.

Definition of acute abdominal diseases.—Now, I have not offered you a precise definition of what I mean by acute abdominal diseases, but sufficient has been said to indicate that I propose to deal with some of the symptoms of intraperitoneal conditions which arise suddenly *de novo* or in course of other affections more or less chronic, and which demand very active and speedy surgical treatment—in other words, the symptoms of that great group of conditions called by the Germans "ileus," where the symptoms are those of acute intestinal obstruction with peritonitis, or acute general peritonitis from a septic source. Those symptoms have been classed under the not very elegant term "peritonism," a term first

used by Gübler in the *Gazette des Hôpitaux* in 1877, and since popularized by Treves, and also under the still less elegant term of the Americans, "acute abdomen." And in dealing with the subject we shall be as much concerned with explanations of their meaning and significance, even the mechanism through which they arise, as with their occurrence and relationships.

Negative and positive symptoms.—In all symptomatology we should never forget the advantage there is in carrying out our examination of the symptoms seriatim—the patient's position in bed, his facial expression, his indifference to or interest in our presence, his pulse and temperature readings, the information to be obtained by inspection, palpation, percussion, the examination of the external openings, and so on, running down the whole list so familiar to us as students, and so apt to be omitted in some of its details in practice. Next, we must not be carried away by the obtrusion of any particular symptom on our own or our patient's notice. Diagnosis cannot be founded on the presence of one symptom or sign, even though it may usually be a constant. And, conversely, we must not exclude the presence of any particular disease from the absence of the usually constant symptom. It is not necessary for the pathognomonic symptom to be always present. This is a point to which Sir William Gowers* has drawn attention. He says: "Most diseases have commonly one or more symptoms that are usually present, and are characteristic. They are often termed 'pathognomonic.' But these common and characteristic symptoms are sometimes absent. The presence of a symptom may be of great diagnostic importance, and hence there is a constant tendency to regard the absence of that symptom as of similar importance—as negativing the disease. But this is a very common cause of error. No mistake can be greater than to give the absence of a symptom a negative significance corresponding to the positive significance which its presence has."

Let me illustrate this dictum of Gowers with two examples.

A woman of 27, well known to me, complained of having had attacks of gastric pain, with flatulence and vomiting, which passed off in a few hours. These attacks occurred with tolerable frequency, and were thought by her to be due simply to "wind," though severe enough to compel her to go to bed. One of the latest attacks (the only one seen by me) was of great severity. I found her in bed in a state of marked prostration, with extreme pallor, frequent severe vomiting and retching, high temperature and rapid small pulse, together with constant agonizing pain located in the left loin. Palpation in the left renal region elicited great tenderness, the pain radiating downwards into the left iliac region. My diagnosis

*Gowers, *Phonographic Record*, July, 1907, p. 83.

was renal calculus, made mainly on the exact location of the pain. And I held on to the diagnosis, though the pain did not yield to moderately large doses of morphia, and persisted for three days. An *x*-ray photograph failed to reveal the presence of calculus. After another attack, this time with the additional symptom of hæmatemesis, gastric ulcer was diagnosed by one of the Royal Infirmary physicians on the basis of the vomiting of blood simply. An exploratory incision cleared up the case, as it was found to be a chronic pancreatitis, the pancreas being very hard and large. I do not say that we should have diagnosed chronic pancreatitis, but I think now that too much importance was attached by me to the one symptom of pain in the renal region, and also by the physician to the one symptom of bloody vomit, and too little to the history of the case.

Another example, and a bitter lesson to me, perhaps more typical of the mistake of giving to the absence of a symptom the negative significance commensurate with the positive significance of its presence, with this case. A man of 43 was admitted to Ward 29 of the Royal Infirmary, suffering from intestinal obstruction, with a history of appendicitis. I did not consider that operation was immediately demanded, and in a few days he was very well the bowels acting, temperature normal, pain absent, and abdomen flaccid. I was sent for hurriedly, late on the fifth day after admission, and found the man in a prostrate condition, with rapid soft pulse, slightly subnormal temperature, a slight attack of diarrhœa, but with no vomiting and absolutely no pain, no abdominal tenderness, no muscular rigidity, and only slight abdominal distension. My first thought was that perforation had occurred, but I was completely deceived by the absence of pain and of all the ordinary signs of perforation with consequent local or general peritonitis. Two colleagues saw him with me and advised that no operation be done. The man died, of course, and at the post-mortem a large perforation in the appendix was found, and a diffuse septic peritonitis. It was a dear price to pay for the knowledge that perforation of an appendix may take place absolutely without pain. The error was that pointed out by Gowers of attaching to the absence of a symptom the negative significance commensurate with the positive significance of its presence.

Facies Hippocratica; facies peritonealis; facies abdominis.—The first symptom to which I wish to direct your attention is that to which on coming to the patient's bedside we should almost instinctively look, and that is the facial aspect of the patient. I am disposed to think that those symptoms which were so prominent, and so much relied upon by physicians before the great advances of surgical science, are apt in present days to be overlooked. It is not easy to convince a house surgeon that

the recognition of a facial expression is of as much importance as an estimate of the leucocytosis. What, then, is the Hippocratic facies? You will find Hippocrates' words in Finlayson's "Clinical Manual": "A sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and their lobes turned out; the skin of the forehead rough, distended, and parched; the color of the whole face green, livid, or lead colored." It is, then, a facial aspect indicative of suffering and anxiety, as if the shadow of death were already falling across it. The *first* thing I have to say is that it is not nearly so common as it formerly was, as the conditions which give rise to it are not so frequently found, because they are now anticipated by a timely operation. The *second* point is that it really is pathologically a somewhat late symptom. It indicates profound septic poisoning from acute peritoneal infection, which cannot take place for sometimes a good many hours after perforation of a viscus or after strangulation of bowel; except perhaps in typhoid perforation, where the patient is already profoundly poisoned. And the *third* point is that when it is present it is one of the best criteria that the abdominal lesion is extensive and severe.* This is recognized amidst all our modern diagnostic methods, and was insisted upon by the introducer of the discussion on "Septic Peritonitis" at Toronto, last year, Dr. Bond, who said: "Of all the signs on which we are accustomed to rely as indications of the patient's state, and as criteria of the extent and severity of the disease (namely, the vomiting, want of correspondence between pulse and temperature, the pain, the rigidity and the distension), I place most reliance on the aspect of the patient, that subtle state of neuro-muscular tone which depends on the presence or absence of toxic effects on the nervous system." It is as distinctive as the facial aspect of cerebral abscess, the complexion in which is a curious grey-ashy color, but devoid of the anxious, pained expression of the abdominal facies, which has been so definitely associated with peritonitis as to merit the designation "facies peritonealis."

That it is pathologically late in appearing and associated with septic poisoning from the peritoneum, except in some rare cases of streptococcus infection and in cases of swallowing strong irritants, might be illustrated by this case:

R. W. was seen by me at his home, suffering from most violent abdominal pain of an hour and a half's duration. He was obviously in great agony, and was lying with his knees drawn up, and other symptoms which led me to diagnose perforation of the appendix. But his facial aspect was hardly altered; he was ruddy and placid-looking, almost phlegmatic. An hour and a half later I opened the abdomen and removed a perforated, gangrenous appendix, around which only a very limited

*Whiteford, *British Medical Journal*, 13th July, 1907, p. 77.

peritonitis had had time to form. The *facies peritonealis* is then an indication only of extensive peritoneal infection, not of even such a serious lesion as perforation.

Collapse; septic collapse.—Then, next as regards collapse, it also as a symptom of an acute abdominal lesion is rarely an early one; it is more to be regarded as not the direct result of a perforation, but a manifestation of the absorption of the products of infection by the peritoneum. It will appear rapidly or slowly after perforation, depending on the virulence of the infective material. Two authorities of eminence may be quoted in this connection. Murphy,* of Chicago, says: "Collapse must now be recognized as a symptom of septic intoxication, and always a late symptom so far as the clinical course is concerned." And Moynihan,† of Leeds, in describing acute perforation of duodenal ulcer, says: "The pain is agonizing, the patient has suffering written in every line of his face. But collapse is certainly not present. In cases recently seen (two within two hours after perforation) there has not been any collapse; the pulse was slow, 80 per minute, and of good quality. It is important to recognize that the conditions upon which we formerly depended to make the diagnosis should not be allowed to develop: the distended abdomen, the poor, rapid pulse, the shock or collapse, are not the early evidences of perforation, they are symptoms not of perforation, but of the consecutive peritoneal implication."

Now these statements that collapse is absent in such tremendously acute lesions is not in accordance with what we have generally believed, and I think it must require some qualification. It may be that we have not hitherto seen those cases early enough to tell whether at the actual moment of perforation or strangulation collapse is observable. But I think that in many cases the patient is actually and truly "collapsed"—that is to say, he suddenly "falls together" from agonizing pain alone. It may be that the word is used in much to loose a fashion. It is a favorite word of our patients, and for the majority of them it expresses most varied conditions, mostly trivial in comparison with the conditions we are now discussing. I think, therefore, the word should be absolutely reserved for those sudden, abrupt catastrophes where the patient literally appears to "fall together" like a burst balloon. And when we say that we find a patient in a state of collapse, we mean that he has actually in the space of a few minutes fallen from a condition of extreme health to one of extreme nearness to death. Where the patient has reached this state of extreme nearness to death after some days, or at least after many hours' illness from acute intestinal obstruction or acute peritonitis, he is not suffering from collapse, he is suffering from septic poisoning. The

* Murphy's *American Journal Medical Sciences*, August, 1904.
† Moynihan, *Practitioner*, June, 1907

one is an abrupt insult to the organism, the other is a continued injurious state of the organism.

Interval of repose.—Before leaving this subject of collapse it is interesting to know that after the initial shock or insult there is a reaction. The organism recovers temporarily. In a few hours (two or more) the pain subsides, the vomiting ceases, the pulse and temperature may become normal, and the patient so improved that the physician may be deceived. Indeed, the improvement may be so great that, as has been recorded, patients have been known to be able to walk into hospital with their peritoneal cavities bathed in gastric contents, or with tightly strangulated hernias.*

This period has been named by Moynihan the "interval of repose," and he says it is seen in all forms of perforation within the abdomen. Its duration is variable, so much will depend on the viscus perforating and the quality and amount of its contents extravasated into the cavity. Sometimes it may not occur, or be unrecognized, as in perforation of typhoid ulcer, where a general poisoning is already acting, and in streptococcic infection of the peritoneum in some appendix perforations, where the septic poisoning comes on with such marvellous rapidity as to kill the patient in a few hours.

Nausea and vomiting.—Of nausea and vomiting there is not much to be said. Vomiting is a common and very variable accompaniment of all abdominal diseases. It is an early symptom in acute appendicitis, in perforations of stomach, though, according to Buonner,† it occurs only in one-third of the cases in perforation of gall-bladder and in perforation of the appendix, and generally in all peritoneal infections. In all these it is an early reflex symptom, is not constant, and passes off quickly. In intestinal obstruction from bands, or other mechanical cause, if strangulation is sudden and acute, it appears early, and is reflex, but frequently it is a comparatively late symptom, and appears only when the distension of the abdomen has reached a certain degree. In obstruction, a rough estimate of the site of obstruction may be made from the rapidity or slowness with which this symptom appears. For example, in acute obstruction from a gall-stone, which most frequently occurs in the duodenum or uper jejunum, the vomiting appears very early, and rapidly passes through the various stages of stomach contents, bile-stained material, brown turbid fluid, to stercoraceous matter, the fœtid contents of the small intestine. Again, in obstruction from a band stretching across the lower ileum, or in intussusception, vomiting is not severe and not frequent, and may not become stercoraceous for two or three days, if at all. The word "stercoraceous" is to be preferred to "fæcal" vomiting.

* T. C. English, in *Med. Chir Trans.*, 1903; Alfred Young, *Glasgow Medical Journal*, September, 1907
† Pearce Goold's *Year Book*, 1905.

Fæces, strictly speaking, are the contents of the large intestine, and vomiting of fæces is, on account of the presence of the ileocæcal valve, a practical impossibility, except in the establishment of a colo-gastric fistula in cases of cancerous tumor. In obstruction of the upper jejunum by a gall-stone the vomit may become stercoraceous in twenty-four hours and enormous in quantity, the contents of even that short piece of small intestine becoming foul, putrid, and decomposing, with the characteristic odor. The constant persistent effortless vomiting is almost certainly due to mechanical obstruction; the vomiting of inflammatory conditions so long as they are local is inconstant, painful, and accompanied by retching, and not a very prominent symptom; it soon ceases, unless general peritonitis supervenes, when it begins again, and the vomited material is brown and turbid—another indication of septic poisoning.

Pulse and temperature.—It is customary in many acute affections of the abdomen to regard the pulse and temperature observations as unreliable aids to diagnosis. If the pulse-rate rises concomitantly with the temperature when we expect it to do so we are satisfied. But it is frequently the case that the pulse-rate is high and the temperature low, and vice versa, and it frequently happens that the conditions found at the operation are more serious, or not so serious, as we expected from these observations. But it is hardly fair to lay the blame of unreliability on the pulse and temperature readings. We must not think that because a series of symptoms and a series of observations do not fit one another that these observations are of no importance, and no diagnostic value. The pulse and temperature observations are valuable as we interpret them aright, and our interpretation is of moment in proportion to our knowledge of the significance and meaning of the alterations of the phases of the disease.

There is usually a marked difference between the pulse and temperature readings of the mechanical obstructions and the inflammatory diseases. Normal temperatures will prevail in most cases of acute intussusceptions, obstructions by bands, volvulus, by the time we see the patient, though at the moment of onset the temperature is subnormal. In these cases, as they advance, even the onset of peritonitis may not affect the temperature. There may be sufficient vitality to produce a rise of 99° or 100°, but that is not common.* But in these obstructions the pulse attracts attention at once; it is small, rapid, and thready in the first instance, and it may improve as the first shock passes off, returning quickly again to the small pulse of strangulation. But in intussusception and volvulus and obstruction by bands, so long as the attack is not of the suddenness of strangulated hernia, and that is often, the pulse remains good, not rapid, though perhaps soft. As vomiting and distension con-

* Treves, "Intestinal Obstruction."

tinue the temperature remains normal or slightly subnormal, and the pulse becomes more rapid, more soft and thready. Yet in these cases there must be absorption of poisonous products from the bowel going on with increasing rapidity from the moment that the lumen is obstructed. These toxins are the product of saprophytic organisms, and others of not excessive virulence like the colon bacillus. There appears to be little or no alteration in the pulse and temperature till the organisms and their poisons pass through the paretic bowel wall and infect the peritoneum.

Now it is quite a different story as to pulse and temperature when we consider the acute inflammatory affections. In appendictis the ordinary behaviour of pulse and temperature is well known. Here their synchronous rise are indications of absorption of products of infection, and not necessarily as manifestations of the presence of pus. In acute appendicitis elevated temperature appears very early, and with it the pulse-rate is increasing rapidly. Acute inflammatory reaction is going on in the lining membrane, the mucosa, of the appendix, and there is considerable rapid absorption. There may be no further destruction of tissue, and the inflammatory process may then subside with declinature of pulse and temperature. But destruction of tissue may go on, and penetration through the appendix walls by the organisms may take place, and there is, therefore, an invasion of fresh tissue, the meso-appendix, the retro-cæcal tissue, and the neighboring peritoneum. This produces a fresh rise of temperature and pulse-rate, continuing with formation of inflammatory exudation, the formation of adhesions, and in time formation of pus, till localization and delimitation of the abscess take place. Then the temperature will come down, the pulse-rate diminish, because absorption has ceased, until there may actually be a fairly large abscess around the appendix, with a normal temperature and almost normal pulse. Then when the surgeon who sees the case for the first time finds a large appendicular swelling and plenty of pus, with nearly normal pulse and temperature, he abuses the pulse and temperature as unreliable aids to diagnosis, instead of congratulating himself that they really indicate the cessation of absorption of poisonous products, for the time being at any rate.

The converse state of matters may be found at the operation, where one's fears were not justified, where the pulse and temperature seemed to indicate that a severe amount of inflammatory mischief might be found, and the appearance be actually almost normal.

This is well shown in the accompanying chart of a patient in the Royal Infirmary this summer, who was brought in with acute appendicitis. All the symptoms subsided except the rapid pulse and elevated temperature. The appendix when I removed it appeared perfectly normal. From the day of the operation the temperature and pulse-rate fell to normal.

Whatever absorption of toxins was still going on was cut short by the removal of the seat of absorption.

If rupture either of an appendix, or duodenal or gastric ulcer takes place, there is a primary drop in the temperature to subnormal. This may continue for a short time only, when it is followed by a rapid rise as peritonitis supervenes. The rise of temperature and pulse-rate will depend on the character of the material poured out into the free peritoneal cavity. If that material is partially digested food from the stomach, or duodenum, infection of the peritoneum is comparatively slow, for this material may be sterile and has been proved to be sterile twelve hours, even in one case twenty-four hours, after the perforation. If the extravasted matter is pus containing the staphylococcus, or bacillus coli, or gonococcus, the rise in temperature and the pulse-rate are again comparatively slow in appearing; but if it is a streptococcic infection the catastrophy is of terrific speed, the pulse will be very rapid, the temperature generally high, and death may come in a very few hours.

I have been once greatly deceived by a sudden drop in temperature from 103° to normal in twelve hours in a case diagnosed by me as appendicitis. The same thing happened twice afterwards in this patient, but I had since found out that it was a case of salpingitis and not appendicitis. A sudden drop to that degree in an appendix case would mean gangrene, though it is, apparently, an ordinary event in a salpingitis.

Abdominal distension.—Abdominal distension is a symptom which used to be regarded as of paramount diagnostic importance. It still is one of importance, but we recognize it to be comparatively late in appearance in the course of most acute abdominal affections, and one which should be anticipated by treatment, though it is generally not our fault, but our patient's that it is not. It occurs in mechanical obstructions as a manifestation of paralysis of the muscular wall of the gut, and is generally synchronous with increasing pulse-rate and deepening apathy. It occurs in all forms of perforation of a viscus, although Senn, of Chicago, says that in his experience it is rare in perforation of appendix, and common in perforation of other viscera. In acute mechanical obstructions visible peristalsis may be found, and the patient may be able to indicate just where the peristaltic wave ceases. In these obstructions I have been very much impressed by the very late appearance of distension. In eight or nine cases of intussusception, seen from two hours to four days after the occurrence of the invagination, distension was never so great as to prevent palpation of the tumor. The lower the obstruction the greater the delay in the development of meteorism.

Distension of the bowel, then, is to be regarded as due to paralysis of the muscular layer of the bowel wall brought about by a combination of factors—the decomposition of bowel contents with formation of gases,

disorders of the circulation in the bowel, and chiefly by the direct action on the neuro-muscular apparatus of the bowel of the toxins produced by organisms both from within the bowel and from the peritoneum.

Obliteration of liver dulness is a favorite text-book sign, but practically a useless one. If the obliteration arises from distension it is of no use to us as a sign, for we know enough about the case already. But the sign is of use if it is found in a retracted abdomen, or one not distended, for then it indicates the presence of free gas in the cavity—a sign of rupture of the alimentary canal, or some point or other.*

Muscular rigidity; défense musculaire.—While the sign distension of the abdomen is to be regarded as peculiarly one of mechanical obstruction, or late in the course of general peritonitis, muscular rigidity is peculiarly a sign of the inflammatory affections. It is essentially nature's attempt to protect the inflamed structures below. It is a reflex phenomenon, and is to be distinguished from voluntary rigidity produced by the patient when the hand is placed on the abdomen. (This latter rigidity is almost invariably overcome by continued gentle pressure.) Its mechanism will be explained in speaking of the mechanism of visceral pain with which it is associated.

Muscular rigidity—the *défense musculaire* of Dieulafoy—varies in extent in direct ratio to the size of the area to be protected. In general peritonitis every muscle which goes to form the abdominal parietes, inclusive of the diaphragm, is hard, board-like, in a state of tonic contraction, so that even firm pressure will not elicit a greater degree of pain than is already present.

At the outset of acute appendicitis, or subacute perforation of the stomach, there may be general rigidity, but this very soon passes off, and the rigidity is fixed, especially over the seat of the disease. Rigidity of the muscles in the right iliac fossa is familiar as a sign of appendicitis with varying degree of peritoneal infection. So, also, is rigidity of the right rectus abdominis in almost its whole extent in perforation of the appendix and perforation of the duodenum. Indeed, Moynihan finds that it may be so localized as to permit him to diagnose duodenal ulcer by rigidity of the upper end of the right rectus; a gastric ulcer by rigidity of the upper end of the left rectus.

It is extraordinary that muscular rigidity should cease to operate in moderately large abscesses lying close under and attached to the abdominal wall. In many of these fluctuation may be easily made out through the muscles. They apparently cease to protect the abscess itself, but they continue rigid all round the abscess, so that the risk of free handling will not break down the adhesions separating the abscess from the rest of the abdominal cavity. I have not known of a case where an

*Watson Cheyne, *British Medical Journal*, 17th June, 1905.

abscess seemed to have been burst into the cavity by too free handling from without (though it is, of course, a possibility), and an explanation may be afforded in the fixity of the abdominal muscles in the zone of the parietes surrounding the abscess. It might be suggested that nerves in the subserous layer are no longer capable of carrying stimuli to the overlying muscles, perhaps even a temporary disturbance of the trophic supply to these portions of the muscles is brought about as a preparation for the escape of pus through the abdominal wall, unless anticipated by artificial means.

Abdominal pain.—The next symptom to be considered is one which is of prime importance to us as an aid to diagnosis, and the symptom which appeals most to the patient, namely, pain. Now I do not propose to bring before you all the various kinds of pain met with in abdominal diseases, but I wish to indicate that in spite of the notorious variableness of pain, and in spite of the intervention in every case of the personal equation, certain well-defined lines are followed. The three main classes of abdominal diseases are: (1) The mechanical obstructions—volvulus, intussusception, adhesive bands, hernias, with the various twists of pedicles; (2) perforations of viscera, duodenum, stomach, gall-bladder, small intestine; and (3) the inflammatory diseases, chiefly those arising in connection with the appendix, and perhaps some forms of tubercular peritonitis. Other acute abdominal conditions are omitted, as they have other special characteristics upon which the diagnosis will rest—thrombosis or embolism of the mesenteric vessels, passage of gall-stone or of renal calculus, rupture of ectopic gestation or of a pus-filled Fallopian tube.

In the first class—the mechanical obstructions—the pain is only very acute when strangulation takes place suddenly, then the patient will be doubled up with the acuteness of the pain, felt generally over the abdomen in the umbilical and gastric regions chiefly. In a few hours it may be possible to localize it better, and he may be able to point to one spot where the pain is acutest, or there may be a more highly sensitive area of the skin of the abdomen,* which will be found to be over the seat of the lesion. But the pain in most mechanical obstructions (certainly in band obstructions and in intussusception) is comparatively slight at first, occurring in spasms as the bowel makes increased peristaltic efforts to overcome the obstruction, and the patient's general condition may be deceitfully satisfactory. Much depends on the tightness of the constricting band, and, in volvulus, on the amount of bowel involved. The age of the patient is important—an old man will complain very little of a strangulated hernia, a child of six months may have only an occasional whining

* Mayo Robson on "Volvulus."

cry to indicate the presence of an intussusception. I have known colicky pains of complete obstruction by a band occur only at half-hourly intervals, and yet each pain was accompanied by vomiting of stercoraceous material; and in another case of volvulus of the sigmoid the patient complained of little or no pain, even though the obstruction had been present for three days.

In the second class—the perforations of viscera—the amount of pain varies greatly; as a rule, it is very acute, more or less localized, fixed, and persistent, not colicky, and it is more quickly followed, after a short period of reaction, by signs of infection of the peritoneum, the rapidity of appearance of these signs depending on the toxic nature and quantity of the materials poured out into the cavity. The severity of the first symptoms will often depend on the size of the perforation, and whether adhesions have already formed around it, and the course of the peritonitis may be greatly influenced by the site of the perforation. In perforation of a duodenal ulcer the extravasated materials pass down towards the right loin into the right iliac fossa, infecting the peritoneum in that whole tract, so that the case may simulate acute appendicitis with perforation. In a case of perforating duodenal ulcer where a mistaken diagnosis of appendicitis was made, and the appendix region opened, the peritonitis was limited to the right side, and for seven days, till the patient died, a constant stream of bright green bile poured out through the appendix wound. Stomach contents, on the other hand, tend to spread themselves over the upper surface of the omentum and to flow towards the left side of the abdomen,* hence pain will be in gastric region then towards the left side.

Then, third, in the inflammatory group, I have little to say of the ordinary attack of appendicitis except this, that pain, according to Murphy, of Chicago, is invariably the first symptom. If nausea and vomiting and high temperature precede the pain the case is not one of appendicitis.† This first pain is referred across the abdomen at the umbilical level; it is only after the lapse of some hours that it is localized in the appendix region. Then, if it subsides suddenly within the first thirty-six hours, the subsidence is due to the relief of tension within the appendix, and the liberation of infected material through the wall of the appendix into the meso-appendix, with subsequent formation of abscess and recrudescence of the pain till the abscess becomes localized, or the sudden relief of pain may be due to gangrene of the appendix. In fulminating appendicitis the pain is from the first severe, persistent, and accompanied by considerable amount of tenderness.

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*Bruce Clarke at Toronto, *British Medical Journal*, 1906.
†Murphy on "Appendicitis" in Goold's *Year Book*, 1905.

The last point to be noticed in appendicitis is the frequency with which pelvic appendicitis is found. Cases are found in which the history and symptoms all point to appendicitis, but examination of the appendix region proves to be negative. There may be fulness in the middle line of the abdomen, as in a case of mine which exactly simulated a very full bladder, but where the swelling proved to be a large abscess which had filled up from the pelvis, originating from a perforation of the tip of the appendix, which lay on the brim of the true pelvis. But frequently examination of the abdomen is entirely negative until the pelvic peritoneum is examined through the rectum or vagina, and pain or swelling or both towards the right side may be found. That is to say, the appendix hangs low over the pelvic brim and infects the peritoneum there first.

Now, what is the meaning and mechanism of abdominal pain? How is it brought about? Why is the pain of renal colic felt in the testicle, the pain of strangulated hernia referred to the umbilical region, that of gall-stones to the gastric region and below the right scapula, that of the initial stage of appendicitis to the umbilical area or down the leg? What is the origin of these referred pains?

And, again, is the pain of a visceral lesion actually felt in the viscus? How can we account for the well-known fact that the viscera can be freely handled in a conscious patient, and the peritoneum torn, cut, and burnt, and the patient feel no pain? Are the sympathetic nerves incapable of conveying painful impressions?

These questions have had answers supplied by various authors, amongst them Henry Head, of London; James Mackenzie, of Burnley, and Professor Lennander, of Upsala.

Head's investigations have satisfied him that there is a correspondence between the sympathetic and spinal distribution of nerves, that the sympathetic nerves from the viscera are linked up to certain segments of the cord, and that stimuli from these visceral areas are transmitted to the segments of the cord and referred to definite cutaneous areas by the spinal nerves.

The anatomical connection of the sympathetic plexuses to the spinal nerves is seen through the communicating branches. Head has shown that the whole surface of the body can be mapped out into quite definite bands or areas, which do not overlap, and which correspond to various segments of the cord. And in these areas he found certain "maximum spots" of most marked tenderness and pain. "The pain, therefore, is referred, not so much along the course of definite nerves, as to areas corresponding to the cutaneous supply of segments of the cord from which the posterior nerve roots arise."* For example, the umbilical pain felt

* Maylard, "Abdominal Pain," p. 41.

in strangulated hernia is to be explained by the stimulus from the constricted gut passing from the superior mesenteric plexus through the splanchnics to the segment of the cord from which emerge the ninth and tenth and eleventh intercostals which supply the skin of that region.

Then, again, the pain of stone in the pelvis of the kidney, or stone passing down the ureter, is felt in the loin, iliac region, and testicle. There is no direct nervous connection between these regions, so that the stimuli from the presence of the foreign body are transmitted from the renal plexus by its connections to the eleventh and twelfth intercostals supplying the loin and iliac region and first lumbar, a twig of which last supplied the testicular coverings before the descent to the scrotum, and still persists.

In appendicitis, in its early stage before infection of the peritoneum, an area of cutaneous hyperalgesia has been found (Head says it is always found) over the appendix region by pinching the skin between the finger and the thumb. This hypersensitiveness cannot be due to inflammation of the underlying appendix; it must arise from some circuitous nerve-current coming by way of the superior mesenteric plexus to the segment giving off the ninth, tenth, eleventh, and possibly twelfth intercostals.

This hypersensitiveness of the skin disappears as peritonitis supervenes, and, instead, there is greatly increased muscular hyperalges. — the slightest pressure on the muscles causing pain, and also causing an increased muscular rigidity. The pain of peritonitis, then, is not a referred pain strictly. It is not transmitted through the sympathetic nerves, but through the abundant sensory nerves in the parietal subperitoneal tissue. Lennander holds that "all painful sensations within the abdominal cavity are transmitted only by means of the spinal nerves supplying the parietal peritoneum and its subserous layer." The viscera themselves are said to be insensitive to all the ordinary methods of producing pain which would affect our skin.

What, then, is the importance of the visceral reflexes? It is that they are protective. The pain felt in the neighborhood of an organ is assumed to be felt in the organ. But if we consider the case of a gastric ulcer, we find the pain is felt in the epigastrium. Where the pain is located the rectus muscle is slightly rigid on examination, and if pressure be exercised the hardness of the muscle increases at once, and at the same time the patient is conscious of great pain from the increased pressure. Now, reference to a diagram of Mackenzie's will show that gastric ulcers are not situated under the seat of pain. He made most precise observations in three cases where he was able to locate the ulcer by means of the situation of the pain.

In the first case he saw the patient twenty hours after perforation of a gastric ulcer. She had suffered for months from pain after food,

and always located the pain with great precision in the *upper* part of the epigastrium over the ziphisternum. He reasoned that the ulcer was situated near the cardiac end of the stomach, and at the operation it was found to be so.

The second case was that of a girl who always located the pain exactly in one spot in the *middle* of the epigastric region. The ulcer was judged, rightly as it proved, to be situated in the middle region of the stomach, and the operation-incision was accordingly placed well to the left of the middle line.

In a third case the relation of the site of pain to the situation of the ulcer was carefully noted in a case which came to the post-mortem room. There was a small area of skin in the *lower* epigastrium showing where the patient had been accustomed to applying a blister to relieve the pain which had its origin in an ulcer situated in the pylorus.

Were the stomach itself sensitive, violence would reach and injure it before pain was experienced, but by the interposition of sensitive structures, coupled to a powerful muscular reflex external to the stomach, it is guarded effectually.*

In acute peritonitis the protective effect is shown as vividly by the reflex rigidity of the whole of the muscular layer providing the board-like abdomen.

Lastly, in this connection let me mention the theory of Lennander and Wilms, that the pains in increased peristalsis and in abdominal distension, that is, "colicky" pains, are due to stretching of the mesenteric attachments of the bowel, causing tension on the terminal nerve twigs of the *parietal* serous and subserous layers. The acute pain felt at the onset of intussusception and volvulus is thus explained. The older theory, that colic pains were due to pressure on the nerves of the bowel owing to tonic contraction of the muscular coat, is discarded, as it is found that the bowel can be crushed with forceps painlessly in a conscious patient.†

It is plain, however, that the last word has not been written as to the true cause of abdominal pain. One can hardly believe that the agony we so frequently witness can be explained in this airy fashion, but these are worth knowing, for they are good working hypotheses.

Now, in four final words, let me put before you some conclusions to be drawn from the consideration of these symptoms :

1. We must note that many of these symptoms, formerly regarded as diagnostic, are really very late in the pathological procession of events.

2. The terminology must in not a few instances be rendered more precise—"collapse," "meteorism," "obliteration of liver dulness," might

* Mackenzie, *British Medical Journal*, 25th June, 1906, p. 1449.

† Lennander, *Edinburgh Medical Journal*, August, 1907.

quite well be expunged, while a phrase like "acute abdomen" should never be seen on the printed page.

3. Symptoms should not be considered as isolated units, but should be taken in groups, so that the true value will be put on the presence of one, and not too much made of the absence of another.

4. As a corollary to the foregoing, the necessity for studying the whole man, and not a little bit of him, is greater than ever.

STRONTIUM BROMIDE.

W. J. Robinson, New York City (*Journal A. M. A.*, January 18), gives a sketch of the history of the bromides in medicine. There are fourteen official compounds, and besides these he enumerates about twenty non-official preparations that have come more or less into use. The real therapeutic facts to which he can testify as regards the bromides, are their value as general nervous and sexual sedatives, and of all the inorganic salts, he finds potassium bromide the worst and most toxic and strontium bromide the best. The undesirable effects of the potassium salt, he holds, by far outweigh its beneficial ones. The sodium salt is much milder, and when chemically pure strontium bromide is not obtainable, it is the bromide to be chosen. Strontium bromide, he asserts, is the best of all the inorganic bromide compounds. It is a positive (*a*) anaphrodisiac; (*b*) nervous and genito-urinary sedative; (*c*) it does not upset the stomach; (*d*) it does not produce acne, except perhaps to a very slight extent; (*e*) it often acts as a mild intestinal antiseptic; (*f*) it does not tend to irritate the kidneys, but rather the contrary; (*g*) it has a tendency to diminish albumin in albuminuria and sugar in glycosuria. Whenever he has found a patient using strontium bromide complaining of nausea or gastric irritation, investigation has disclosed that he was using a cheap commercial bromide and analysis revealed barium contamination. The test for barium is easy, and in case of doubt the physician should apply it himself. Fifteen grains each of strontium bromide and sodium acetate are dissolved in 75 minims of distilled water, from 5 to 8 drops of diluted acetic acid are added, and then 5 drops of potassium bichromate test solution. A cloudiness or precipitate indicates the presence of barium, and such a salt should be rejected. The dose of strontium bromide ranges from 10 to 60 grains, three or four times a day. Occasionally it may be given in doses of one or two drams. It is incompatible and should not be prescribed with citrates or sulphates, and it is best also to avoid prescribing it with alkaloids.

PROVINCE OF QUEBEC NEWS.

Conducted by MALCOLM MACKAY, B.A., M.D., Windsor Mills, Quebec.

The Montreal Health Committee will henceforth take over the duties of disinfecting the houses in which tuberculous patients have died. This important step has been decided upon at the request of the Society for the Prevention of Tuberculosis. As a reason why the city should undertake this duty, it was pointed out that owing to the great increase in the number of cases reported, the Society's inspector could not perform such disinfection in anything like an adequate manner.

Dr. Blackader, president of the Society, telling of its work, mentioned that during the past two months their inspector had made 814 visits, while 5,000 paper cuspidors and 5,000 pamphlets had been distributed. This work had grown so rapidly that it was now not possible for the Society to do it thoroughly. Ald. Dagenais, chairman of the Committee of Health, recommended that the city take over this work in future, and the work will now be done by a special inspector.

The annual report of the Tuberculosis League shows that 230 new cases were reported during the year. Eight patients were sent to the country for various periods. Several have been supplied with coals, rent, etc. Twenty-two were given milk amounting to 1,187 quarts. Fifty-four were supplied with eggs amounting to 216 dozen. About 350 garments were distributed amongst 76 patients.

The inspector's work for the year included 5,137 visits, compared with 4,876 last year. There were 685 disinfections. In the dispensary there were 273 new patients and 1,840 consultations. The financial statement presented by the treasurer showed a revenue of $3,092, with an expenditure of $2,836.

The returns of infectious diseases in the city have shown a marked falling off since the medical inspection in the public schools was recommenced in September last, and the officials in the infectious disease department speak in high praise of the value of this departure in the interests of public health. It is understood that Toronto is to follow a similar system, and has been making inquiries in regard to it. The percentage of scholars sent home for uncleanliness has been much lower than last year, and the parents of the children in question have shown a proper appreciation of the advice given in regard to the better care of the hair, eyes, throat and teeth. The ventilation has veen improved in the majority of the schools and the general returns are far more satisfactory than last year, although Dr. Laberge considers the system to be yet in its infancy, and in a very rudimentary condition as compared with the inspection carried out in such cities as Boston and New York.

The following cases were shown at the Montreal Medico-Chirurgical Society: Living case of hæmorrhage from gastric ulcer, Dr. Armstrong. Pathological specimens—Intestinal polyp, Dr. Gurd; wandering ovarium dermoid, Drs. Gardner and Burgess; acute endocarditis with multiple infarcts, Dr. Gurd; aneurism of arch of aorta, Dr. Lyman. Papers on the following subjects were also read: Infantile scurvy, Dr. W. F. Hamilton; paratyphoid cholangitis and septicæmia complicating a suppurating echinococcus cyst, Dr. Garrow; rib fractured while coughing, Dr. Gurd; sarcoma of intestine, Dr. Shepherd; acute purulent meningitis, probably epidemic, in an infant, Dr. Cameron; the anatomy of congenital dislocation of hip, Dr. Turner. The Society decided to do away with the library, as it was not often patronized, and better collections of books could be had just as conveniently at the McGill Medical Library.

The monthly meeting of the District of St. Francis Medical Society which was held in December, proved to be the most important in years. The new tariff of fees was the matter under discussion. A list of proposed fees had been sent to the medical men who were members of the society several weeks before the meeting, so that all came prepared to give their opinion on the subject. There was a general advance in rates in practically every department. The tariff has remained unaltered since 1891 and in the country districts a fifty-cent office fee and seventy-five-cent town visit have not been unusual. At present one dollar is the minimum in these cases and night work demands a double fee. In surgical work the maximum used to be $100 for abdominal section; at present this sum represents the minimum. Other surgical work has advanced in proportion, and anæsthetics vary from three dollars in the case of dental operations, to ten dollars in the case of a long major operation. Obstetrical charges still are placed at five dollars for a confinement averaging three hours, with the usual detention fee of from one to three dollars an hour to be charged after the time limit has expired. Advice by letter and by telephone are charged up at the minimum rate of one dollar. Mileage is charged in all medical and surgical cases at fifty cents to one dollar a mile over and above the charges of the visit. These alterations, which have long been needed, will place the medical profession upon a much more satisfactory footing in the Eastern Townships.

The new hospital for contagious diseases in Sherbrooke has just been completed. The smallpox epidemic which so alarmed the authorities last spring, and which was never reported to the Board of Health, caused the building to be started with a rush, but as the number of cases decreased the immediate need became less pressing and it was finished in a more leisurely fashion. The new structure is connected with the old one, and is situated back from Drummond road and overlooking the

Magog River. It is fifty feet by thirty, and has two stories. At one end of the large corridor connecting it with the old hospital there is a preparation room for doctors, and a wide hall extends through the centre of the building. On either side are the wards; one large general ward and five smaller rooms on each floor. The rooms are high, commodious and well lighted, the heating being carried on by an ingenious combination of stoves and hot-air pipes which ensures a proper distribution of heat through the wards. The rooms are all lighted by electricity. If necessary, fifty-six patients could be accommodated and complete separate isolation can be carried out when required. The whole construction was undertaken by the police department, and while costing but little in labor is still a credit to the city.

REMOTE RESULTS OF TREATMENT OF CANCER OF THE BREAST.

E. Villard and E. Mouriquand (*Lyon Méd.*, May 19, 1907) regard the prognosis of cases of cancer of the breast as much better when the axillary glands are not involved. Many cases may be cured by early operation, and any tumor of the breast after thirty years of age should be removed at once, even if it appears benign, on account of the liability to degeneration into a malignant form. When the operation has been done thoroughly with removal of all glands, of the tumor wide of its borders, and of the aponeurosis and the pectoral muscles when the tumor is adherent, the use of radiotherapy on the resultant scar serves to sterilize all the remaining tissues, and to prevent recurrence. In this field it is most beneficial. In some cases of recurrence its use is dangerous, since it provokes a dangerous glandular reaction. The effect in most tumors is to reduce the size of the tumor and cause destruction of the cellular elements. Of the fifty cases treated in the service of E. Villard, twenty-two are living without recurrences, and five with recurrences that have probably been cured by *x*-rays. They were all undoubted cases of cancer, and all but twelve were confirmed by microscopical examination. It is now from eighteen months to eleven years since the operations. In twenty-eight cases in which the glands were examined, one-half were found involved and one-half were not, but the proportion of cures was much greater in those in which there was no glandular involvement.—*Am. Jour. of Obs. and Diseases of Women and Children*, Sept., 1907.

CURRENT MEDICAL LITERATURE

MEDICINE.

Under the charge of A. J. MACKENZIE, B.A., M.B., Toronto.

RESUSCITATION OF ASPHYXIATED DOGS.

In the *Journal of Experimental Medicine*, Vol. VIII., No. 6, there is a description of a series of experiments made by Crile and Dolley in the Western Reserve Laboratory, to determine the conditions necessary to the resuscitation of dogs asphyxiated, or apparently dead from overdose of anæsthetics. The researches of Sollman showed that the inauguration of the heart-beat was more dependent upon the physical factor of the increased pressure in the coronary arteries than upon any other factor and that the nature of the fluid causing the increase was not of primary moment, e.g., mercury was used, and the problem was presented of raising the coronary blood pressure to from 30 to 40 millimetres of mercury, and this was done by the infusion into the arterial system of saline solution with the addition of 1 to 2 c.c. of 1 to 1,000 adrenalin solution. The blood pressure rose instantly and this was followed by firm massage of the heart. The limitations of the method were due to (*a*) ante-morten clotting, (*b*) over-distension of the heart, (*c*) later failure of the heart, circulation and respiration, (*d*) the apparently imperfect recovery of the brain.

Ante-mortem Clotting. Clotting was determined by the length of time elapsing before methods of resuscitation were begun, and seemed to be increased by direct and forcible cardiac massage; indirect massage by pressure over the thoracic wall had not this effect; when clotting was marked resuscitation was impossible, there might be beating for a short time, but it would soon fade away.

Over-distension of the Heart. In the unsuccessful cases the heart was found over-distended with blood due to the accumulation of blood due to the asphyxia and to the forcing of blood into the coronary arteries under pressure which found its way into the coronary vein and into the right side.

Later Failure. In a number of cases after a temporary resuscitation there was a later failure as late as twenty hours after, and usually in cases in which the beginning of the process had been delayed for ten minutes or more.

Apparent imperfect recovery of the brain. In cases in which the process was delayed over ten minutes there was sometimes failure in the recovery of consciousness; the reason was not discovered.

CONCLUSIONS.

(1) Animals after death from chloroform, ether, or asphyxia, up to five minutes were uniformly and readily resuscitated, under the technique described. Up to ten minutes there was an occasional failure; beyond ten minutes consciousness was rarely restored, and the proportion of successes in the resuscitation of the circulation and respiration diminished with the lapse of time. After 23 minutes in adult dogs and 35 minutes in puppies complete return of the circulation was not accomplished.

(2) After death from chloroform and ether animals were more easily resuscitated than after death from asphyyxia.

(3) Resuscitation, if successful, occurred within one minute after the administration of adrenalin in the majority of instances; it rarely occurred after an interval greater than three minutes.

(4) The younger the animal, up to certain limits, the more readily it was resuscitated.

(5) Any artery may be used for the infusion, though the advantage is slightly in favor of the carotid. The infusion should be directed toward the heart.

(6) The probable success of resuscitation is greater in inverse relation to the lapse of time after death.

DEMENTIA PRÆCOX.

S. E. Jelliffe, New York City (*Journal A. M. A.*, January 18), defines the conception of dementia præcox, which he considers a fairly reasonable entity, as based on the following principal features: 1. The occurrence of the condition, for the most part, in the years about puberty, adolescence and early manhood, *i.e.*, between the ages of 18 and 28. 2. The gradual development of a psychasthenic state deepening into a sense of incapacity which is the beginning of a general process of mental deterioration. 3. Thus a gradual emotional deterioration becomes apparent. This may be an indifference, or emotional stupidity, or may be characterized, as Stransky has so well shown, as an incongruity between the content of ideas and their natural emotional sequence. This incongruity has been compared to an ataxia by Stransky, and there may be more complete dissociation between ideas and their usual emotional association. This emotional adjustment is one of the marked features. 4. Modifications in the so-called intellectual sphere are apparent, involving lucidity of consciousness and leading sometimes to complete confusion; variation in power of attention; some modification of the faculty of orientation, often not marked; delusion development, often on an hallucinatory basis; loss

of perceptive power and the development of the sense of unreality, of inadequacy, ideas of influence, of reference and compulsory ideation. 5. As a consequence of these and other reactions, there results a fairly constant and perhaps distinctive alteration in the character of the individual. Jelliffe believes that the structural defects that later permit the crumbling of the intellectual structure are detectable in many cases before the breaking down has begun. Among the more constant of the characteristic anomalies are affectations or eccentricities of manner; a tendency to seek out striking combinations, neologisms in speech, bizarreness in writing, in artistic production and inapproachability. The finally developed childish, foolish manner so frequently seen as an end product is also perhaps best considered here. 6. Finally, these patients show marked modifications in their general muscular reactions, both in the striped and unstriped muscles. Physical negativeisms, stereotypies, affectations of posture and bearing, catalepsies, automatisms and a host of sympathetic phenomena are here included. Jelliffe points out briefly the different characteristics of the different types, the cases of simple dementia or hebephrenic form, the catatonic and the paranoid groups, and goes at some detail into the psychology of the condition. Most of these patients, he says, are not hopeful cases, but some are worth working for, particularly in the predementia stage. When the diagnosis is patent the opportunities for repair have usually been neglected. He believes in training the eccentric and egocentric children, who recruit this class of the insane, with special reference to their capacities, combining outdoor pursuits with education and utilizing the petty social conventions that lessen the opportunities for unregulated affective action.

AN ANTI-ENZYME IN TAPE-WORM.

The problem why the living stomach and intestine does not digest the host of worms that thrive there is generally answered by the explanation that they normally secrete an anti-body which overcomes the activity of the enzymes. The experiments made by Fetterholf, and reported in the *University of Pennsylvania Medical Bulletin,* July, 1907, appears to prove this hypothesis for Tænia sagitta. A worm ten feet long was secured shortly after it was passed and divided into parts, consisting of four segments each; some of these were put in test-tubes and others were ground up with glycerine. The experiments showed that the glycerine extract had no influence on the action of the enzymes upon starch, that the segments of the live worm retarded the action of the enzymes upon starch, two hours being required for complete hydrolysis, whereas the same quantity of starch in the control experiments required only one-half that

length of time, and that segments of the live worm, and also a glycerine extract of the worm, retard the action of the enzymes upon fibrin. Under normal conditions as shown by the control experiments, complete digestion of fibrin took place in six hours, whereas from ten hours to several days were required in the presence of the live worm or its glycerine extract.

THE MEDICAL TREATMENT OF GASTRIC ULCER.

Stockton (*Amer. Jour. of the Med. Sciences,* December, 1907), in an address delivered at the seventh triennial Congress of American Physicians and Surgeons, discusses this very important subject. He distinguishes two fairly well marked types of case: (1) that which as a rule starts in young chlorotic women, a type of case which is usually more common and which is usually acute. (2) The second type of case more usually occurs in elderly men, or at all events in men past middle life, and in its onset is usually chronic and in its course is more persistent. The difference in the history between these two types of case suggests a difernce in their etiology, but the sameness in the processes enforces a belief that in most respects they are the same disease. Dr. Stockton has carefully examined both before and after gastroenterostomy the gastric contents of a patient who for years had been in the habit of swallowing knives, screws, nails, and glass. He has found that though there were injuries to the gastric mucosa and some irritation, yet there was fair digestion of ordinary food, and injuries of the mucous membrane were rapidly recovered from. It has also been found that many serious cases of ulcer have occurred in stomachs having a gastric juice of very low acidity and feeble digestive power. These facts would point to the presence of some other factor in the causation of gastric ulcer than merely local injury and excessively acid gastric juice. This factor he finds in the lowering of the internal cellular resistance in some focus or foci of the gastric mucosa. The suggested explanation of these foci is that there is a want in the antibody in the cells of the mucosa which should normally antagonize the digestive ferments of the stomach, this want being further attributed to a tropho-neurosis similar to that causing herpes facialis. From this explanation Stockton draws his indications for treatment, which he believes should in the first instance be medical. A calm nervous system in a well-conditioned body is the state to be aimed at, and this state is to be attained by different means in different cases. One patient does better with complete gastric rest and abstinence from food for some days, while another does best with the rather full feeding recommended by Lenhartz. In all cases the treatment must be continued for a consid-

erable period after apparent cure, making careful study of the stools for the presence of occult blood. From the medical point of view Stockton considers that the function of surgery in gastric ulcer is to relieve secondary results rather than to cure the ulcer itself.

GYNÆCOLOGY AND ABDOMINAL SURGERY.

Under the charge of S. M. HAY, M.D., C.M., Gynæcologist to the Toronto Western Hospital, and Consulting Surgeon Toronto Orthopedic Hospital.

ABDOMINAL COMPLICATIONS OF TYPHOID FEVER.

Fazier and Thomas consider, under this heading, eight cases of intussusception; four cases of volvulus; two of inflamed mesenteric glands; as well as cases of pancreatitis, peritaritis, and appendicitis. They divide these complications and sequelæ into four groups: (1) a group in which, at the onset of the fever, the cases are erroneously regarded as appendicitis; (2) a group in which an undoubted case of appendicitis, either of the initial or recurrent type, occurs during the course of the fever, merely as a coincidence; (3) a group in which appendicitis is the direct result of the specific inflammation involving the lymphoid tissue, with or without ulceration and perforation; (4) lastly, a group in which appendicitis develops during the convalescence or later, and in which there appears to be some direct or indirect causal relation.—*Med. Bulletin, Univ. Pennsylvania,* August, 1907; *Medical Times,* Dec. 28, 1907.

THE USE OF IODINE CATGUT IN ABDOMINAL SURGERY.

In the September number of *American Journal of Obstetrics and Diseases of Women and Children,* Dr. J. Wesley Bovée, of Washington, D.C., writes an interesting article on this subject. It may be of value to our readers to be acquainted with this simple and reliable method of preparing catgut. The formula as now employed is:

Tincture of iodine	1 per cent.
Potassium iodide	1½ per cent.
Absolute alcohol	97½ per cent.

A small amount of sterile water is used in dissolving the potassium iodide, just sufficient to make a clear solution.

Preparation.—The catgut is cut into desired lengths, wrapped into figure-of-eight or on glass spools and placed, without preliminary preparation, in the above solution. The solution and catgut are kept in a jar with a wide mouth, which is closed with an accurately-fitting glass stopper. The date is written on the label of the jar. It is allowed to stand for fourteen days, when it is ready for use.

FIBROIDS COMPLICATED BY PREGNANCY.

James Vance (*N. Y. Med. Jour.*, May 18) states that all cases of fibroids complicated by pregnancy should be treated surgically and not obstetrically. Myomectomy should be performed only in cases found suitable for this operation. It is dangerous otherwise. Cæsarean section should be done for all cases of fibroids complicated by pregnancy at term. All cases of abortion or miscarriage which cannot be stopped should be immediately submitted to hysterectomy. All cases with pressure symptoms or any other cause endangering the life of the mother should have hysterectomy performed. Craniotomy is bad practice at any time, and never justifiable when the child is alive.—*Am. Journal of Obs. and Dis. of Women and Children*, Sept., 1907.

THE DIAGNOSIS OF APPENDICITIS.

The following, from the pen of Dr. J. B. Murphy, concerning the diagnosis of appendicitis, is too valuable to be allowed to rest where the practising physician can not see it; it deserves to be printed over and over again. Following up an experience of operating in more than 2,000 cases, Dr. Murphy says:

"The symptoms of acute appendicitis are, in my experience, in the order of their occurrence: (1) Pain in the abdomen, sudden and severe; (2) followed by nausea or vomiting; (3) general abdominal sensitiveness; (4) elevation of temperature, beginning from 2 to 24 hours after the onset of pain. These symptoms occur almost without exception in the above order, and *when that order varies I always question the diagnosis.*" (Italics by Dr. Murphy.) Other items in his paper are concerning temperature; in acute appendicitis it must always be present; it never precedes the pain. In 2,000 cases it was always present in the early stages of acute appendicitis.—*Texas Medical News*, July, 1907.

OBSTETRICS AND DISEASES OF CHILDREN.

Under the charge of D. J. EVANS, M.D., C.M., Lecturer on Obstetrics, Medical Faculty, McGill University, Montreal.

APPENDICITIS IN CHILDREN.

A. F. House (*Cleveland Med. Jour.*, Oct., 1907,) claims that, compared with the adult, the infantile appendix is slightly larger in relation to the size of the body, and considerably larger if it is considered in relation to the entire alimentary canal. The coats of the appendix are much more delicate; the meso-appendix is often very short, tending to disturb the circulation in that portion which projects beyond the end of the mesentery. The omentum being very small, is not of much protective value.

The etiological factors are practically the same as in the adult. As in adults, so in children, is the liability of the male sex to appendicitis greater than in the female. The author records eighty-three cases ranging in age from three to sixteen years, of which fifty-five were males and twenty-eight females.

The author thinks it is impossible to classify the cases pathologically with any degree of satisfaction.

The symptoms are usually extremely vague and obscure, generally there is acute abdominal pain which is reflected and referred to the neighborhood of the epigastric region, or somewhere near the umbilicus. Palpation of the abdomen is very unsatisfactory in children, though tenderness in the right iliac region can frequently be defined. Rigidity of the right rectus abdominis muscle is one of the most important guides in the adult, but is practically without value in children. In obscure cases an examination by the rectum should never be neglected. In children who are ill-trained or nervous, chloroform anæsthesia is recommended to afford an opportunity for exploring the iliac region through the abdominal wall.

Vomiting is usually the most persistent and evident symptom of appendicitis in children. If it persists very many hours without any adequate reason, and if it is accompanied by severe pain with the presence of intestinal movements, the suspicion of appendicitis should be very great.

When tympanites occurs with vomiting, and is accompanied by local tenderness and muscular rigidity, the diagnosis of appendicitis becomes very probable.

The pulse and temperature have more significance as regards the severity rather than the actuality of the disease.

To sum up, the symptoms on which we must depend for our diagnosis of appendicitis in children are pain, local tenderness, muscular

rigidity, vomiting and abdominal distension. These symptoms are always more or less obscure. The author thinks muscular rigidity is an important sign when present. It is usually well marked over the inflamed area. Comparisons made by gently stroking over the rectus muscle of each side will usually elicit relatively increased tension on the right side, even in compartively mild cases.

The author thinks the cardinal symptoms in children are severe pain in the abdomen with vomiting persisting over twenty-four hours, especially if there is no diarrhœa. He mentions the difficulty of differentiating between a diaphragmatic pleurisy and a basal pneumonia from an acute attack of appendicitis.

The author takes the position that every case of appendicitis should be operated upon as soon as the diagnosis can be made. He contends that it is not within the knowledge of any physician or surgeon to say what the pathological conditions present at the seat of the disease may be, nor does he know how the attack may terminate. His whole article is in favor of immediate surgical attention. The only exception to the rule of immediate operation is made in cases of diffuse septic peritonitis. In these cases the "Ochsner method" of treatment should be employed when it is possible to follow out this plan.

SOME POINTS ON INFANTILE TUBERCULOSIS.

In the *Archives of Pediatrics*, Sept., 1907, Dr. L. Emmett Holt contends that pulmonary tuberculosis is very frequent in infants, and this fact has not been appreciated because we have not been accustomed to look for it with sufficient thoroughness. Pulmonary tuberculosis is a very common disease in infants, as a systematic search for the bacilli in the sputum of children who have been exposed to infection and the tuberculin test establishes.

Sixty-seven cases of pulmonary tuberculosis treated in the Baby's Hospital form the basis of this study; 62 of these infants were under 2 years, and 15 under 6 months of age. The diagnosis was established by finding bacilli in the sputum of 54 of the cases; and by the post mortem findings in 10; one had tuberculosis meningitis, one reacted to tuberculin, and one gave typical clinical symptoms of pulmonary tuberculosis. One-half of these cases only showed any consolidation in the lungs at the time the diagnosis was made; nine cases showed no pulmonary signs whatever.

To obtain the sputum, a difficult matter in young infants, a cough was excited by irritating the pharynx and then catching the sputum

brought up into view, on a piece of muslin held in the jaws of an artery clamp.

In 21 cases, one or other parent gave a definite history of tuberculosis; in 6 others there was positive evidence in some other member of the household. Direct contagion existed in at least 40 per cent. of the series reported.

A routine examination has been made of every case admitted to the Hospital, where there was any evidence or suspicion of tuberculosis in either parent. It was found that in such cases it was very exceptional not to find tubercle bacilli in the sputum of the children; and in a few cases where these were not found, a positive reaction to tuberculin was obtained.

The infant being left at home most of the day, and often in the charge of an invalid, has greatly increased the opportunities for infection.

He concludes from the relatively insignificant and infrequent intestinal lesions that the intestinal tract is not very vulnerable to tuberculosis at this period of life and he concludes that it is direct contagion which is responsible for most of the tuberculosis rather than the infection of milk or other foods.

Forty-two cases of tuberculosis meningitis have recently been treated in the Baby's Hospital in New York in every one of which tubercle bacilli have been found in the cerebro-spinal fluid. In performing lumbar puncture all the fluid which flows should be withdrawn, since the bacilli are much more likely to be found in the last portion drawn out than the first. The number of bacilli is not usually great, and careful search is necessary; the average time consumed in this series was about one hour. The bacilli were found at the first puncture in 34 cases, at the second puncture in 6, and at the third puncture in 2.

The technique of search is detailed as follows: The fluid is allowed to stand in a test tube for twelve hours. If a film forms by a coagulation of fibrine in the fluid, this is fished out with a platinum loop and strained. If no film forms, the sides of the tube are scraped with a platinum loop. If the bacilli are not found in this way the fluid is centrifuged. It is well to allow a drop or two of blood to mingle with the fluid so as to allow a formation of the film.

They were found in 22 of the 42 cases, although in only 5 of these was there any consolidation of the lung, and in 9 there were no signs whatever in the chest. In the remainder there usually was some general bronchitis, which in most cases appeared late, and was more probably not of tuberculous origin.

ASPHYXIA NEONATRUM.

I. L. Hill (in the *New York Med. Jour.*, November 9, 1907) contends that the causes of asphyxia are found in factors which produce mechanical injury to the respiratory nucleus or interfere with its proper blood circulation. The causes of greatest importance are, compression of the cord, premature separation of the placenta and the arrest of the placental circulation by tonic contractions of the uterus, and direct interference with the fœtal heart's action by pressure on the centers influencing its beat. There are different degrees of asphyxia depending upon the death of the narcosis of the respiratory center or the extent of the injury to it.

The author divides the cases into the usual sthenic and asthenic type.

The indications for treatment are, (1) the removal of the obstacles to respiration; (2) reflex stimulation of the respiratory center; (3) aeration by artificial means; (4) prevention of loss of body heat; (5) stimulation of the heart and raising of the blood pressure.

To clear the upper nasal passages the author recommends blowing into the child's mouth while it is suspended, the stomach and trachea being compressed at the same time. In this way the current of air is forced outwards and mucus is expelled through the nose.

The author believes in immediate separation of the child from the mother and that delay in cutting the cord is never indicated. The Schultze method, in the writer's opinion, is undoubtedly one of the best. He refers to it as a "splendid procedure," but admits there are some bad features.

The Byrd method has the advantage that it can be performed with the child constantly immersed in a hot bath, and it allows other methods of stimulation to be carried on at the same time.

Direct insufflation, with the hand placed on the epigastrum of the child, is well spoken of.

Prochownik's method, holding the child suspended and alternately pressing and releasing the thorax, is effective.

Sylvester's method is not considered of particular value in young infants.

With regard to reflex stimulus, undoubtedly the strongest in its effect on respiratory function is Laborde's method of tongue traction. Ten minims of brandy, or 0.01 grains of strychnine, aid greatly in the pallid stage.

A definite line of action should always be carried out and the author recommends that as soon as the head is born the pharynx should be swabbed by means of the finger wrapped in gauze and the nose cleared by squeezing. After delivery the child should be inverted, its buttocks and back slapped briskly a few times, and a little cold water dashed in its face. Compression of the chest may be practised for half a minute. Mucus

should be sucked from the pharynx by means of a catheter having a pipette attached. Blow into the child's mouth, pressing gently on the trachea and the stomach.

If the child is not breathing well at this time the cord should be tied and cut and the infant placed at once in a tub containing eight inches of water at a temperature of 108° F.

Byrd's method of artificial respiration is now performed, without inverting the child at the end of expiration. At this time an assistant should make rhythmic traction on the tongue. After four minutes the child is removed from the tub and Schultze swinging practised for a minute. Usually the infant is breathing by this time, but it should be returned to the hot water and the chest massaged. It should then be submerged in cold water for a few seconds and a few slaps will be all that is required to cause a genuine cry. The Byrd method should be continued until both sides of the chest expand well.

If the child should not recover promptly, hypodermics of strychnine and brandy and the same routine repeated in due order.

Subsequently all these children should be watched carefully and the respiratory efforts stimulated from time to time.

THE TREATMENT OF CHOREA MINOR, WITH ESPECIAL REFERENCE TO THE DANGERS OF THE ARSENIC THERAPY.

Henry Koplik, of New York, deprecates the use of Fowler's solution of arsenic in chorea as producing nephritic symptoms, such as albumin and casts, before the swelling of the eyes occurs. He believes that when this drug is given it should be accompanied by very careful examination of the urine daily, and its use should stop as soon as any signs of nephritis are shown in the urine. He believes that most cases are better treated withouvt it. Neuritic symptoms are sometimes caused by it, that make the patient's condition worse. He considers the best treatment to be a modified rest cure. Isolating a child in bed in a dark room is not only unnecessary, but injurious. The child becomes restless and depressed, instead of benefiting by it. The child should have additional rest and a full diet, but should be allowed some quiet play and companionship, with plenty of fresh air and sunshine. Hydrotherapeutics are of great value and liked by the child. Arsenic is especially dangerous in cases in which the heart is involved, and in cases of chorea in which there is loss of speech, paralytic symptoms, and mental depression. Sedatives and strychnia are the best remedies with rest and hydrotherapeutics.—*Medical Record*, January 18, 1908.

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EDITORIAL.

SOME HOSPITAL PROBLEMS.

In the *Maritime Medical News* for December, 1907, there are two articles and an editorial dealing with this subject. The editorial takes a broad and very fair view of the subject. In the case of a Government or city hospital the management is apt to be partisan or exclusive. This may be overcome to some extent by handing the care of such institutions over to a Commission of capable and fair-minded persons.

In hospitals under the control of a Province or a city, a Commission would be more likely than the Government or the City Council to make appointments on their merits. The editorial seems to find evidence of this in two hospitals—the General in St. John, and the Victoria General in Halifax. In the former, which is under a Commission, the management is represented as being free from partisanship, whereas in the latter this has been far too apparent.

On the other hand, in the St. John Hospital, the attendance on private ward patients is limited to the members of the staff, who derive their remuneration directly from the patients. To this condition of affairs the *Maritime Medical News* justly takes exception. A patient able and willing to pay any reasonable expense demanded, should have the right of choosing his medical attendant. In the Victoria General Hospital in Halifax, though under Government control, for many years the private ward patients have enjoyed the right of selecting their own medical attendants. This course has proven of much advantage to the hospital, as it has been the means of keeping these wards full, whereas they were often vacant when the hospital was closed to the outside doctor.

The *Medical News* raises the question whether or not paying patients should be admitted to hospitals supported by public funds. This is a very wide topic, but it seems to be the growing tendency to have what is known as the combination of public and private wards under the same roof.

With regard to the rights of the physician or surgeon not attached to the staffs of the hospitals throughout the country, we have very strong views. On many occasions we declared for the open door. In this we

concur with our contemporary, the *Maritime Medical News*, when it says regarding the exclusion of the unattached doctor from the private wards that "such a regulation seems entirely unjust."

This matter has been fought out in Toronto for the past twenty years. At one time in Toronto no one but a member of the staff could attend even the private ward patients. This has now been completely changed, partly as the result of public opinion, the demand of the profession, and the competition among the hospitals. One hospital in Toronto now—the Western—permits any patient who pays 70 cents a day, the lowest public ward rate, the right of selection, which need not be limited to the staff.

We contend that this should be the rule all over. The only patients who should be limited to the staff are in our opinion the charity patients, who are paid for by the municipality. In this case they are placed under the charge of the staff in order that the institution may be held responsible for their proper care and treatment. This might not be possible if doctors not on the staff were allowed to attend such patients. In our opinion this is the only limitation that should be placed upon the freedom of selection. In every hospital where more exclusive rules exist they cannot be got rid of too soon for the good of these hospitals, the people and the medical profession.

VACCINATION AND SMALLPOX.

From time to time smallpox is making its appearance throughout Canada, and especially in the Province of Ontario. The reason for all this is not far to seek. There are some ignorant agitators who are ever decrying the merits of vaccination on the one hand and exaggerating the evils arising from it on the other. This is very unfair. If a man be ignorant of a subject, his opinion should not be given any weight, however conscientious he may be. A Government would not take the opinion of a washerman on the speed a train should go on a certain curve, nor that of a coal miner on the building of a warship. Why, then, take the advice of sentimentalists, bakers, ex-printers, etc., etc., on such an important question as the protection to be derived from the proper performance of vaccination.

In some instances, through carelessness, or the dirty habits of the persons vaccinated, there have been complications. This, however, does not argue against the merits of vaccination. The *Medical Press and Circular* speaks of vaccination in the following language:

"It is impossible for any intelligent man who has studied the question to deny the protective influence of vaccination; it is as little open to

question as the movement of the earth round the sun or the law of gravitation. The opposition to vaccination originated in certain ill-effects of the operation, mostly due to the entrance of pyogenic organisms through the wound in neglected children, and this opposition has been fanned by fanatical agitators for all it is worth."

For a number of years smallpox has been appearing and reappearing, causing much sickness, loss of time, anxiety, and expense to both the patients and the public. There is no need for this. It may be true that there have been few deaths, but this can be explained on three grounds: The disease has been of a mild form, many of the cases have appeared in those who had some protection from a faulty vaccination, and the treatment of the disease is now more efficient and isolation is prompt. But there need be no real need for so much sickness from smallpox. The German law is a good one. It does the German children no harm. There each child is vaccinated in its first year, and revaccinated in its fourteenth.

THE TORONTO GENERAL HOSPITAL APPOINTMENTS.

For some time the profession has been looking forward with considerable expectancy to the results of the deliberations of the Hospital Board on the appointments to the reorganized medical and surgical staff of the General Hospital. In another part we give the list as it is now completed.

With the appointments we have no fault to find. We believe that every one whose name appears on the list will do credit to the department in which he has been placed. We have one criticism to offer: We miss the names of too many who have rendered the Toronto General Hospital valuable services in the past.

It is possible to carry the policy of pruning too far, and experience may show that such has been the case in the making of the recent appointments. It is true that many of those whose names have been left off the new staff have had a long service, and, in some instances, we learn, did not wish any appointment which would involve any serious amount of labor. In the interests of medical education we hope the new arrangements will work out well, and we congratulate those who have received appointments to the various services in the hospital.

But it does seem that there was a good deal of "the-friend-at-court" in the whole business of the making of the appointments. Some have been retained who are over the age limit, some experienced teachers have been dropped or put on the consulting staff who are still under the age limit, and some have been awarded positions who have not had much experience in teaching.

As already stated, however, we believe that the staff as arranged will be found efficient. The lack of experience in teaching in some instances will be overcome by time.

THE FIVE YEARS' COURSE.

The University of McGill acted wisely in the interests of medical education and in her own interests when she adopted a five years' course of study. For a few years this action may reduce the attendance in her medical department, but the end will be to the advantage of the medical department.

The University of Toronto has formally adopted a similar period of study. We have been informed that there was some doubt as to how the time should be apportioned, but we gather that the major portion is to be given to the final subjects. This we think is proper.

During the present year Queen's University is going to put the five years' course in force. Laval University has also had this subject up for discussion.

These are important movements, and will make for a better state of medical education than anything we have enjoyed in this country so far. If the large universities were all to adopt a five years' course, it would then be an easy matter for the various Provinces to make such a period the time standard. This would at once pave the way to, and would remove every obstacle from, the adoption of Dominion registration. We would then have a national profession. Let us keep on working for this end. It will come. When it does come it will be none too soon; but will, nevertheless, be of immense advantage to the medical profession of this country.

INHERITED SYPHILIS.

It may be accepted, to begin with, that the spirochæta pallida discovered by Schaudinn and Hoffman in 1905 is the true cause of the disease. It has also been shown that mercury destroys the parasite.

Some speak of syphilis as it appears in the newborn, soon after birth, or in the early years of life, as congenital, hereditary, and inherited. It would seem that the latter is the term to be preferred. It is not always congenital, and the term hereditary applies to something that may be passed on from one generation to another. Inherited syphilis would appear to be least open to objection.

It was taught by Jonathan Hutchinson long ago that if the fœtus did not get the germ of syphilis it did not get the disease. But then the germ had not been found. Now it has been found, and this enables us to draw some very important deductions.

It may be laid down that the fœtus cannot inherit syphilis from the male parent alone. It is not conceivable for the spirochæte to be conveyed in the spermatozoon and multiply there without destroying it. This would render it impossible for the mother to be infected by the fœtus. The syphilitic child cannot cause a chancre on the mother's nipple. Both have the disease. This is Colles' law. It would seem from this that inheritance is always through the mother.

If the spirochætes be active or virulent they penetrate into the placenta and cause the death of the fœtus and premature birth. In other cases, due to treatment or lapse of time, the organisms have lost much of their virulency. In such cases the fœtus usually escapes till the moment of birth. When the uterine contractions separate some portions of the placenta, infection takes place through it, and the organisms are carried from the uterus to the separated placenta, and then to the fœtus. In such cases the rash of the disease appears a short time after the birth of the child. The mother must be first infected and then the fœtus. Never the fœtus direct from the father and the mother through the fœtus.

It has now been settled, after long and keen debate, that the milk of a syphilitic woman introduced into the alimentary canal of the child need not cause syphilis. There are cases on record where women with active secondary syphilis nursed children who escaped the disease.

A good deal of observation has been carried on as to whether the semen can convey the infection. It is quite clear that the spirochæte cannot be carried in the spermatozoon, as the less cannot contain the greater. But some experiments have been conducted that go to show that the spirochæte may be suspended in the semen. In this way a woman may be infected after the chancre on the male has healed. The female may be infected by the semen through abrasions on the mucous membrane, or through the endometrium after menstruation, when the mucosa is broken down.

Can syphilis be transmitted to the third generation? Mr. Hutchinson thinks that such does not occur. On the other hand, Edmond Fournier and the late R. W. Taylor reported cases that go to show that it is possible. This subject requires much careful investigation before any definite opinion can be pronounced. The weight of opinion at the present moment is rather in favor of the possibility of transmission to the third generation.

PERSONAL AND NEWS ITEMS.

ONTARIO.

Dr. Adam A. Beatty, of Toronto, has returned home from Europe, and Dr. Gilday has gone to London, Eng., for post-graduate study.

Dr. E. L. Hodgins has been admitted to the membership of the Royal College of Surgeons of England.

Dr. A. E. Morgan has been appointed an associate coroner for Toronto, and Dr. L. Carr has been appointed to the same position in Hamilton.

Dr. T. A. Davies has returned to Toronto after an extended course of study abroad. He is taking up diseases of the eye, ear, nose, and throat.

Dr. A. R. B. Williamson has been appointed secretary of the Queen's Medical Faculty, instead of Dr. Etherington, who has resigned the position.

The new Medical Building for Queen's Medical College, Kingston, was opened on January 14th. The function was a very successful affair. The Government gave $50,000 towards this building.

Dr. C. M. Stewart, formerly one of the resident house surgeons in Toronto, and who practised for some time at Ailsa Craig, has recently passed the first examination for the Fellowship of the Royal College of Surgeons of England.

Dr. F. W. Rolph is at 831 Bloor street west, Toronto; Dr. F. J. Ball has gone from Rugby, Ont., to Regina, Sask.; Dr. Cawthorpe has left Tiverton and settled in Park Hill; and Dr. R. J. Reade, of Deer Park, has removed to 17 Classic avenue, Toronto.

The Ottawa Board of Health has refused permission for the erection of the hospital for tuberculosis in Rideauville. This decision is due to the fact that houses are too near the proposed site.

Mr. F. D. Corbett, of Halifax, has given his check for $10,000 to the committee raising the funds necessary for the erection of a hospital for sick children in that city.

Dr. R. B. Nevitt, of Toronto, was sued a short time ago by Miss Belland. She claimed that he had exceeded his instructions in a certain operation which he had performed. After hearing the evidence, Mr. Justice Maybee non-suited the plaintiff and the action was summarily dismissed.

According to the present intention of the Toronto Board of License Commissioners, a number of druggists are to be prosecuted for selling tonics containing a larger percentage of alcohol than the law allows. By

law no more than 2 per cent. of alcohol is permitted, but in a quantity seized for analysis it was found that one bottle contained as high as 14 per cent. Dr. Wilson, chairman of the Board, stated that the cases would certainly be laid before the police magistrate.

MANITOBA AND WESTERN PROVINCES.

Dr. J. E. Gibbs, of Victoria, B.C., has recently returned from Vienna, where he was engaged in post-graduate work.

The Misercordia Hospital in Winnipeg has been opened to the public. It cost $180,000. The Sisters of Misercordia are in charge.

Dr. McIntyre, of Winnipeg, on account of ill health, has disposed of his practice to Dr. L. A. Knight, and has gone to Summerland, B.C.

There is a disposition in many municipalities throughout the West to have its own hospital for the poor. The question of a municipal hospital has been up for discussion in Winnipeg.

A clinical society has been formed in Winnipeg for the study of cases. It is expected that this society will prove of much benefit to the profession of that city.

A free dispensary has been opened in Winnipeg by a number of the medical men of the city. It was felt that it was best to have patients who could not pay a fee treated in this way at certain hours of the day.

Dr. P. H. Bryce, Medical Officer of Indian Affairs, has reported very unfavorably on the condition of many Indian schools. A very large percentage of the children attending these schools die of tuberculosis.

The people of Calgary have voted $75,000 for a new hospital. The hospital trust has a site of seven acres. It is intended to expend about $140,000 on the new building. Plans were in by 1st February.

The present hospital in Regina is to be handed over to a board which will conduct it as a municipal hospital. In Dauphin, Brandon and Portage la Prairie similar views seem to prevail.

A memorial hospital has been established at Red Deer to the memory of Charles Cruickshanks, Angus Jenkins, and Archie McNichol, members of the Strathcona Horse, who died in South Africa.

The Margaret Scott Nursing Mission of Winnipeg is doing good work. Last year the nurses made 13,284 free visits. The city gives $240 and the Government $1,000 towards its support.

The first Senate of the Saskatchewan University has been elected. Judge Wetmore is Chancellor. The first meeting of convocation was held in January at Regina.

H. M. Tory, M.A., of McGill, has been appointed the organizer of the Alberta University. He will arrange the work of the various departments. Already about 250 have signified their desire to attend as students. It is expected that the Faculty in Arts will open this year.

BRITISH COLUMBIA.

Applications for admission to the British Columbia Sanitarium for Tuberculosis must be made to Dr. Fagan or Dr. Irving.

Dr. R. W. Large has erected at Bella Bella a tent for the treatment of consumptives, on similar lines to those at Gravenhurst.

Vancouver is in need of more hospital accommodation. It is estimated that about $75,000 will be required for this purpose.

Dr. J. G. McKay, a graduate of McGill, has been appointed assistant superintendent of the asylum at New Westminster.

An effort will be made to have the law regarding the registration of births and deaths enforced. The vital statistics of the Province are in a very defective condition.

The work of University College was commenced in September in Vancouver, along the lines of the work in McGill. The Government has established a local board. An endowment fund of $100,000 is being raised. There are nearly 100 students on the roll. These take the McGill examination.

The report of British Columbia Hospital for the Insane is a very creditable one indeed. It shows that 150 patients were admitted during the year. An effort is made to keep the curable and incurable cases separate. The annual cost per patient was $177.79. Much attention is paid to nursing, amusements, fresh air, exercise, and diet.

The following have passed the Medical Council for British Columbia: W. C. Acheson, V. E. D. Casselman, W. T. Chambers, W. T. Corry, C. P. Covernton, W. G. Gable, C. E. Gillies, G. B. Henderson, I. D. Hunter, O. G. Ingram, R. W. Irving, G. G. Little, G. V. Lockett, J. G. McKay, R. M. Port, T. F. Saunders, W. E. Spankle, J. W. Thompson, J. L. Todd, J. L. Turnbull, R. C. Weldon, and W. A. Whitelaw.

FROM ABROAD.

Dr. Savage, of Pretoria, has been elected Mayor of that city.

The sum of $750,000, left by the late Mr. Edward Wilson, of the city of Melbourne, is to be used for building a new hospital.

Professor Hoffa, of Berlin, died recently. Though only in mid-life, he had attained marked eminence in surgery and bacteriology

By the death of Dr. R. W. Taylor, of New York, the profession of that city suffered a severe loss. He was a world-wide authority on syphilis and skin diseases.

Sir Alfred Baring Garrod died on the 28th December, 1907, at the advanced age of 88. His researches on gout and rheumatism won for him a world-wide reputation.

From our esteemed exchange, the *Transvaal Medical Journal*, we learn that the recent meeting of the South African Medical Congress was a very successful affair.

Dr. D. J. Armour, son of the late Chief Justice Armour, has been appointed Hunterian Professor of Surgery in the Royal College of Surgeons of England. He was lecturer on surgery last year and won the Jacksonian prize.

One of the most beneficent pieces of legislation in Britain for a long time is the recent Act making it compulsory on the educational authorities to establish a system of medical inspection of schools. This Act was warmly supported by the medical profession.

There is now a sanitarium for tuberculosis at Hobart Town, Tasmania. The report for the past year is a very satisfactory one. The superintendent estimates that one-third of the time lost through sickness by persons whose ages run from 20 to 30 is caused by consumption.

Japan leads all nations in the matter of the medical inspection of school children. The aim of Japan is that her citizens should take first rank both physically and mentally. Japan has appointed something like 9,000 medical inspectors.

Dr. Nicholas Senn, of Chicago, died on 2nd January, 1908, after a rather short illness from heart disease. He had a large and varied hospital and military surgical experience. He was an extensive writer on surgical subjects.

The Louisville College of Medicine and the Hospital College of Medicine, both of Louisville, Ky., united in January. The new college is known as the Louisville and Hospital Medical College, and is the Medical Department of the Central University of Kentucky.

Dr. Laveran, to whom has been awarded the Nobel prize in medicine, was born in Strassburg in 1845. He discovered the hæmatozoon of malaria. Lately he has been investigating the trypanosomes of the sleeping disease.

The United States Government has taken definite action against patent medicines which contain too high a percentage of alcohol. This will have the effect of driving many preparations off the market, or forcing the manufacturers to reduce the amount of alcohol contained in them.

The American International Congress on Tuberculosis and the Medico-Legal Society of New York, meeting in joint session, will hold the sixth American International Congress on Tuberculosis at the city of Chicago, Illinois, on June 1st, 2nd, and 3rd, 1908.

It was unanimously agreed by the Transvaal Medical Council that "the Council disapproves, on professional grounds, of the action of medical men giving their services gratuitously, or for nominal fees, to municipalities and other public bodies."

There are now in Germany 87 public sanitoria with 2,822 beds, and 35 private sanitoria with 2,118 beds. Eleven others are in course of construction with 800 beds. There are 17 institutions with 65 beds for children with non-advanced cases, and 67 institutions with 6,092 beds for children with advanced cases.

The principal chemist of the English Government laboratory has been giving some attention to temperance drinks. He found that 71 contained 3 per cent., 37 contained 4 per cent., and 8 contained 8 per cent., or more, of alcohol. This is a higher percentage than the ordinary drinks of the common beer-house.

The Transvaal Medical Council passed a rule to the effect that any medical practitioner duly registered and qualified in any colony of South Africa may practice in the Transvaal without the payment of the fee demanded of those who qualify and register in the Transvaal in the first instance. This is a step towards reciprocity.

On 21st December, 1907, Sir Patrick Heron Watson, of Edinburgh, passed away in his seventy-fifth year. He was knighted for his great services during the Crimean war. He was a combined surgeon and physician, and this prevented his getting the chair of surgery when Professor Spence died. He was a man of much brilliancy and force of character.

Professor Thomas Annandale, Regius Professor of Clinical Surgery in Edinburgh University, died in his sleep during the night of 20th December, 1907, in his seventieth year. He had gone his rounds and done his usual hospital work the day before his death. For a few days prior to his death those associated with him noticed a bluish tint on his lip at times, and that he fatigued more easily than usual.

Among the deaths in the medical profession in Britain during the year 1907, may be mentioned Sir Michael Foster, Sir W. H. Broadbent, Dr. Robert Barnes, Mr. Timothy Holmes, Sir Joseph Fayrer, Dr. Sansom, Dr. W. H. Ransom, Professor Annandale, Sir Patrick H. Watson, Dr. Julius Dreschfeld, Mr. E. H. Bennett, Dr. G. Markham Skerritt, Mr. C. J. Oldham, Mr. C. W. Williams, Dr. Henry Murney, Dr. Montague Murray, Mr. Woodhouse Braine, and Mr. T. H. Wakley.

The Transvaal Medical Council adopted the following resolution: "That the question as to whether the administration of anæsthetics appertains solely to medical practitioners be remitted to the Executive Committee to consider and report. The committee is of opinion, and recommends accordingly, that registered dentists should be permitted to give nitrous oxide gas in the course of their practice as dental surgeons, but that no person whose name does not appear on the Transvaal Medical Register should be permitted to administer any other general anæsthetic."

By the aid of vivisection Sir Victor Horsley was able to show the effect of removal of the thyroid gland and the results following the feeding of the glands to the same animal. Drs. Ferrier, Yeo, Beevor, Schäfer and others have by the aid of vivisection located the various centres on the brain's cortex, and paved the way to cerebral surgery. Our knowledge of the plague, tuberculosis, syphilis, malaria, diphtheria, Malta fever, etc., has been greatly extended by vivisection. Sir J. Fletcher Moulton recently said that vivisection was "the only bit of fruitful pain in the world."

The students of the University of Pennsylvania Medical School have formed an organization the purpose of which is to acquaint the undergraduates with the workings of the American Medical Association, after which it is very closely modelled. The various student societies take the place of the State organizations and elect members to a House of Delegates, which transacts all the business of the association. An annual meeting is held at which papers are read by chosen members, thus encouraging original research and a scientific spirit. The organization is named the Undergraduate Medical Association of the University of Pennsylvania and already has over two hundred and fifty members.

OBITUARY.

PHILIP J. STRATHY, M.D.

Dr. Strathy was a well-known Toronto practitioner, where he had been engaged in the work of his profession for over twenty years. He partook of his breakfast as usual, and shortly afterwards he was found in a dying condition in his surgery. Sudden heart trouble was the cause of his death. He was the son of Mr. H. S. Strathy, who has held the position of manager of the Traders Bank for many years. He leaves a widow and a son and daughter.

WILLIAM BAYARD, M.D.

Dr. Bayard died at his home in St. John, N.B., on 17th December, 1907, at the advanced age of 94. A few months ago he celebrated the seventieth anniversary of his practice. He was the recipient of a number of honors during his long professional career. He resided and practised for sixty-seven years in St. John, where he had a large practice and enjoyed the confidence of a wide circle of friends. He was one of the ex-Presidents of the Canadian Medical Association, and founded the General Hospital in St. John.

E. J. T. FISHER, M.D.

Dr. Fisher had lived and practised for many years in Toronto. He was an ardent worker in the cause of temperance. Some time ago he was taken ill with an attack of apoplexy. He was in his sixty-fourth year.

J. A. ATTRIDGE, M.D.

Dr. Attridge practised for many years at Highgate, Ont. Latterly he has followed his profession in Detroit, where he was fatally shot during the month of December past.

DR. RICHARDSON.

Dr. Richardson died on 10th December, 1907, at Canmore, and was interred at Banff. The funeral was largely attended by the members of the Masonic and Orange lodges of the district.

W. E. SPRAGUE, M.D.

Dr. Sprague, of Belleville, died very suddenly, while attending a meeting of the Council and Board of Trade in connection with a business matter in which he was interested. He was taken very suddenly ill, gave a few gasps, fell back on his chair, and expired. He was 62 years of age and leaves a widow and one son, who is attending McGill Medical College.

BOOK REVIEWS.

ATLAS AND TEXT-BOOK OF HUMAN ANATOMY.

Volume III, completing the work. By Prof. J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy at the University of Toronto, Canada. Quarto of 342 pages, containing 297 illustrations, mostly all in colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $6.00 net; half morocco, $7.50 net. W. B. Saunders Company, Philadelphia and London; Canadian Agents, J. A. Carveth & Co., Limited, Toronto.

This volume treats of the nervous system, the circulatory system and the organs of sense. These three volumes constitute a superb work on anatomy, especially as needed by the doctor and surgeon in active practice. This work, as a whole, is above all things intensely practical. The plates are the very finest that the art of bookmaking will permit of. The text part is brief, condensed and accurate. With the least possible ex-

penditure of time, the busy practitioner can secure the information he requires. It is an unfeigned pleasure to introduce such a work to our readers. It fills a want and fills it perfectly.

DISEASES OF THE NOSE AND THROAT.

By D. Braden Kyle, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Fourth edition, thoroughly revised and enlarged. Octavo volume of 725 pages, with 215 illustrations, 28 in colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $4.00 net; half morocco, $5.50 net. W. B. Saunders Company, Philadelphia and London; Canadian Agents, J. A. Carveth & Co., Limited, Toronto.

This work is now in its fourth edition. The author is keeping the book well up to date. This is one of the most reliable works on the diseases of the nose and throat with which we are acquainted. It has won its way into the hands of a large number of appreciative readers, and specialists make extensive use of the information which it contains. The author has given the medical profession a most useful guide in the diagnosis and treatment of diseases of the nose and throat. The sections on treatment are especially full and lucid. The many illustrations are well chosen and aid the text very much. We cordially recommend this new edition of Professor Kyle's "Diseases of the Nose and Throat."

COSMETIC SURGERY.

The Correction of Featural Imperfections, by Charles C. Miller, M.D. Including the description of a variety of operations for improving the appearance of the face. 136 pages. 73 illustrations. Prepaid, $1.50. Published by the author, 70 State St., Chicago, Ill.

We have examined this little book with much care and feel well pleased with its contents and make-up. The author covers his subject in a careful and clear manner. His descriptions of the conditions to be treated and the methods of treating them are very satisfactory. It is interesting to note how much can be done for the many forms of featural imperfections. The whole subject is gathered together in this little work and presented to the reader in a well-arranged and concise form. The illustrations are very good. The book should find a large sale.

MODERN OTOLOGY.

The Principles and Practice of Modern Otology. By John F. Barnhill, M.D., Professor of Otology, Laryngology, and Rhinology, Indiana University School of Medicine; and Ernest de W. Wales, B.S., M.D., Associate Professor of Otology, Laryngology and Rhinology, Indiana University School of Medicine. Octaco of 575 pages, with 305 original illustrations, many in colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, $5.50 net; half morocco, $7.00 net. W. B. Saunders Company, Philadelphia and London; Canadian Agents, J. A. Carveth & Co., Limited, Toronto.

Two very capable practitioners on these specialties have combined their efforts to produce a good work on diseases of the ear. A perusal of the book makes it quite clear that they have succeeded. It is a pleasure to review so ably written a work, and we congratulate the authors. This is a book with a genuine flavor of originality about it. It is not only original in its matter, but it is well composed and readable. The illustrations are excellent. The publishers have spared no pains to make the book one that every doctor would be proud to have in his library.

A TEXT-BOOK OF MINOR SURGERY.

By Edward Milton Foote, A.M., M.D., Instructor in Surgery, College of Physicians and Surgeons, (Columbia University); Lecturer on Surgery, New York Polyclinic Medical School; Visiting Surgeon, New York City Hospital; Visiting Surgeon, St. Joseph's Hospital; Consulting Surgeon, Randall's Island Hospitals and School; Formerly Chief in Surgery at the Vanderbilt Clinic. Illustrated with four hundred and seven engravings from original drawings and photographs. New York and London: D. Appleton and Company.

Minor surgery properly treated and managed constitutes the major part of the surgery of the general practitioner. There are very many surgical affections that are classified as minor, but they are major enough to the patient. The proper treatment of carbuncle, a felon, or a burn are all matters of moment to the sufferer. Dr. Foote has collected and arranged in this book all the matter that should find a place in such a work. In a convenient form one can find here a safe guide for every-day practice on a wide range of topics. To the young practitioner this book is invaluable, as he can find readily the best methods in it; while to the experienced practitioner there is here an excellent means of refreshing his memory on details. The publishers have shown what the book-making art can do to make good matter truly attractive.

INTERNATIONAL CLINICS.

A Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles. Edited, by W. T. Longcope, M.D., Philadelphia, with the Collaboration of Drs. Osler, Musser, McPhedran, Billings, Mayo, Rotch, Clark, Walsh, Ballantyne, Harold, and Kretz. Volume IV of the 17th series, 1907. Philadelphia and London: J. B. Lippincott Company. $2.25.

This volume contains 5 articles on treatment, 6 on medicine, 6 on surgery, 4 on gynæcology, 2 on genito-urinary diseases, 3 on orthopedics,

3 on neurology, and 1 on otology. The articles, as usual, are of a high standard, and may be taken as authoritative on the topics they discuss. It affords us much pleasure to again praise this series, and particularly this volume.

THE TREATMENT OF FRACTURES.

With Notes Upon a Few Common Dislocations. By Charles L. Scudder, M.D., Surgeon to the Massachusetts General Hospital. Sixth edition, revised and enlarged. Octavo volume of 635 pages, with 854 original illustrations. Philadelphia and London: W. B. Saunders Company, 1907. Polished Buckram, $5.50 net; half morocco, $7.00 net. W. B. Saunders Company, Philadelphia and London; Canadian Agents, J. A. Carveth & Co., Limited, Toronto.

We had the pleasure of reviewing this book before. Each edition gives evidence of much care in the revision of the text and the methods of treatment. The illustrations are superior in the fullest sense of the word. Every phase of the important subject of the treatment of fractures is fully discussed and clearly set forth. This work has now come to be regarded as one of the standards on surgical topics. It may be safely said that with this work at hand the medical practitioner is fully armed for any difficulty that may arise in connection with fractures.

A VERY YOUNG OVUM IN SITU.

By Prof. G. Leopold, Geheimer Medizinalrat, Director of the Royal Gynecologic Clinic and School for Medwifery. Member of the Royal Medical Board of Dresden. Comprising the fourth volume of the "Arbeiten aus der Frauen Klinik in Dresden." With sixteen lithographic plates. Authorized English translation. B. W. H. Vogt, M.D. Gynecologist and Obstetrician to the Lutheran Hospital, St. Louis, Missouri: C. V. Mosby Co., St. Louis, 1907. Price, $3.50.

This is a unique book in two respects: the amount of accurate text which it contains, and the wealth of plates in it. The author knows his subject, and tells what he knows. The plates are very fine and given with a profusion that makes one wonder. The art aspect of the book, therefore, takes a first place. This is the sort of book the teacher and student alike should have, if they desire to keep themselves up to date on every phase of embryology. The translator has performd his part well. We congratulate the author, translator and publishers on the appearance of this work.

MISCELLANEOUS.

CANADIAN MEDICAL ASSOCIATION.

THE NEW CONSTITUTION AND BY-LAWS AS ADOPTED AT THE MONTREAL MEETING, SEPTEMBER 11TH TO 13TH, 1907.

CONSTITUTION.

ARTICLE I. TITLE.

This Society shall be known as the Canadian Medical Association.

ARTICLE II. OBJECTS.

The objects for which the Association is established are the promotion of the medical and allied sciences, and the maintenance of the honor and the interests of the medical profession by the aid of all or any of the following:

(*a*) Periodical meetings of the members of the Association, and of the medical profession generally, in different parts of the country.

(*b*) By the publication of such information as may be thought desirable in the form of a periodical journal which shall be the Journal of the Association.

(*c*) By the occasional publication of transactions or other papers.

(*d*) By the grant of sums of money out of the funds of the Association for the promotion of the medical and allied sciences in such manner as may from time to time be determined.

(*e*) And such other lawful things as are incidental or conducive to the attainment of the above objects.

ARTICLE III. MEMBERSHIP.

The Association shall be composed of ordinary and honorary members. Ordinary members must be:

(*a*) Regularly qualified medical practitioners, who do not subscribe to any special dogma;

(*b*) Those engaged in teaching or research work in medicine or the allied sciences, in some Province of the Dominion of Canada.

Honorary members must be persons who have distinguished themselves and risen to pre-eminence in medicine, the allied sciences, in literature or in statesmanship.

ARTICLE IV. AFFILIATED SOCIETIES OR ASSOCIATIONS AND BRANCH ASSOCIATIONS.

All Provincial or inter-Provincial medical associations or societies at present existing in the Dominion of Canada, or which hereafter may be organized in the Dominion of Canada, may, by special resolution of said medical society or association, become branches of or affiliated with the Canadian Medical Association, by subscribing to its constitution, by-laws, code of ethics, and by securing the approval of the Executive Council. Where such organization does not exist, inter-Provncial societies or individuals may unite directly with the Canadian Medical Association until such Provincial or inter-Provincial associations or societies are formed and affiliate, when their membership will be continued only through such local organization.

ARTICLE V. EXECUTIVE COUNCIL.

The Executive Council shall be the business body of the Association. It shall consist of delegates elected by the affiliated societies, associations or branches, by the Provincial Medical Councils, and by the Canadian Medical Association as hereinafter provided for in the by-laws. It shall elect by ballot all the officers for the Association, except the President, Vice-presidents and Local Secretaries, and transact all the general business of the Association. The President, Vice-presidents, General Secretary and Treasurer shall be members of the Executive Council.

ARTICLE VI. SECTIONS.

Sections may be provided for by the Executive Council, or as hereinafter provided for in the by-laws.

ARTICLE VII. MEETINGS.

The meetings of the Association shall be held annually, at such time and place as may be determined by the Executive Council. The branch or affiliated organization within whose boundaries the meeting is to take place withdrawing its regular meeting and holding simply an executive session, such session to be held at the same time and place as the meeting of the Canadian Medical Association.

ARTICLE VIII. OFFICERS.

Sec. 1.—The offices of General Secretary and Treasurer may be held by one and the same person.

Sec. 2.—These officers, excepting the President, shall be elected annually by the Executive Council to serve for one year or until their successors are elected and installed in office.

Sec. 3.—The Treasurer shall give a bond to the Finance Committee for the safe-keeping of all funds in his possession and for their proper use and disposal.

Article IX. Finance Committee.

The Executive Council shall annually appoint five of its members as a Finance Committee, which shall also be a Publishing Committee, and whose duties will hereinafter be provided for in the by-laws.

Article X. Funds.

Funds for the purposes of the Association shall be raised by an equal annual assessment upon each ordinary member; from the Association's publications, and in any other manner approved of by the Finance Committee. These funds, from whatever source derived, are to be transferred to the Treasurer, by him deposited in some responsible banking institution, and only paid out by him on the order of the General Secretary and the Finance Committee, through its chairman.

Article XI. Amendments.

No amendments to any of the foregoing articles or sections thereof shall be made, unless due notice has been given in writing to the General Secretary at least one month before the annual meeting. Any such notice of motion must be laid by that officer before the Executive Council and sanctioned by a three-fourths vote of that body present and voting before it is submitted to the Association.

BY-LAWS.

Article I. Membership.

Section 1. Membership. How Obtained.

A member in good standing of an affiliated medical society or association may become a member of the Canadian Medical Association by presenting to the General Secretary (1) a certificate of membership in good standing in an affiliated or branch society or association, signed by the President and Secretary thereof; (2) written application for membership on the approved form; (3) payment of the annual subscription. In the absence of membership in a local association or branch a candidate may be elected to membership by the Council on the nomination of two members from personal knowledge.

Section 2. Membership. How Retained.

So long as a member conforms to the by-laws of the Canadian Medical Association, he retains his membership therein.

Any member who fails to conform to the by-laws and whose subscription shall not have been paid on or before the 31st December of the current Association year, shall, without prejudice to his liability to the Association, be suspended from all privileges of membership, and at the end of the succeeding year, if the arrears be still unpaid, he shall, *ipso facto,* cease to be a member. No member shall (except in case of his death or expulsion or of his ceasing to be a member under the previous provisions of this article) cease to be a member without having given previous notice in writing on or before the 1st December in the current year to the Secretary of the Association, of his intention in that behalf, and having paid all arrears of subscription (if any) due by him.

Section 3. Membership. How Restored.

Any delinquent member having once failed to comply with the sections of this article, unless absent from the country, shall have his name erased from the register of members of the Canadian Medical Association, and shall not be restored to membership until such dues as may be determined by the Executive Council have been paid, and satisfactory evidence produced that he retains his membership in an affiliated society or association if admitted through such channel.

ARTICLE II. REGISTRATION OF MEMBERS.

No member shall take part in the proceedings of the Association, nor in the proceedings of any of the sections thereof until he has properly registered his name and paid his annual dues for that and previous years.

ARTICLE III. GUESTS AND VISITORS.

Sec. 1.—Medical practitioners residing outside of Canada and other men of science of good standing may be received by invitation of the Canadian Medical Association, the Executive Council, the President, or any one of the sections or at the discretion of any of these on a letter of introduction from an absent member of the Association. They may, after proper introduction, be allowed to participate in the discussions of a purely scientific nature.

Sec. 2.—Medical students may be admitted to either the general meetings or to the meetings of any of the sections thereof, but shall not be allowed to take part in any of the proceedings. They shall be vouched for as such students by some member of the Association to either the General Secretary or Treasurer.

ARTICLE IV. HONORARY MEMBERS.

Honorary members shall be elected unanimously by the Executive Council.

ARTICLE V. ASSOCIATION YEAR.

The Association year shall be the calendar.

EXECUTIVE COUNCIL.

ARTICLE I.

Qualifications for Representatives on Executive Council.

Sec. 1.—No one shall serve as a member of the Executive Council who has not been a member of the Canadian Medical Association for at least two years.

Sec. 2.—Members of the Executive Council shall be elected for one year.

Sec. 3.—Every branch affiliated society or association shall be entitled to elect in addition to its President, who becomes an *ex-officio* member, one delegate to serve on the Executive Council for its membership from fifteen to fifty; two delegates for its membership from fifty-one to one hundred and fifty; three delegates for its membership from one hundred and fifty-one to three hundred; and thereafter one delegate for every three hundred of a membership above three hundred; provided that no one delegate shall represent more than one affiliated society or association to which he may belong.

Sec. 4.—At the first general session of each and every annual meeting of the Canadian Medical Association, fifteen members thereof, who shall be present at that annual meeting, shall be elected by ballot to act on the Executive Council for one year: provided that anyone already elected a delegate by an affiliated society or association shall not be at that meeting elected a member of the Executive Council. The President of the Association shall name three tellers to conduct this ballot. The fifteen having the greatest number of votes shall be declared elected.

Sec. 5.—Every three years the Executive Council shall appoint a committee of five to examine the registers of membership of all affiliated societies or organizations and so apportion the number of delegates entitled to be elected by each society.

Sec. 6—Every delegate from an affiliated society or association shall be required before acting on the Executive Council; to have entered his name on the Annual Register of the Canadian Medical Association, paid his annual subscription to the Association, and deposited a certificate with

the General Secretary of the Association, duly signed by the President and Secretary of the affiliated society or association, from which he has been elected a delegate.

ARTICLE II. ORDER OF BUSINESS.

Sec. 1.—The following shall be the order of business in the Executive Council, which can only be changed or departed from by an unanimous vote of that body:

1. Calling the meeting to order by the President.
2. Reading the minutes of the previous session.
3. Reports of officers.
4. Reports of committees.
5. Unfinished business.
6. New business.

Sec. 2.—The Rules of Order which govern the proceedings of the House of Commons of Canada shall be the guide for conducting the sessions of the Executive Council.

Sec. 3.—Ten members of the Executive Council shall constitute a quorum for the transaction of business.

Sec. 4.—It shall be the privilege of chairmen of committees and members of the Executive Council, and they shall have the right to discuss their own reports.

ARTICLE III. MEETINGS OF THE EXECUTIVE COUNCIL. ..

Sec. 1.—The meetings of the Executive Council shall be held on the dates of the annual meeting of the Canadian Medical Association, but not until after the first general meeting of the Association, and then not at the time of any general meeting of the Association, and shall report at each business session.

Sec. 2.—The Executive Council shall elect its own chairman, annually, from amongst its members. He shall be eligible for re-election.

Sec. 3.—Special meetings of the Executive Council shall be called by the Chairman of Council upon a written requisition, stating the objects of such meetings and signed by twenty members of the Executive Council.

ARTICLE IV. NOMINATIONS, ELECTIONS AND INSTALLATION OF OFFICERS.

Sec. 1.—(*a*) The general officers of the Association shall be a President, a Vice-president, and a Local Secretary for each of the Provinces of the Dominion of Canada, who shall be the Presidents and Secretaries of the Provincial organizations; a General Secretary, and a Treasurer. The President shall be nominated by the Council and elected by the Association in general session.

(*b*) Nominations. Any five members of the Association may hand to the General Secretary, in writing, the name of any member of the Association whom they may wish to nominate for any office, except in the case of the Finance Committee, which shall, in all cases, be elected by and from the members of the Executive Council, or any member of the Executive Council may nominate any member of the Association for any office.

Sec. 2.—(*a*) The President of the Provincial Association within whose boundaries the Canadian Medical Association is to be held, shall be *ex officio* First Vice-president of the Canadian Medical Association; and the Executive Council shall elect annually the General Secretary and the Treasurer. These officers shall serve for one year or until such time as their successors are elected and installed in office.

(*b*) All elections shall be by ballot and a majority of the votes cast shall be necessary to elect a candidate. Should there be more than two nominees for any position, the one having the lowest number of votes shall be dropped and a new ballot proceeded with. This procedure shall be continued until one of the nominees receives a majority of all votes cast, when he shall be declared elected.

Sec. 3.—The election of officers shall take place at any meeting of the Executive Council, and the exact time for same shall be fixed by the Executive Council.

Sec. 4.—The President shall appoint three tellers to conduct the ballot.

Sec. 5.—The Executive Council shall annually decide on the number of general addresses to be given at the succeeding annual meeting and shall elect the readers to deliver same. In default thereof on the part of the Executive Council, this duty shall be discharged by the President.

Sec. 6.—Installation. The President-elect shall be installed by the retiring President, at the first general session of the annual meeting of the Association succeeding the one at which he was elected.

OFFICERS AND COMMITTEES.

Article I. Duties of Officers.

Sec. 1.—President. The President shall preside at general meetings of the Association and at meetings of the Executive Council. He shall deliver the annual Presidential address at either the first or second general session of the annual meeting, held under his presidency, as he may decide. In the absence of the President, the Vice-president for the Province in which the meeting is held shall perform the duties, or, in his absence, the meeting shall select a Vice-president. The President shall

appoint annually a Committee of arrangements consisting of five members who shall reside in the place at which the Association is to hold its annual meeting. He shall also name the chairman of this committee.

Sec. 2.—The President shall be an *ex officio* member of all committees.

Sec. 3.—In case of the death or resignation of the President the Vice-president for the Province in which the annual meeting is to be held shall become the President.

Article II. Vice-Presidents.

The Vice-Presidents shall assist the President in the discharge of his duties at his request.

Article III. General Secretary.

Sec. 1.—The General Secretary shall also be the Secretary of the Executive Council of the Association. He shall give due notice of the time and place of all annual and special meetings, by publishing the same in the official journal of the Association, or if necessary in the opinion of the Finance Committee, by postal card to each member. He shall keep the minutes of the general sessions of the annual meetings of the Association, and the minutes of each meeting of the Executive Council, in separate books, and shall provide minute books for the secretaries of the different sections which he shall see are properly attested by both chairmen and secretaries thereof. He shall notify members of committees of their duties in connection therewith. Where necessary or deemed advisable by the President, he shall conduct correspondence with other organized medical associations or societies, domestic or foreign. He shall preserve the archives, the published transactions, essays, papers and addresses of the Association. He shall see that the official programme of each annual meeting is properly published, and shall perform such other duties as may be required of him by the President or Finance Committee.

Sec. 2.—The General Secretary shall be *ex officio* a member of all committees.

Sec. 3.—For his services the General Secretary shall receive a salary which shall be fixed by the Finance Committee.

Sec. 4.—The General Secretary may also be elected to the office of Treasurer.

Sec. 5.—All his legitimate travelling expenses to and from the annual meetings and other places ordered by the Finance Committee shall be paid for him out of the funds of the Association.

ARTICLE IV. LOCAL SECRETARIES.

The Local Secretaries shall assist the General Secretary at the annual and special meetings and shall perform the duties of corresponding secretaries for the respective Provinces they are elected to represent; these duties shall be performed under the direction of the General Secretary.

ARTICLE V. TREASURER.

Sec. 1.—The Treasurer shall receive and collect the annual fees and demands of the Association from the members. He shall be the custodian of all moneys, securities and deeds belonging to the Association, and shall only pay out moneys on an order drawn by the General Secretary and approved by the Finance Committee, whose chairman shall also sign all such orders.

Sec. 2.—The Treasurer shall give to the Finance Committee a suitable bond for the faithful discharge of his duties, and shall receive for his services a salary to be fixed by the Finance Committee.

Sec. 3.—The Treasurer may also be elected to the position of General Secretary.

Sec. 4.—When the offices of General Secretary and Treasurer are filled by one and the same person, it shall be the duty of the Finance Committee to appoint a collector of dues and subscriptions at each annual meeting, who shall be responsible to the Finance Committee.

ARTICLE VI.

All the officers shall discharge the duties of their respective positions until the completion of the business and scientific proceedings of each meeting.

FINANCE COMMITTEE.

ARTICLE I. APPOINTMENT AND DUTIES OF THE FINANCE COMMITTEE.

Sec. 1.—The Finance Committee, as set forth in the constitution, shall consist of five members annually appointed or elected from the members of the Executive Council. This Finance Committee shall have charge of all the properties of the Association, and of all the financial affairs of the Association. It shall elect its own chairman. The chairman may then appoint any sub-committees that may be necessary or desirable in connection with the finances of the Association. This Committee shall have charge of the publication of the official journal of the Association, and of all published proceedings, transactions, memoirs, addresses, essays, papers, programmes, etc., of the Association. It shall have power to

cmit, in part or in whole, any paper or address that may be referred to it for publication in the official journal of the Association, by the general respective duties and responsibilities of each. They shall also appoint an editor and a managing editor of the official journal, who may be one and the same person if by them deemed advisable, and shall define the respective duties and responsibilities of each. They shall also appoint such assistants as may be deemed necessary for the proper conduct of this official journal, and shall determine their salaries and the terms and conditions of their employment. The Finance Committee shall have the accounts of the Treasurer audited annually or oftener if desirable, and shall make an annual report on the same to the Executive Council. The Finance Committee may meet when and where they may determine, and the chairman shall call a meeting on the request of three members in writing, and three members of the Finance Committee shall constitute a quorum for the transaction of the business of the Finance Committee.

Sec. 2.—The President and General Secretary shall be *ex officio* members of the Finance Committe and the General Secretary shall act as the Secretary of the Finance Committee.

Sec. 3.—Any donations recommended by the Executive Council shall be paid only with the approval of the Finance Committee.

Sec. 4.—The Finance Committee shall fix the annual assessment, and where feasible make equitable arrangements for commutation with Provincial societies according to circumstances.

COMMITTEES.

Article I. Classification of Committees.

Sec. 1.—There shall be (*a*) Standing, (*b*) Special, and (*c*) Reference Committees.

Sec. 2.—Standing Committees. The Standing Committees shall be the following: A Finance Committee, a Committee of Arrangements.

Sec. 3.—The Finance Committee shall be appointed by the Executive Council and its members shall always be appointed or elected from amongst the members of the Executive Council.

Sec. 4.—The Committee of Arrangements shall be appointed by the President. They shall be residents in the place in which the annual meeting is to be held, and the chairman thereof shall be named by the President.

Sec. 5.—The Committee of Arrangements shall be required to undertake to provide for transportation; a hall or halls for meeting purposes; a hall for Executive Council meetings; halls for section work; rooms for

committees; rooms for General Secretary and other Secretaries; room for registration; room or rooms or halls for exhibition purposes.

Sec. 6.—The General Secretary shall act in an advisory capacity to the Committee of Arrangements.

Sec. 7.—The Committee of Arrangements shall have power to add to its numbers and shall name all the Reference Committees as well as the chairmen thereof.

Article II. Special Committees.

Special committees may from time to time be appointed by the Executive Council; they may be named by the President on the authority of the Executive Council. They shall perform the duties for which they were called into existence and shall in all cases report direct to the Executive Council as hereinbefore provided.

Article III. Reference Committees.

Sec. 1.—The Executive Council shall at its first meeting appoint all the Reference Committees and name the chairmen thereof. Their titles shall be as follows: (1) A Committee on Sections and Section Work; (2) a Committee on Medical Legislation; (3) a Committee on Medical Education; (4) a Committee on Hygiene and Public Health; (5) a Committee on Amendments to the Constitution and By-laws; (6) a Committee on Reports of Officers; (7) a Committee on Credentials; (8) a Committee on Necrology.

Sec. 2.—The General Secretary shall notify each member of these committees so appointed, of his duties.

Sec. 3.—Committee on Sections and Section Work. The Committee on Sections and Section Work shall secure papers for the sections. It shall report to the President or to the Executive Council when required.

Sec. 4 —Committee on Legislation. To the Committee on Legislation shall be referred all matters pertaining to local and federal medical Acts. It shall report to the President or the Executive Council when required.

Sec. 5.—Committee on Medical Education. To the Committee on Medical Education shall be referred all matters pertaining to medical colleges and medical education. It shall report to the President and Executive Council when required.

Sec. 6.—Committee on Hygiene and Public Health. To the Committee on Hygiene and Public Health shall be referred all matters relating to hygiene, public health, etc. It shall report to the President or to the Executive Council when required.

Sec. 7.—Committee on Amendments to the Constitution and By-laws. To the Committee on Amendments to the Constitution and By-laws shall be referred all matters relating to the subject, before action thereon by the Executive Council. It shall report to the Executive Council when required.

Sec. 8.—Committee on Reports of Officers. To the Committee on Reports of Officers shall be referred the President's address, the report of the General Secretary and the report of the Finance Committee before submission to the Executive Council.

Sec. 9.—Committee on Credentials. To the Committee on Credentials shall be referred all questions regarding the registration and credentials of delegates, before submission to the Executive Council.

Sec. 10.—Committee on Necrology. To the Committee on Necrology shall be assigned the duty of collecting, as far as possible, the obituaries of members dying since the last annual meeting. These shall be duly filed by the General Secretary. The committee shall report on the call of the President at the last general session of each annual meeting.

Sec. 11.—Three members shall constitute a quorum of any Reference Committee, and all reports shall be made as hereinbefore provided.

SCIENTIFIC WORK.

Article I. General Meetings.

Sec. 1.—Date of Meetings. The date of each annual meeting shall be fixed by the President on the advice of the Committee of Arrangements.

Sec. 2.—Time of Meetings. The general meetings or sessions shall be held at 10.30 a.m. and 7.30 p.m. of the first day of any annual session and at 7.30 p.m. on the subsequent days. The President shall preside at all general meetings, and in his absence, or at his request, one of the Vice-presidents.

Sec. 3.—The President shall deliver his annual address at one of the general meetings of the first day, as he may determine. The time of the deliverance of all other general addresses shall be arranged for by the Committee of Arrangements.

Sec. 4.—The order of business of the first general session of each annual meeting shall be as follows:—

1. Calling the meeting to order by the President.
2. Prayer; by some one designated by the President.
3. Addresses of welcome and response.
4. The report of the Committee of Arrangements.
5. Reading the minutes of the last general session.
6. The report of the General Secretary of the last annual meeting.

7. Election of the Association's members to the Executive Council.

8. Presidential or other addresses, if decided on by the President and Committee of Arrangements.

Sec. 5.—The order of business for all subsequent general sessions shall be the same as that for the Executive Council.

Sec. 6.—All addresses delivered at any annual meeting shall immediately become the property of the Association, to be published or not, in whole or in part, as deemed advisable, in the official journal of the Association. They must, as soon as they have been delivered, be handed to the General Secretary, who shall refer them to the Finance Committee. Any other arrangement for their publication must have the consent of the author or of the reader of same and of the Finance Committee.

Article II. Sections and Section Work.

Sec. 1.—The sections to be held at any annual meeting shall be determined by the Executive Council. In default of their so determining the duty shall be discharged by the Committee of Arrangements, who shall also appoint or elect the chairmen thereof and the vice-chairmen and secretaries. These section officers shall serve for such meeting only, but any of them, if deemed advisable by the Committee of Arrangements, may be appointed for the following meeting in proper course.

Sec. 2.—Duties of the Officers of Sections. The chairman shall preside at each meeting of any section, or in his absence or at his request, the vice-chairman shall preside. The secretary of each section shall keep a correct account of the transactions, and shall record them in a special section minute book provided by the General Secretary. The chairman and secretary of each section must verify and sign the minutes.

Sec. 3.—Each section shall hold its first annual meeting at 2 p.m. on the first day of each annual meeting; and each subsequent day of the annual meeting at 9 a.m. and 2 p.m. until the programme of that section is completed. No section shall hold a meeting that will in any way conflict with a general meeting of the Association.

Sec. 4.—Honorary members of this Association shall have the privilege of presenting papers before any section and taking part in any of the scientific discussions.

Sec. 5.—All papers, essays, photographs, diagrams, etc., presented in any section, shall become the property of the Association, to be published in the official journal of the Association or not, as determined by the Finance Committee, and they shall not be otherwise published except with the consent of the author and of the Finance Committee.

Sec. 6.—Each author of a paper read before any section shall, as soon as it has been read, hand it with any accompanying diagrams, photo-

graphs, etc., to the secretary of the section before which it has been presented, who shall endorse thereon the fact that it has been read in that section, and shall then hand it to the General Secretary to lay before the Finance Committee for publication, in whole or in part, or otherwise disposed of as may be deemed advisable by that committee.

Sec. 7.—The order of procedure in any section shall be:—

1. Calling the section to order.
2. Remarks by the chairman.
3. Reading minutes of previous meeting.
4. Reading of papers and discussions thereon.
5. Nomination of honorary members of the Association.

Sec. 8.—No paper shall be "read by title" except by unanimous vote of the section before which it was to have been read.

Sec. 9.—No business of any description shall be introduced at any meeting of any section except as hereinbefore provided. The time allotted for each paper shall not exceed fifteen minutes, and that for the discussion of such paper five minutes.

AMENDMENTS.

Article I.

The Executive Council at any annual meeting may instruct the Finance Committee to make or to have made any changes in the articles of incorporation which may appear desirable, or which may be made necessary by any change or amendment in the constitution and by-laws of the Canadian Medical Association.

Article II. Amendments to By-laws.

No amendment to by-laws shall be made except on a three-fourths vote of the Executive Council, provided that no amendment shall be acted on until the day of meeting following that on which the amendment was introduced, and approved by the Association.

TORONTO GENERAL HOSPITAL'S NEW STAFF.

After fourteen months' work, the Special Committee of the Board of Trustees of the Toronto General Hospital on Staff Reorganization had the satisfaction of seeing the work completed when the trustees finally passed the committee's recommendations. The committee recommended that, in addition to the head of each department there shall be a senior assistant, or assistants, and clinical assistants, and that the following gentlemen be appointed to the positions specified:

Surgery—Service in charge of Dr. George A. Bingham: Senior assistant, Dr. Charles Shuttleworth; clinical assistants, Drs. Wallace Scott and Arthur B. Wright. Service in charge of Dr. Alexander Primrose: Senior assistant, Dr. F. N. G. Starr; clinical assistants, Drs. Stanley Ryerson and Samuel Westman. It is recommended that Dr. Clarence L. Starr be given the standing of senior assistant and attached to Dr. Primrose's service for the purpose of being available as an assistant for Mr. I. H. Cameron, the senior professor in surgery in the University of Toronto. Service in charge of Dr. Herbert A. Bruce: Senior assistant, Dr. W. J. O. Malloch; assistants, Drs. Warner Jones, John McCollum and A. A. Beatty.

Medicine—Service in charge of Dr. Alexander McPhedran: Senior assistant, Dr. A. R. Gordon; clinical assistant, Dr. Wm. Goldie; in charge of tuberculosis clinic, under Dr. McPhedran's service, Dr. Harold C. Parsons. Service in charge of Dr. W. P. Caven: First senior assistant, Dr. John Fotheringham; second senior assistant, Dr. W. B. Thistle; clinical assistants, Drs. E. C. Burson and Joseph S. Graham; in charge of the department for the treatment of functional neuroses under Dr. Caven's service, Dr. D. Campbell Meyers. Service in charge of Dr. Graham Chambers: Senior assistant, Dr. R. D. Rudolf; clinical assistants, Drs. Goldwin Howland and Geo. W. Ross; clinical assistant in dermatology, Dr. D. King Smith.

Gynæcology—Service in charge of Dr. James F. W. Ross: Senior assistant, Dr. Frederick Marlow; clinical assistants, Drs. R. W. B. Hendry, A. C. Hendrick, Ida E. Lynd and Helen MacMurchy.

Obstetrics—Service in charge of Dr. Kenneth McIlwraith: Senior assistant, Dr. Frederick Fenton; clinical assistant, Dr. J. A. Kinnear.

Eye Department—Service in charge of Dr. R. A. Reeve: Senior assistants (of equal rank), Drs. Charles Trow, J. M. MacCallum, and D. N. Maclennan; clinical assistants, Drs. Colin Campbell and W. H. Lowry.

Ear, Nose and Throat Department—Service in charge of Dr. Geo. McDonagh: Senior assistants (of equal rank), Drs. D. J. G. Wishart, Geoffrey Boyd and Perry Goldsmith; clinical assistants, Drs. C. M. Stewart and Gilbert Royce.

Department of Anæsthetics—Dr. Samuel Johnston in charge. Assistant, Dr. Duncan Anderson.

Electrical Department—Dr. Charles R. Dickson in charge. Assistant, Dr. George Balmer.

The committee recommended that all appointments lower than that of senior assistant should be probationary, and subject to special review before the annual appointments are made; also that in observance of the provisions of the Burnside Trust agreement, Drs. J. A. Temple and F. Le M. Grasett be appointed life members of the active staff without service.

The committee recommended that the following be added to the consulting staff:

Medicine—Drs. John L. Davison, T. F. McMahon, W. H. B. Aikins, Allen Baines and John Caven.

Surgery—Drs. Luke Teskey, R. B. Nevitt and N. A. Powell.

Obstetrics—Dr. Adam H. Wright.

Eye and Ear Department—Drs. G. Sterling Ryerson and G. H. Burnham.

In presenting its final report the committee recorded its appreciation of the excellent character of the service rendered by the staff, past and present, and expressed its grateful acknowledgment of the self-sacrificing efforts in the interests of the sick, and of medical education, on the part of members retiring, several of whom had been connected with the hospital for long periods, and had requested to be relieved from further duty. It was recommended that the committee be continued in existence for the purpose of assisting in bringing into effect the regulations adopted by the board in connection with the establishment of the new services.

MEDICAL PREPARATIONS, ETC.

A PALLIATIVE TREATMENT OF ELEPHANTIASIS.

Some striking results in the treatment of elephantiasis with Merck's Fibrolysin have been obtained by Dr. Aldo Castellani, Director of the Clinic for Tropical Diseases at Colombo, Ceylon.

In a paper read before the Ceylon branch of the British Medical Association on June 29, 1907, Dr. Castellani explained, that struck by the fact that Thiosinamin had been used by Hebra and others in the treatment of fibrous tumors, he was led to try this compound in its water soluble form of Merck's Fibrolysin in cases of elephantiasis, a disease due to a hypertrophied condition of the subcutaneous tissue from increase of fibrous tissue in various stages of development.

The method of treatment began by making the patient enjoy a complete rest in bed for a week, the affected parts being bandaged with flannel or india rubber bandages and massaged regularly twice daily, thereupon began the injecting of Fibrolysin. A sterile pad of gauze was attached to the place of the injection and the part tightly bandaged, an antitoxin syringe with a strong needle being used and 2 cc. of Fibrolysin inoculated every day or other day for almost a month. No noxious or painful symptoms of importance were observed to follow the injections.

The injections were now stopped for a week, during which time the use of flannel or india rubber bandages was resumed. In cases of verru-

cose elephantiasis it was found that the use of rubber bandages rendered the skin much smoother, besides causing the hard verrucose to disappear or become smaller; should, however, the skin of the affected parts be smooth, the use of rubber bandages is not advocated.

Now followed a second course of thirty injections, then a week's rest and bandaging, and, if necessary, more injections. The affected parts are now much smaller in size, the skin has become softer, more elastic and can be pinched up in folds. After the treatment the wearing of puttees or of an elastic stocking is most strongly advised, as otherwise swelling will again set in; this, however, is most probably due to an œdematous infiltration, as a day or two of rest is quite sufficient to cause its subsidence.

For this reason, Dr. Castellani suggests removing the superfluous skin, when the disease affects the legs, by the removal of long elliptical strips of skin, stitching up the margins of the wound together; this is of course impracticable before the treatment, the skin being enormously thickened and inelastic would not permit a coaptation of the opposing surfaces.

The few following cases will illustrate the results obtained:

On the admittance of a Singhalese lad of 18 to the Clinic, who had been suffering for 12 years from elephantiasis of the right leg, the measurements of the limb were: round the ankle, 23½ inches, round the calf, 25½ inches.

He underwent the above detailed course of treatment, receiving altogether 62 injections. At the end of the course the circumference of the ankle had been reduced to 9, that of the calf to 12 inches; the skin was of almost normal elasticity and the patient was able to walk easily. For two weeks he omitted bandaging the limb, which thereupon began to swell, but 24 hours complete rest in bed and bandaging reduced the limb to its previous measurements.

In a case of elephantiasis verrucosa of the right leg and foot, the patient had been a sufferer for 20 years. He underwent a treatment of 90 Fibrolysin injections, the comparative measurements being:

Before treatment, ankle, 24½; calf, 27; thigh, 25 inches.

After treatment, ankle, 14½; calf, 16; thigh, 21 inches.

A Singhalese woman of 56, after suffering for 15 years from elephantiasis of the left leg and foot, was treated with only 22 injections of Fibrolysin, which succeeded in reducing the circumference of the ankle from 19 to 11½ inches.

Dr. Castellani [illegible] the opinion that his above described palliative method for the treatme... of elephantiasis will prove to be fraught with beneficial results as long as the case does not show any complications, such as ulcers, and this is a great progress.