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Original Communications.

GALL-STONE SURGERY.[1]

WITH A REPORT OF A SUCCESSFUL CASE OF CHOLEDOCHOTOMY.

By GEORGE E. ARMSTRONG, M.D.

Assistant Professor of Clinical Surgery, McGill University; Surgeon to the Montreal General Hospital; Attending Surgeon to the Western Hospital.

Sims made a distinct advance in surgery when he perfected the operation known as cholecystostomy. To Tait, more than to any other man, is due the credit of popularizing the operation. With the aid of antiseptic surgery the operation of cholecystostomy has been so perfected that Mayo Robson was able to report fifty-seven cases with only three deaths. Each one of these three fatal cases was complicated by malignant disease. Kehr had forty-nine cases with forty-five recoveries, the fatal cases being complicated with suppurative cholangitis, or malignant disease. Montreal, so far as I know, can present an equally good record. I am not aware of any fatal case of cholecystostomy occurring in Montreal where malignant disease was not present. In fact the operation as now performed by those of experience may be almost said to be without mortality. Even in those cases where the gall-bladder is so small and shrunken that it cannot be brought to the edges of the abdominal incision a communication can be established between the opening in the gall-bladder and the abdominal incision by the use of omentum, or by what seems to answer equally well, a drainage tube surrounded by iodoform gauze. The immediate closure of the opening in the gall-bladder and allowing it to drop back into the abdomen, while perhaps the ideal operation in suitable cases, is still open to the serious objection that at present we are often unable in any given case to say

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

that it is a suitable one. It is probably impossible to be absolutely certain that the cystic and common ducts are patent, or to be certain at the time of operation that the bile in that case is sterile. We know that, sometimes although not often, it does contain the common colon bacillus and other pathogenic germs.

I think it can now be stated that long persistent jaundice does not indicate that uncontrollable hæmorrhage need be feared in operating. If malignant disease be present, however, there certainly is great danger from hæmorrhage, both at the time of operation and subsequently. It is the presence of the malignant disease rather than the cholæmic condition of the blood that is to be feared.

I would like to emphasize the fact that cholecystostomy in the absence of malignant disease is a safe operation, because I think that Kehr is correct when he says that many patients are spending more or less time at Carlsbad who could be much better and more satisfactorily treated upon the operating table. Recurrence is rare; I have never seen a case of recurrence reported. I also think that the long-continued presence of gall-stones in the gall-bladder and ducts may under favourable conditions act as a cause of carcinoma in their neighbourhood.

Cholecystostomy has been sufficiently often performed now to show that it is not in all cases sufficient and all that could be desired. In some cases bile continues to be discharged through the abdominal opening even when the gall-bladder opening has been, as it always should be, attached only to the peritoneum and transversalis fascia. In these cases there is generally an obstruction, usually a gall-stone obstruction, in the common duct.

To remedy this condition cholecystenterostomy or the establishment of a communication between the gall-bladder and some part of the small or large intestine has been performed.

The mortality after this operation, which was reported by Billroth to be 50 per cent., was reduced by Lücke, of Strasbourg, to 31 per cent., and by American surgeons to 11 per cent.

It seems now to be the general opinion of surgeons that this operation has been too frequently performed. It is not altogether satisfactory. The objections to it are (1) its danger; when an opening is made into the intestine the danger of septic infection is at once much increased; (2) the possibility, especially if the communication is made with the colon, that pathogenic germs may pass up to the cystic duct and liver; (3) that an accumulation of bile may take place on the liver side of the obstruction of the common duct and convert that portion of the duct into an unnatural gall-bladder; and (4) that the bile is lost,

so far as serving any useful purpose in the system, unless the communication is made high up in the small intestine.

For these reasons attempts have been made, with considerable success, to remove stones from the cystic, common, and hepatic ducts at the time of the first operation, if found and located, or at a second operation, if the cholecystostomy has been completed, and the bile continues to escape by the abdominal opening after a reasonable time has been allowed for it to close.

I should like to report here that in two of my cases of cholecystostomy the bile continued to flow in considerable quantity from the abdominal wound, in one case for six, and in the other eight months after operation. Not all of it, however, seemed to escape, for the stools were fairly well coloured. The opening in each case was made to close by sealing daily for about a week with cotton wool and collodion. So that the persistence of the flow of bile for some months is not always a proof that there is an obstruction in the common duct.

The cases already reported of removal of gall-stones from the cystic, hepatic, and common ducts demonstrate that such a procedure is good surgery and a very safe and satisfactory operation.

Dr. Hans Kehr (Halberstadt) has in five cases removed stones from the cystic duct at the primary operation by incision of the duct and its immediate suture. In two cases he did a second operation, opening the abdomen in the linea alba, and removed in one instance a stone from the cystic, and in the other, one from the common duct, followed always by immediate suture of the openings in the ducts. He advises attaching the gall-bladder to the abdominal wound for drainage during the healing of the incision into the ducts, in order that there may be no tension from an accumulation of bile until the ducts are soundly healed.

Dr, Elliot, of the Massachusetts General Hospital, reports two cases, in one of which he removed a stone from the hepatic, and in the other from the common duct, suturing the ducts immediately after the removal of the stones. Both cases recovered perfectly. Dr. Abbe removed a stone from the common duct, the patient making a good recovery.

In the following case I removed a gall-stone from the gall-bladder and also one from the common duct with a most satisfactory result:

Mrs. M., æt. 51, married and the mother of nine children, was sent to me by Dr. Elder. She had been a strong, active woman until two years ago, when from some unknown cause she suffered from a

painful condition of the thigh, which was followed by an abscess in the groin.

In January, 1894, she had her first attack of biliary colic. For four months she continued deeply jaundiced. During the past year she lost between forty and fifty pounds in weight. She also complained of great weakness, shortness of breath on exertion and dimness of vision.

The operation was performed on the 27th of June, 1895. On the 31st of August she had gained twenty pounds in weight and the gall-bladder was discharging a small quantity of bile. During the last week in September Mr. M. told me that the opening had closed ten days before and that his wife was apparently in perfect health.

I made a vertical incision, beginning about the end of the tenth costal cartilage and came readily down upon the gall-bladder, which was moderately distended. I pulled it up to the abdominal incision without much difficulty, and after protecting the general peritoneal cavity with gauze packing, opened the gall-bladder and removed a single moderate-sized stone. Then with my finger I felt along the cystic and common ducts and at once came upon a hard mass, evidently another gall-stone, situated in the latter about midway between the cystic duct and the duodenum. I found that to remove it through the abdominal incision already made would be difficult. I therefore made another transverse incision opposite to the common duct from the upper end of the vertical incision to the median line. This enabled me to get down to the stone without difficulty, and after packing about the point to be incised with gauze I made a longitudinal incision in the common duct directly over the stone, which was then removed. I then placed a small piece of iodoform gauze in the common duct towards the liver, to stop the flow of bile while the sutures were being introduced. The opening in the duct was closed by two rows of silk sutures, and a glass drainage tube open at the end and surrounded by gauze was carried down to the suture line, but not allowed to touch it. A small strand of iodoform gauze was passed down through the tube so that it just lay upon the suture line. The tube was brought out of the abdominal incision below the gall-bladder. The edges of the gall-bladder incision were attached to the edges of the abdominal incision to allow of free flow of bile during the healing of the incision in the duct. A rubber drainage tube was placed in the gall-bladder. The transverse incision was closed with three rows of sutures. The patient made a most satisfactory recovery and is now free from jaundice and in good health. The opening into the gall-bladder is closed.

Perhaps Dr. Elliot's suggestion to place a sand-bag under the back, and thus bring forward the field of operation, may prove to be an advantage.

Tuffier's plan of approaching the common duct from the back seems to me to have little to commend it. The operation cannot be done retroperitoneally, and the abdominal incision gives better access to all the parts to be dealt with.

From what we know of this work the removal of stones from the cystic, hepatic, and common ducts is feasible, comparatively safe and a distinct advance in gall-stone surgery, giving a lower mortality than cholecystenterostomy, and being in its results in every way more satisfactory.

ANEURISM OF THE ARCH OF THE AORTA.[1]

By J. G. Adami, M.A., M.D.
Professor of Pathology, McGill University: Pathologist to the Royal Victoria Hospital.

The specimen about to be described, while possessing a certain amount of interest in itself, is more especially interesting inasmuch as the patient from whom it was obtained at the autopsy had been under observation for several years, and further, had formed the subject of a lecture delivered in the Montreal General Hospital by Dr. James Stewart, and published in the series of *International Clinics*.[2] Thus, apart from the fact that there is a very complete history of the case, the specimen is of value as demonstrating very clearly the explanation of the symptoms noticed during life and commented upon at some length by Dr. Stewart in the above-mentioned lecture. The clinical history of the case is contained in the case-books at the General Hospital, at the Royal Victoria Hospital and at the Longue Pointe Home for Incurables. I shall here give it very briefly, only referring to the special points in connection with the aneurism, for, superadded to this history of the aneurism, there is a long and interesting history of ataxic paraplegia. The patient, James L., first experienced pain in the chest in the early part of the summer of 1891. In the first week in August he began to complain of hoarseness; in the middle of October he entered the General Hospital, and a definite diagnosis of aneurism of the transverse aorta was made, the diagnosis being based upon the following points:[3]

1. Pain of a persistent character in a limited area of the chest (left infraclavicular region) relieved by change of posture.

2. Hoarseness, amounting at times to almost complete extinction of the voice. Upon laryngological examination Dr. G. W. Major found the left vocal cord paralyzed and standing in a mid position between extreme abduction and extreme adduction.

3. Cough of a brassy nature.

4. Pulsation synchronous with, but distinct from, that of the heart. The centre of the pulsatile area was situated at the junction of the second left rib with its cartilage.

5. Tracheal tugging.

6. Marked difference in the pulse at either wrist, the pulsation being far more voluminous on the right side than on the left.

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[1] Read before the Montreal Medico-Chirurgical Society, March 8, 1895.

[2] *International Clinics*, Second Series, Vol. III., 1892, p. 49.

[3] *Vide* Dr. Stewart's lecture, loc. cit.

7. The left pupil was found 2 mm. smaller than the right.

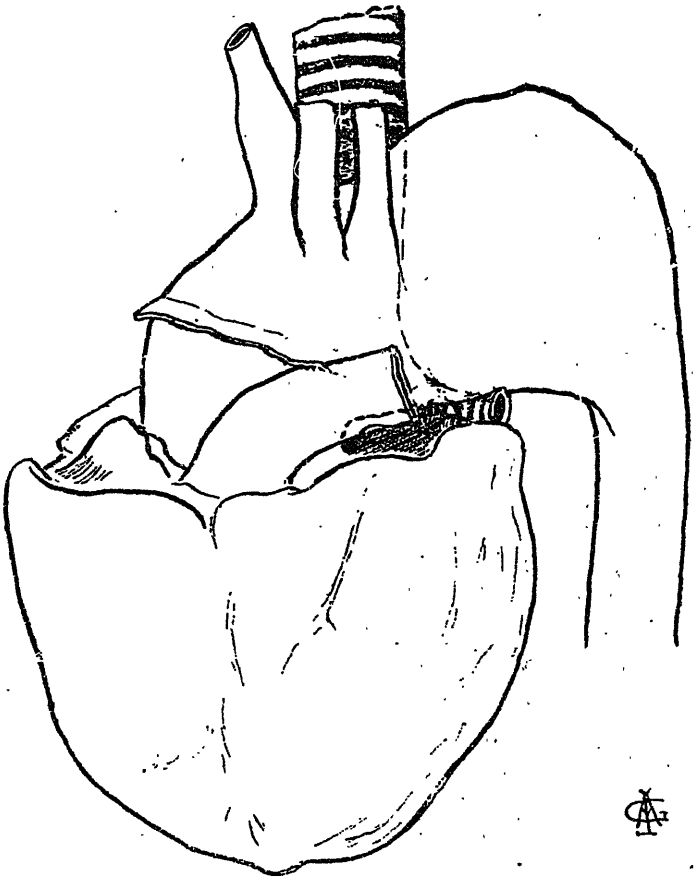
With rest and potassium iodide the pain, hoarseness, and cough disappeared, but even after five months' rest in the hospital there was no essential improvement of the fundamental state. Since 1892 the notes reveal no special addition to this list of symptoms; the ataxic condition, however, became more marked, and the patient's life has been spent mainly in the hospital.

The autopsy was performed at the Royal Victoria Hospital on February the 28th, 1895, the body having been brought from the Home at Longue Pointe on account of the more thorough post-mortem facilities. Upon opening the thorax there was no evidence of absorption of the sternum or ribs; the right lung was very large and full and presented a condition of acute bronchitis; the left lung was not half the size of the right and had a flabby collapsed feel; on section it had a dark collapsed appearance, with some œdema and bronchitis, as in the right lung. The main bronchus was pressed upon by the aortic aneurism, but did not show definite constriction or any sign of perforation.

The aortic arch was seen to be dilated and to have depressed the heart, so that the auricular ventricular groove, at a point just below the origin of the aorta, corresponded to a line joining the upper borders of the fourth chondrocostal articulations. The heart itself was very fatty, and the right ventricular muscle was profoundly infiltrated with fat; the left ventricle was somewhat dilated (as was also the right); the coronaries were dilated and showed patches of fatty degeneration, beginning 2 cm. and 1.5 cm. beyond the origin of the right and left respectively. Immediately above the valves the aorta was already larger than normal (9 cm. in circumference); it rapidly expanded into a general fusiform aneurism, with greatest giving way and some sacculation upwards and backwards beyond the origin of the innominate artery, so that the back wall of the main pouch was formed of the eroded left halves of the fourth, fifth and sixth dorsal vertebræ. The maximum depth of the aneurism at the autopsy was 11 cm. (about 4 inches), its breadth from before backwards was 15 cm. It ended in a line with the under margin of the transverse aorta, the descending aorta being of normal dimensions. Neither in the aneurism itself nor in the dorsal aorta could calcareous plaques be detected, although there were rare fatty patches of fair size. Above and behind, the cavity was filled with dense laminated clot.

Turning now to the more special features of the aneurism it may be pointed out that the aneurism pressed upon and flattened the trachea; the left bronchus, while passing outwards and forwards immediately

beneath the aneurism, appeared at the autopsy to be relatively little affected. Judging from the condition of the left lung the pressure of the aneurism upon this bronchus must have led to relative obstruction with consequent partial collapse of the lung. The left subclavian and left carotid appeared, from the development of the aneurismal sac upwards and backwards, to arise not from the apex of the arch, but from the front of the transverse portion. The innominate artery was the seat of a fusiform dilatation up as far as its bifurcation; the carotid and subclavian, while not aneurismal, were distinctly larger than normal.



The specimen, therefore, demonstrates most clearly the origin of the cardinal symptoms in aneurism of the transverse aorta. The great expansion of the tube upwards, backwards and downwards must of necessity have exerted great pressure upon the recurrent laryngeal and sympathetics of the left side; the position of the left bronchus

also, passing close beneath the aneurism from behind forwards, explains very clearly the production of the phenomenon of tracheal tugging.[1] In this position each expansion of the aneurism with the wave of blood propelled from the heart must have resulted in pushing the bronchus downwards, and it is this downward pull that is felt in these cases when the lower part of the larynx is held between the fingers.

The specimen also shows very clearly why the radial pulse was so much larger and fuller than the left; the innominate was placed in the direct line of the current and wave of blood propelled up the ascending portion of the aorta, whereas the left subclavian had, by the backward extension of the aneurism, been pushed forwards, so as to appear as though given off obliquely upwards from the front of the arch. In such a position, in consequence of the almost valvular orifice, both blood current and systolic wave could enter less easily.

[1] I have to confess that at the time of reading this paper before the Medico-Chirurgical Society I was unaware of how prominent a part had been played by our Montreal physicians in emphasizing the value of this sign in the diagnosis of aneurism of the transverse aorta. Practically, after Surgeon-Major W. S. Oliver (*Lancet*, II., 1878, p. 406) first noted the condition, the late Dr. George Ross, in his article on aneurism in *Wood's Reference Hand-Book of the Medical Sciences*, was the first to lay stress upon its value, and the late Dr. Richard L. MacDonnell was the first in an admirable article in the *Lancet* (I., 1891, pp. 535 and 650) to give a full explanation of its causation. He showed, as this specimen demonstrates so fully, that tracheal tugging is due to pressure by the aneurism either upon the last inch of the trachea or upon the left bronchus.

WHITMAN'S PLATES IN THE TREATMENT OF FLAT-FOOT.[1]

By CHARLES W. WILSON, M.D., M.R.C.S., Eng.,
Assistant Surgeon, Montreal General Hospital.

To-night, I wish to present to you two cases, illustrating the merits of Whitman's plates in the treatment of the affection called flat-foot.

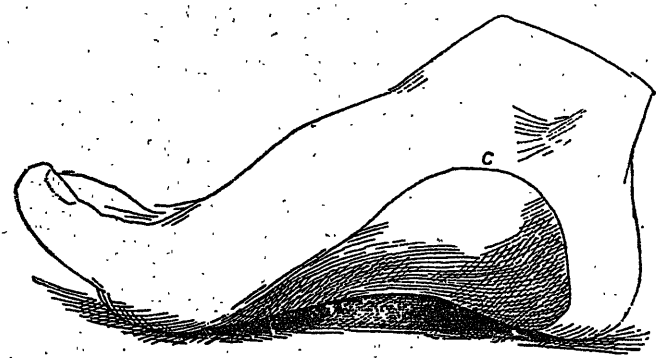
This condition is found in those who are obliged to stand continuously, as nurses, bakers, barbers, waiters, etc. It is characterized by deformity and pain, varying in proportion to the duration of the disease and its degree of severity. Eversion (the abduction of some writers) of the foot, more or less marked, internal rotation of the foot upon its own longitudinal axis, with a more or less prominent internal malleolus, and sinking or obliteration of the arch of the foot, constitute the usual deformity. Pain is usually present, though not always bearing a constant relation in its severity to the degree of deformity; early cases giving severe pain, while those more advanced give little and sometimes none. The pain is singularly regular in its distribution, is well marked in certain locations,—as over head of astragalus, about sustentaculum tali, and at bases of first and fifth metatarsal bones,—and is principally due to pressure or tension on parts unaccustomed to bear it, owing to the altered relations of the articular surfaces, but sometimes to an active arthritis and periostitis set up in the ends of the bones.

More or less sinking of the arch of the foot is the diagnostic feature. In children up to the age of one year there is no apparent arch; from this time the arch gradually forms and rises until puberty, when, or very shortly afterwards, it reaches its full height.

In the forms of this affection met with in early years, constituting "weak ankle," there is usually imperfect development of the musculature because of constitutional disease or rapid growth, and we find the weight of the body overfatiguing the muscles, which ordinarily support the foot, thus permitting the strain to fall directly upon the ligaments, in time stretching them, and producing the characteristic deformity. The principal muscles affected are, the tibialis posticus, flexor longus digitorum, flexor longus hallucis, peroneus longus, and the tibialis anticus, the latter only slightly. The ligaments primarily involved are the calcaneo-astragaloid or interosseous, which does much to support the key stone of the arch,

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

the astragalus, the inferior calcaneo-scaphoid, a most important ligament, supporting the head of the astragalus, and the other ligaments of the plantar surface of the tarsus. These cases can usually be treated successfully by exercises, massage, etc., to improve the muscular tonicity. A favourite method for home treatment is to direct



1. Inside view of plate applied to foot.

the patient to stand with the heels together, toes wide apart, then to rise on the toes slowly, separate the heels and again come down upon them slowly. This to be done ten or twelve times during the day, at intervals of four hours.

In the more acute cases, where great pain is present, where time is an object in the treatment, and where the condition exists, in one who is dependent upon his being about for his livelihood, and especially in heavy young adults, I know of nothing so satisfactory in its results,

2. Plantar view of plate applied to foot.

as the Whitman plate or support. Devices having for their object the support of the arch, such as felt and horse hair pads, wire pads, leather shanks built up on the inner side, iron and steel raised shanks, have been used for a long time, and though often they give

relief, are not to be wholly depended on for different reasons, chiefly that owing to the stretching of the leather they fail to afford permanent efficient support. Insoles of iron, raised on the inside, are used in England, and approach the Whitman plate in general character.

I first saw the Whitman plate applied by Dr. Royal Whitman, himself, in the Out-Door Department of the New York Hospital for the Ruptured and Crippled, while an interne of that institution.

It is necessary, before applying these plates, to reconstruct as far as possible the depressed arch of the foot, and this can be done in the following manner: Seat the patient on a chair, and facing the foot, place the leg between your knees, grasp the heel firmly with the right or left hand, according as the case is a left or right sided deformity, steady it, and with the other hand carry the foot round the arc of a circle into extreme inversion and external rotation; press up the head of the astragalus and scaphoid while holding the foot in its new position. Anæsthesia is necessary in most cases, as it is a very painful procedure.

Put the foot up in this position in a plaster of Paris bandage and leave for two weeks. By this time the arch will have assumed its new position, and a considerable amount of pain and tenderness will have disappeared. Remove the plaster, replace the anterior portion of the foot in its normal position, vaselin well and lay it down upon its outer side, in a bed of plaster of Paris mixed with water, (to which a little salt has been added, to hasten its setting). This soft plaster can be poured upon a square of factory cotton or muslin, covering a ring of loose cotton slightly larger than the foot. With this muslin, the plaster can be raised and applied closely to the foot. The mould should be first made to cover the lower half of the foot only; its edges are then to be smeared with vaselin, and more plaster applied to the upper remaining portion of the foot, thus forming a complete mould. When set, the divisions can easily be opened by passing a knife blade along the smeared edge and prying them apart. The upper part is lifted off, the foot removed from the lower, then the upper is replaced, the toe space stuffed with cotton, a bandage tightly applied over the mould, and it is now ready for the liquid plaster to be poured in to form a cast. This done and the plaster allowed to harden, the mould is removed, and you have a perfect cast of the foot in its new and normal position. This cast is sent to a foundry where a duplicate in iron is made, and thin sheet steel is heated, and hammered on it to fit it exactly, and then trimmed to extend from the ball of the great toe to the inner tubercle of the os

calcis, and from the level of the tubercle of the scaphoid, to the outer border of the foot, narrowing externally, as you see in this one before you. It can then be nickel-plated after polishing. This plate, fitting the foot closely, makes the best possible support, and is very comfortable as you can observe. This plate may, perhaps, be made with advantage of aluminum. Another excellence in these plates is that they can be inserted into any shoe, but preferably one with a low flat heel and straight inner border, laced of course. They do not necessitate the special building up of every pair of shoes; an item of considerable expense. A pair of these plates can be made for about five dollars, and will last for a long time if kept in order, clean, dry, and free from rust, due to sweating of the foot, a trouble which is singularly frequent in this affection.

Both of these cases presented themselves in the Out-Door Department of the Montreal General Hospital for treatment. This one, Minnie Y., aged 20, housemaid, has suffered from this trouble for some years, and was treated in England with insoles, but latterly in this country for rheumatism. She was quite unable to walk, coming into the Hospital from a cab upon her hands and knees; the pain on standing or attempting to walk, was very acute, running up into the legs and thighs, lasting for hours, and interfering with sleep at night. Tracings of her feet were taken, showing the arch completely broken down, the head of the astragalus and tubercle of the scaphoid appearing in the tracing, as a marked prominence, on the inner side of the foot. Manipulation caused great pain, periarthritis and perhaps periostitis being present.

The diagnosis having been made both her feet were manipulated under ether in the manner described, and plaster cases applied. She went home, returned in two weeks, when casts were made and plates constructed. They were applied on their completion one month from the beginning of the treatment, and the patient walked out of the hospital without much pain but with considerable unsteadiness, due to the fact that her feet had been up in plaster for a month. One week later she walked to the hospital, and now, after two months, she is following her occupation without pain and with no inconvenience. She is very grateful for the relief afforded at such small expense, after for months spending all she earned on liniments, etc.

This other case, Mary V., aged 23, domestic, was not so severe, being only six months in duration. The right foot was worse than the left. She first felt the pain in the shank of the foot after a long walk on the ice and was treated for sprain by an elastic bandage and other means. She was incapacitated after standing any length of

time, and was forced to sit down to obtain relief. Massage and muscular exercises might have succeded here; indeed I think the case a suitable one for such treatment had she had the time necessary to undergo it, but being anxious to again get to work, she was furnished with a pair of these plates. She has only had the last plate applied one week, yet you can observe how well she walks.

The advantages of the Whitman plates are their low cost and wearing qualities, their lightness, their applicability to any shoe, and their uniform and permanent support to the foot.

NOTES ON CHLOROFORM AND ITS ADMINISTRATION.

By W. Anderson, M.D.

Medical Officer Anglo-American Telegraph Company, Heart's Content, Nfld.

In the course of a considerable surgical practice, dating from the year 1867, I have never once thought of using any anæsthetic save chloroform and have no recollection of having seen ether or any other anæsthetic whatsoever used in its stead; thus I am not able to draw any comparison between chloroform and its rivals. My object in writing the present paper is to set forth a few practical statements concerning chloroform and suggestions for its administration. The desire to offer these suggestions has been prompted by the perusal of the numerous deaths recorded. Much trouble has been taken in recent years in determining the exact place in the animal organism where death from chloroform begins, whether in the respiratory or circulatory system. Clinical facts do not seem to assign all the fatalities to either system alone. In so far as has yet been made plain, cardiac pulsation can persist for a short time after cessation of respiration, but whether this cessation is due to direct action of the chloroform on the medulla, or to failure of the blood to convey sufficient oxygen to the highly sensitive respiratory centre, or to one or both conjoined with enfeebled action of the heart, is open to debate. During deep chloroform sleep arterial tension is very low and arteries like the facial lie nearly as passive as veins, this state being for the most part slowly arrived at; but, if from any cause it should be suddenly attained, this condition would involve danger and might produce a suddenly fatal issue.

It was long ago written "whoever is dead of chloroform is dead," and statements of unsuccessful attempts at resuscitation are painfully common. Every attention, therefore, should be given beforehand to place the patient in the best attainable condition, and to intercept, if possible, danger from these two sources.

Where preparation a day or two beforehand is possible, a "clear" state of bronchial tubes, skin, intestines, and urinary system should be secured, and the urine should be examined, if only for the sake of being able to say that every precaution had been taken to insure safety. Some soft food should be given and the meal completed fully five hours before the time appointed for the administration. One hour before beginning to inhale the anæsthetic the patient should swallow at least half a pint of some nutritious liquid. The most convenient is boiled milk, deprived of all clots, as it readily covers the taste of ammonia, a very large dose of which, preferably four drachms

of the aromatic spirit, should be given in it. For comfort's sake, at least, the face, forehead, and eyelids, should be smeared with lanolin. The territory of the fifth nerve is very sensitive, and it is better to avoid setting up reflex actions amongst the root neighbours of this physiologically composite structure.

On an ordinary domestic table, a large bolster should be so placed that the patient's back, from neck to loins, may rest on it, and three pillows, large, medium, and small, should be placed for the head. The upper part of the body is to be covered with a blanket only, to permit free access to the chest-surface, and to allow all the chest movements to be watched Everything necessary to a feeling of safety and comfort on the part of the patient should be attended to; no person lying awkwardly can take the anæsthetic easily, and upon this much may depend. In reference to the method of administering, I have never desired anything except a smooth towel, squarely folded or made into a cone. The object of a bolster under the back of the chest is to assist its expansion, and to render the diaphragm active by stretching its points of attachment.

Three pillows are used so that the head may be lowered to suit the successive stages of narcosis, until at last it rests on the table. Thus there is no bending of the wind-pipe, and secretions tend to pass upwards into the pharynx. In stertor, a thumb placed well back under the chin and pressed forward raises the tongue. The lower the arterial tension the more should gravitation of the blood be favoured, and to accomplish this, I think it would be hard in a simple way to improve upon this arrangement of pillows and bolsters.

The liquid given an hour before chloroforming is seldom vomited; its purpose is to supply nutrition to the blood during the ordeal, in which hæmorrhage may be a feature. The purpose of the heroic dose of ammonia is to expand the arterial cone and act as a heart stimulant.

With these precautions paleness or lividity is rarely seen, the patient usually maintaining a warm skin, slightly moist, with redness of cheeks and lips.

I have never felt much anxiety in the adult when chloroform has been given in this way. In infancy previous stimulation may be dispensed with. In two boys about ten years of age, however, I tried to do without it. In the first, death very nearly occurred soon after the administration began, and in the second a sudden change in the state and appearance of the wounded surface drew attention to a condition in which pulsation and respiration had become perilously low. The rib cartilages were worked with one hand and the heart jogged with the other, and a quantity of thin secretion was forced out of the nostrils; after which all went well. Four weeks afterwards there was a second chloroforming of the same subject. Ammonia was freely given and there was no trouble.

Clinical Reports.

A CASE OF PYÆMIA.[1]

WITH SUGGESTIONS AS TO POSSIBLE CAUSE FOR PRESENCE OF A PRESYSTOLIC MURMUR WITHOUT STENOSIS OF THE MITRAL VALVE.

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and

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The history of this case is of considerable interest owing to the following conditions which were present:

1. The apparent insignificance of the seat of infection, and the extensive distribution of the secondary symptoms.
2. The presence of a high degree of suppurative myocarditis.
3. The absence of abscess formation in the lung.
4. The presence of a presystolic thrill and murmur without stenosis of the mitral valve.

J. D., aged 21 years, employed as an assistant cook, was admitted to the medical department of the Royal Victoria Hospital on the 26th of July, 1895, complaining of general pains, extreme weakness, and vomiting.

Though he had not been in good health during June and the greater part of July, yet he continued to do his regular work. On the 23rd of July he became acutely ill, the onset of the attack being characterized by chill, headache, pains in the back, nausea, and vomiting.

The history of the patient showed him to be a subject of articular rheumatism as early as his seventh year, with subsequent and frequent attacks of sore throat, as well as recurrences of arthritic manifestations. The last attack of rheumatism occurred in June, 1894. The convalescence therefrom was not satisfactory, as cardiac complications were already established.

Shortly after admission with the complaints enumerated above, the following condition of the patient was noted (July 27, 1895):

He was delirious and irritable, skin dry and hot, face flushed with slight cyanosis about the ears and lips; lips and tongue dry and

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

brown; the abdomen showed no signs of distension; the spleen was not palpable; there was no increase of liver dulness. The skin over the face, trunk, and extremities, presented an eruption, petechial, papular, and at some points pustular. On the ulnar surface of the left forearm, near the lower third, was a raised, slightly reddened patch, 3 cm. in diameter, tender on pressure, somewhat boggy to the feel, and presenting about its centre a small area about the size of a pin-head, at which the skin appeared in the state of recent healing—a recently closed opening without scab-thickening. This region on the forearm was said to be the seat of an injury received a few days before the onset of his illness. The right ankle showed on its anterior and inner aspect signs of a recent scald. It was partly healed and no signs of extending inflammation were seen. At the root of the nail of the right fore-finger there were signs of localized inflammation. The temperature at this examination was 103°, the pulse 120, respirations 30.

On examination of the circulatory system the signs present led to a diagnosis of cardiac hypertrophy due to valvular disease. The murmurs present indicated mitral incompetency with stenosis, as in addition to the apical systolic murmur which was transmitted to the axilla, a presystolic thrill and murmur were detected. In addition, distinct evidence of aortic valvular disease was manifest, inasmuch as both collapsing pulse and a diastolic murmur were observed.

The respiratory system showed, besides increase in the rate of respirations, diminished expansion over the upper half of the left side. There was no dulness on percussion. A few moist râles with diminished breath sounds were heard at the right base.

The urine was passed involuntarily. Its reaction was acid. Albumen was present.

The blood examination revealed the presence of a leucocytosis of the polynuclear variety, five to fourteen white cells being visible in each field. On the 27th and 28th of July cultures were made with agar and also with broth, each day giving the staphylococcus pyogenes aureus.

Progress of the case.—This was rapidly worse. The delirium of the 27th deepened into coma on the evening of the 28th July. The pulse rate increased to 160, while the strength of the beat diminished. The cardiac area was observed to increase toward the left by about one-half an inch. The respirations, 24 on admission, ran as high as 60 per minute on the 29th. The cyanosis became more marked. The temperature followed an irregular remittent curve, ranging from 100·6° to 105·8°. The signs in the lungs were those indicating œdema, with possibly an area of infiltration at the right base posteriorly.

On the 27th and 28th the movements of the left ankle, left great toe, left shoulder, and of the right little finger were painful, and redness and swelling were present over the ball of the left great toe, as well as over the dorsal surface of the little finger of the right hand. There was no diarrhœa nor vomiting during the progress of the case in the hospital.

On the 29th of July, the seventh day of the disease in its acute manifestations, the patient's condition was much worse, and he died at 3.30 p.m.

The question of diagnosis in this case needed not a little consideration to decide. Evidently we had to deal with an infection which was extremely active and virulent. Malignant endocarditis, typhoid fever, pneumonia, miliary tuberculosis, and pyæmia, at first, were all in the category of possibilities.

It was known that the patient was a subject of chronic endocarditis, a suitable condition for the ulcerative form to succeed, but what was the source, and where the entrance of the micro-organism? Malignant endocarditis could not be excluded. Indeed it appeared to be, in all probability, a part of the case.

The rapidity of the onset, the absence of abdominal signs, and the presence of leucocytosis, as well as the character of the eruption, were all against a diagnosis of typhoid fever.

For pneumonia, there were not physical signs sufficient to account for the condition of the patient.

An exclusion of miliary tuberculosis would, doubtless, have been impossible had not positive evidence of another disease been observed.

From the following features of this case, then, a diagnosis of acute pyæmia with, in all probability, multiple abscesses throughout the organs, was made: An injury with evidences of wound of skin surrounded by an area of tenderness and swelling; sudden onset of the illness; rapid advance of the case; albuminuria; hæmorrhagic eruption; joint redness and swelling; leucocytosis of an inflammatory character, and the presence of the staphylococcus pyogenes aureus in the blood.

The following is an abstract from the report of the autopsy performed four hours after death.

The body was that of a well-nourished and well-built young man, presenting the usual signs of death.

On the outer side of the fifth finger of the right hand there was a slightly reddened swelling, which on section presented a small drop of pus lying about the sheath of the extensor tendon. No abrasion appeared externally.

Upon the ulnar surface of the left forearm was seen a bluish-purple swelling 3 cm. in diameter, the centre of which showed externally a point of recent healing. Incision into this allowed the exit of greyish-green pus, situated amid much disin-

tegrated sloughy tissue, while the overlying skin, on the other hand, was much thickened and firmer than normal. The vessels in the neighbourhood were free.

Examination of the various joints and corresponding veins was negative, The abdominal cavity was dry, the visible coils of intestine distended and injected; in various parts of the serosa, were patches of a red and yellow colour corresponding to abscesses formed in and about the vessels of the serosa. The peritoneum otherwise seemed free from inflammation.

The spleen was large and soft and showed numerous miliary abscesses and some necrotic infarcts of small size.

The kidneys were large, of flabby consistence; the capsule, which stripped with slight difficulty, revealed a mottled red and yellow smooth surface upon which were some large anæmic infarcts and numerous small and large abscesses. On section, the cortex presented many miliary abscesses, chiefly about the vessels, though here and there septic sequestra were visible in the papillæ.

The pelvis and ureters were unaffected.

In the intestines there was further evidence of systemic infection, as above described, and also enlargement of the lymphoid structures. Here and there the abscesses had ulcerated through the mucosa, thus causing irregular ragged ulcers of the intestinal wall. The liver was enlarged, showed parenchymatous degeneration, and localized areas of necrosis. Many abscesses, small and large, were distributed throughout the organ, the largest about 3 to 4 cm. in diameter. In the lungs brown induration was the chief pathological condition. No abscesses whatever could here be found.

The heart was of considerable interest. Its pericardial surfaces were rather firmly adherent, so that in their separation much force was necessary, the adhesions being most firm over the anterior septum. Both layers were much thickened, the cavity dry, all the chambers of the heart very greatly hypertrophied and dilated. Subpericardial haemorrhages and a few foci of suppuration were observed. The tricuspid orifice readily admitted four fingers, the mitral two, while three fingers were inserted with but slight difficulty. The mitral and aortic valves showed great chronic thickening, as did also the tendinous cords and papillary muscles. Upon the mitral, tricuspid, and aortic valves were greenish-grey friable vegetations of a malignant nature, those on the aortic valves being greatest in amount. On removal of these vegetations some loss of endocardial substance was evident. The pulmonary valves were free.

Further, in all the chambers, though especially in the ventricles, there were miliary subendocardial abscesses of the size of pin-heads dotted throughout the surfaces and each seemingly surrounded by a haemorrhagic zone. Deep incision into the myocardium showed it to be beset with similar punctiform abscesses, also evidently embolic in nature.

The surface of the brain also showed abscesses of small size beneath the pia, causing loss of cerebral substance to a slight extent.

The cord was congested and œdematous, though so far as examined presented no abscesses.

The aural and nasal cavities appeared free from disease; the petrous bones normal.

Cultures taken from the blood, the skin wounds, and from all the other organs gave the same results, viz., in each case a copious growth of the staphylococcus pyogenes aureus.

Microscopic examination of the various tissues and organs merely verified the microscopic appearances, and hence is of comparatively little additional interest.

Our clinical conclusions, based both upon the clinical observations during the course of the malady and at the post-mortem examination have led us to regard the case as one of pyæmia following upon a slight abrasion on the forearm. The date of injury, the amount of

disintegration of tissue out of all proportion to that elsewhere found; further, the inflammatory thickening of the overlying subcutaneous tissue, and the absence of any other visible seat of entry would in all probability warrant such an opinion. Without such an origin it would be almost impossible to do otherwise than regard the case in the light of the somewhat dubious cryptogenetic or so-called idiopathic pyæmias.

As possible objections to our view it may be urged that in the forearm we have merely an additional secondary focus, similar to all the others; yet not only is the condition apparently one of greater duration than the other affections, but further, the wound having had at one time definite connection with the outer air would hardly suggest a secondary focus. That no thrombo-phlebitis was found in the proximal vessels is indeed unusual, yet that the affection may occur without such a coincident event seems to us quite possible.

Nor is the case one of primary malignant endocarditis, for the valvular lesion is of the most acute type, one eminently recent and apparently contemporaneous with the other secondary events of the disease—the old valve lesions rendering this site a *locus minoris resistentiæ*.

Additional features of interest exist in the facts that three different sets of valves were affected, and that although the liver presented ample evidence of infection, the lungs, so commonly involved, showed here no signs of abscess formation. There is another point of no little interest to the clinician, in that the signs observed in the heart and the subsequently found pathological condition fail to correspond, and another example of the difficulty in exact diagnosis of cardiac conditions is afforded.

As described above, among the physical signs present on examination of the heart was a rough murmur, presystolic in rhythm, and well localized to the apex region—in other words, a combination of symptoms very suggestive of mitral stenosis. Yet at the autopsy the auriculo-ventricular orifice of the left side was of normal size, so that it would seem necessary to find some cause other than a mitral lesion to explain the presence of so typical a presystolic murmur. Within a recent date not a little discussion has arisen upon the origin of such conditions as those found in this case, and since Hunt[1] offered the classical suggestion that an aortic regurgitation may induce presystolic murmurs by bringing about an abnormal vibration of the mitral valves, further opinions have been elicited. Thus,

[1] Hunt (Austin), *Amer. Jour. Med. Science*, 1866. Vol. I, p. 27.

Theodore Fisher[1] has cited more than a dozen cases in which an adherent pericardium seemed a possible etiological factor, while Osler[2] and Graham Steele[3] have similar cases on record. A very recent thesis by Phear[4] has volunteered yet another explanation, that a thickening of the tendinous cords and dilatation of the ventricle may cause the two cusps of the mitral valve to be abnormally approximated and thus induce a functional stenosis.

In one of Professor Adami's[5] cases with dilated heart and enlarged mitral orifice there had been observed clinically a presystolic thrill and murmur. Although in our own case there had been present both adherent pericardium and aortic incompetence, it would seem that still another suggestion might be submitted. The heart being enlarged to nearly twice its normal size and the chambers presenting extreme dilatation, the quantity of blood contained by them is correspondingly increased. Under such circumstances there would be a very much greater amount of blood endeavouring to force its way through the mitral orifice, especially with the great hypertrophy seen in the auricle. Hence with a normal sized left auriculo-ventricular opening we have an excessive amount of blood seeking passage through it—in other words, the proportion of blood to the size of the passage makes a relative stenosis of the orifice. It may be further mentioned that in the majority of cases which present a similar set of conditions, very great dilatation has been present, and it would seem that according to the degree of dilatation, that is the amount of blood within the chambers, so there would be a presystolic murmur or not, this sign presenting only when the amount of blood is extreme.

[1] Fisher, *B. M. J.*, April 28, 1894.
[2] Osler, *Trans. Ass. Amer. Phys.*, 1888. Vol. III., p. 138.
[3] Steell (Graham), *Practitioner*, April, 1894.
[4] Phear, *Lancet*, September 21, 1895.
[5] Adami, *Mont. Med. Journal*, April, 1895, p. 789.

A CASE OF SYMPHYSIOTOMY.[1]

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The operation of symphysiotomy has been so fully described in the journals of the last few years, and has been so well discussed before this Society on more than one occasion, that it is my intention now only to relate the details of a case that came under my care six months ago. I have waited that time before placing the case on record so that any subsequent ill effects due to the operation might be noted.

The patient, II-para, was a strong, healthy-looking woman, free from apparent deformities. She was a native of Newfoundland, and of Irish parentage; aged 26, height 5 ft. 2 in., weight about 115 lbs. I had attended her in her first confinement on August 26, 1893, when she was delivered without much difficulty, by the aid of forceps, of a small female child weighing seven and a half pounds.

Her second labour commenced at 4 a.m. on April 1, 1895, and at 12 noon, though the pains were frequent and severe, the head had not engaged. At 4 p.m. there was but little change, except that the pains were more severe and she was becoming exhausted. I asked Dr. Allan to give chloroform, and I found the conjugate diameter narrow ($3\frac{1}{4}$ inches), the head large and extremely hard and only slightly engaged in the brim. I applied the Barnes-Simpson forceps, but failed to produce any appreciable difference in position.

Later on I asked Dr. Lockhart to see the case with me, and after failing to produce any result with the axis-traction forceps, and on account of the hardness and size of the head, some further operative interference seemed imperative. We concluded that symphysiotomy was indicated, and I performed the operation in the way usually described. An ordinary scalpel was used to divide the symphysis, cutting from before backwards. The cut ends did not spring apart as is often reported, for the head was not engaged. Dr. Lockhart then extracted the head by means of axis-traction forceps, considerable force being required, the ends of the symphysis separating at least two inches (there was no opportunity of measuring the exact distance).

The child and placenta were removed without difficulty. There were lacerations of both anterior and posterior walls of the vagina,

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

which were sutured with silk-worm gut. The pubic wound was brought together by six silk-worm gut sutures and covered with iodoform gauze dressing, and straps of adhesive plaster were applied tightly around the pelvis. These were augmented two days later by a broad belt of webbing tightly strapped.

The child was a well-formed male and breathed at once. The various measurements were as follows :

Diameters of the head.

Occipito-frontal	$4\frac{7}{8}$ inches.
Occipito-mental	$5\frac{1}{4}$ "
Sub-occipito-bregmatic	4 "
Bi-parietal	4 "
Bi-temporal	$3\frac{3}{4}$ "
Length	22 "
Weight	$11\frac{1}{2}$ lbs.

The patient made an uneventful recovery. She had to be catheterized for five days, but after that she passed urine without difficulty. The sutures were removed on the tenth day and all the wounds were found to have healed by primary union.

She was allowed to get out of bed on the twenty-first day and to walk at the end of the fourth week. When she began to move about there was incontinence of urine, especially on exertion, and more or less severe pain along the course of the sciatic nerve. The incontinence lasted for a month and a half but gradually ceased, the pain, however, lasted for about four months. For the last two months she has been perfectly free from all inconvenience.

The symphysis seems now to be completely united, as no movements whatever can be felt. She walks well, free from the "waddling gait" described by some writers, and is able to perform her household duties as well as ever.

AN UNUSUAL FORM OF SKIN DISEASE.[1]

By J. Alex. Hutchison, M.D.
Surgeon to the Montreal General Hospital.

W. H. B. entered the Montreal General Hospital, on September 2, 1895, complaining of an abscess in right thigh.

History.—Age 21 years, born in Ontario, and has always lived on a farm. Parents healthy, three brothers and three sisters alive and well. No specific or tubercular history. No history of local injury. When about five years of age patient was put to bed owing to a swelling in upper part of right thigh which suppurated, discharging a large quantity of yellow fluid; this gradually closed and since then he has suffered from time to time from similar attacks, with two or three exceptions confined to the right limb. The left leg has always been free.

There has been no interference with motion, except that caused by pain during inflammatory action. For the past five years the abscesses have appeared on the front of the thigh in its upper third.

Examination.—Patient is a well-built, strong-looking man; walks with a slight limp. The right lower limb is irregularly covered with scars to the number of about fifty, extending from Poupart's ligament to the ankle, being more numerous on the anterior and outer surfaces. The scars vary in size from a pea to a silver dollar, each covered with a thin shiny membrane not containing hair follicles, slightly depressed, white in colour and not adherent to the deep tissues. The skin in this limb is thick, inelastic, more pigmented, and has longer and coarser hairs and large superficial blood vessels; in other parts of the body it is normal.

The inguinal glands are somewhat enlarged on both sides, more markedly on the right. There is a cicatrix over the saphenous opening, causing some deep-seated induration, which may be due to a venous thrombosis.

There is slight tilting of the pelvis to the right. Right limb is $1\frac{3}{4}$ inches longer than left, right thigh 1 inch longer than left, right leg 1 inch longer than left, right thigh in circumference is $18\frac{1}{2}$ inches, left thigh 20 inches.

Pathological report by Dr. Wyatt Johnston:

1. Cultures taken from pus from a spot in active inflammatory process developed a few staphylococcus colonies.

[1] Read before the Montreal Medico-Chirurgical Society, Nov. 1st, 1895.

2. Two guinea pigs were inoculated subcutaneously with a portion of the scar tissue on September 21, 1895. During the next month they remained in good health and increased in weight. On October 25th both were killed. No evidence of tuberculosis or of caseous abscess at site of inoculation was found. The condition was looked upon as one of tuberculosis or syphilis, and the patient had left hospital before the pathological report was received.

Apart from the peculiar appearance of the limb, the increased growth of the long bones of the affected side is interesting and unusual.

AN UNUSUAL CASE OF CHRONIC PLUMBISM.

By A. G. Nichols, M.A., M.D.,
Resident Physician, Royal Victoria Hospital.

The following case presents several features which are of interest, both on account of the severity of the lesions, and their somewhat wide and unusual distribution.

The patient in question, J. P., a joiner, æt. 46, was admitted, under Dr. Stewart, to the Royal Victoria Hospital on October 16th, and was under observation ten days. His complaints were weakness, poor appetite, and loss of power in the upper extremities. Although never a robust man, he had previously enjoyed fair health.

For the past two years the patient had suffered at intervals from abdominal pain, but the more severe manifestations of his illness only dated from March last. At that time he began to suffer from a progressive loss of bodily strength with occasional headaches. Some weeks later pain and tenderness were noticed in the right arm with slight loss of power. He was treated by a physician outside with some slight benefit. The general weakness, however, soon returned with the addition of colicky pains in the abdomen. In August pain returned to the limbs, this time in both arms, but more severe in the right. The arms gradually became weak, and finally the patient became unable to extend his wrist. Very marked pallor was noticed and progressive loss of weight. The bowels were constipated.

On admission, the physical condition was as follows: The patient was in a poor state of nutrition, and very anæmic. The extremities were cold and moist with clammy perspiration. The tongue was dry, fissured, and covered with a thick brownish-white fur; the breath very offensive and the teeth covered with sordes; appetite poor and bowels constipated. Temperature 98. The pulse was rapid and varied from day to day, ranging between 88 and 140. There was advanced arterial sclerosis more marked in the right arm than in the left. The heart was not found to be specially hypertrophied; the aortic second sound was increased. The result of the blood examination showed red cells 2,740,000 per c. mm.; hæmoglobin 48 per cent.; no leucocytosis; slight poikylocytosis. The urine was of medium colour, acid, sp. gr. 1023; it contained a small quantity of albumen and a few hyaline casts. The quantity excreted was about 550 cc. per diem.

The nervous system was profoundly affected. A mild grade of saturnine encephalopathy was present. During the day time the

patient sometimes presented a hunted look, but more often was apathetic, and even melancholic. At night he was restless and irritable, and at times noisily delirious, being with difficulty kept in bed. Slight delusions were also noticed. The tongue was very tremulous, and there was a marked tremor about the lips; the head also trembled a good deal. The speech was monotonous and hesitating. There was a fine tremor of the fingers, but in addition there were spasmodic jerky movements of the hands and arms, and to a less degree of the legs. These movements were almost choreiform in character, and were exaggerated on excitement or voluntary action.

In the arms there was a paralysis of a mixed type. In addition to the classic extensor paralysis, with consequent double wrist drop, there was involvement to a minor degree of the Aran-Duchenne group, and of the upper arm and shoulder-girdle muscles, the Duchenne-Erb group. There was complete inability to extend the wrists, and the terminal phalanges of the fingers were extended with difficulty. The extensor ossis metacarpi pollicis, which usually escapes, was weak. The power of the flexors was much diminished. In the Duchenne-Erb group the muscles paretic were the biceps, supinator longus, brachialis anticus, triceps, deltoid, and the supra- and infra-spinati. The pectorals had escaped. In the Aran-Duchenne group the muscles most affected were the interossei, which were much more wasted than is usual to find in cases of lead poisoning. The muscles of the thenar and hypothenar eminences were atrophied to a much less degree, but were very soft and flabby. The muscles most atrophied were the supra- and infra-spinati, the deltoids, the common extensors, and the interossei. Those atrophied in a minor degree were the upper arm muscles, the long supinators, the extensors of the metacarpal bone of the thumb, the flexors of the fingers, and the muscles of the thenar and hypothenar eminences.

There was slight tenderness in the affected muscles which were also soft and flabby. Tenderness was marked along the course of the musculo-spiral nerve.

In the lower extremities no special groups were atrophied, but all the muscles were small, soft and flabby. The muscles were tender on pressure. The power of flexion and extension of the knees was very much impaired, and the muscles were slightly spastic; the knee-jerks were very lively.

No alteration of sensation was anywhere noticed and the Romberg symptom was absent. All the muscles tested gave the reaction of degeneration. The deltoids only reacted to a very strong faradic current; the supra- and infra-spinati and common extensors not at all

to a current short of one causing severe pain. The response to galvanism was increased and the contractions were slow and ample. A. C. C. 7 C. C. C.

Examination of the fundi revealed slight blurring of the disc, probably early commencing atrophy. Vision was normal.

After remaining ten days the patient left and the subsequent course of the case is unknown.

The source from which the lead was derived could not be determined. It was found, however, that one sister had a definite lead line, and a brother, who was a painter, showed also a lead line and presented the characteristic lead anæmia. These facts point to a common source of poisoning and illustrate the well-known fact that certain people have a greater susceptibility to the action of lead than others.

In this case the extent and the distribution of the palsy was quite uncommon. Apparently the extensor paralysis set in first, followed by the paresis of the upper arm and Aran-Duchenne groups. In some cases paralysis of the scapulo-humeral type is primary, but according to Madame Dejerine many cases in which it is secondary to the usual musculo-spiral paralysis, go on to complete generalized paralysis.

The excessive atrophy of the interossei would seem to point to a probable affection of the ganglia in the anterior horns, although it is quite impossible to speak positively on this point. Dejerine mentions only five cases in which lesions were found in the cord, and in only two of them had the muscles of the Aran-Duchenne group been affected. In one of these cases, Zunker's, some atrophy of the anterior ganglion cells was found, but as the cells affected did not correspond to the affected muscular territories Zunker himself did not consider the case proved anything. In the second case, that of Oeller, there were patches of softening in the middle of the anterior horns, but this was attributed to defective hardening, so that this case also falls to the ground. In a case of Oppenheim's however, where the musculo-spiral and anral nerves were involved, the ganglia in the anterior horns corresponding to the affected muscular tracts were affected, and this is the only case which can be considered conclusive. The vast preponderance of evidence goes to show that lead palsy is a peripheral affection.

Whether lead has any effect upon the upper motor segment is unknown. The case here reported, which presented in the lower extremities spasm, increased reflexes, and paresis without atrophy, certainly suggests that such may be the case. According to Gowers such a condition is very rare. Putnam has, moreover, found traces of lead in the urine of persons in whom only paresis of the lower

extremities and increased reflexes, without other physical signs were present.

Fine tremor is not uncommon in long-standing cases of lead poisoning, but the peculiar tremor here described seems to be not nearly so commonly met with from lead as from some other metals.

Lead encephalopathy is not very common. According to Tanqueral des Planches paralysis occurs in about 5 per cent. of cases and encephalopathy in about 3·35 per cent. The symptoms here, noisy delirium, delusions and melancholia, are among the more common effects of lead upon the cerebrum.

RETROSPECT
OF
CURRENT LITERATURE.

Medicine.

The Sputum in Malignant Tumours of the Lung.

BETSCHART. "Ueber die Diagnose Maligner Lungentumoren aus dem Sputum."—*Virch. Archiv.*, Vol. 142, 1895, p. 86.

While the morbid anatomy of sarcoma and carcinoma of the lung is a subject on which literature is copiously supplied, yet there are but few cases recorded where the diagnosis of such primary growths is made *intra vitam*.

The author working in the clinical laboratory of Professor Eichhorst in Zürich had an opportunity of observing a case where the diagnosis of primary diffuse cancer of the lung was made several weeks previous to death, this conclusion being reached through an examination of the expectoration.

After dilating on the varied characters of sputum in pulmonary diseases, Betschart shows how little reliance can be placed on the colour, consistence, or form of the sputum in the diagnosis of pulmonary neoplasms.

When, however, particles of a new growth in the lung find their way into one of the bronchi and are thus admitted into the sputum, as may occur where circumscribed nodules exist in the lung, then sections of these masses would make a diagnosis easy.

Sometimes, however, one may get a diffuse carcinoma of the whole organ, and the writer asserts that a diagnosis may then be made from the presence of characteristic cells or groups of cells in the sputum, and such an instance is the basis of his paper.

Two cases of sarcoma of the lung are also noted where a correct diagnosis during life was arrived at by section of tumour particles found in the sputum, in each instance small round cell masses being discovered. Only one case had hitherto been recorded of a diagnosis of cancer of the lung by this method. Hampeler found in gelatinous globular masses of sputum certain large polygonal cells with granular

protoplasm, the diameter of the cells being from ·002 to ·025 mm. their nuclei ·012 to·0125.

Dr. Betschart assures us that these alone are sufficient to justify a diagnosis of cancer of the lung and describes in detail his own case. A patient had been admitted to the Zürich clinic with a diagnosis of pulmonary phthisis with encapsulated tubercular pleurisy. The signs pointed to a rapidly advancing consolidation of one lung, and the sputum on examination presented, microscopically, what he considered characteristic, viz., little gelatinous masses, some yellowish and translucent, others more opaque and brownish. Minute examination showed very large epithelial cells similar to those described by Hampeler, and in consequence cancer of the lung was diagnosed.

A report of the autopsy is given, and the lung as described would not appear to differ in any essential from a condition of fibrosis of the lung, while plates of the sections show nothing further than large epithelial cells surrounded by a thickened septa, such as might be expected in a chronic catarrhal pneumonia with much desquamation of the epithelium.

That a diagnosis of cancer of the lung is possible in this way is a subject on which much might be said. Conditions of fibroid phthisis with secondary gangrene of the lung would possibly lead to a similar expectoration, while sections of the lungs would show quite as characteristic appearances as those submitted in Betschart's plates. Wherever, too, there is considerable interstitial pneumonia it would seem quite possible that the alveoli with their altered epithelial cells would be much contracted, giving to the microscopic sections the appearance of an irregular growth with epithelial cells lying amid a fibrous stroma, so that the difficulty in satisfactorily understanding its true nature would often be great. All in all, it seems that there is scarcely sufficient ground for Betschart to inform his readers of the absolute certainty of his diagnosis.

C. F. Martin.

Mono-Articular Rheumatism.

HEIDENHAIN, L. "Mono-Articular Rheumatism."—*Deutsche Medicinische Wochenschrift*, No. 31. 1895.

Prof. Heidenhain, of Greifswald, is of the opinion that mono-articular rheumatism is a much more common manifestion of rheumatism than we are led to believe from the teachings on this point, as presented by such authorities as Strümpell and Niemeyer-Seitz, whose words he quotes.

His opinion is based upon observations of cases in the polyclinic at Griefswald, and especially upon the results of treatment with sodium salicylate. In the arrangement of his statistics he was able to exclude, as possible causes of the joint condition, tuberculosis, osteomyelitis, traumatism, gonorrhœa and syphilis, by history as well as by therapeutic tests, and in view of the results establishes the diagnosis in 38 cases of mono-articular pain and tenderness and movement limitation as so many cases of mono-articular rheumatism.

As to the joints affected the table runs as follows : Shoulder, 13 ; wrist, 5 ; elbow, 4 ; knee, 4 ; ankle, 4 ; hip, 2 ; tarsus, 2 ; carpo-metacarpal, 1 ; finger 1 : toe, 1 ; jaw, 1.

Prof. Heidenhain suggests that a cause for many cases of endocarditis may be found in the teaching afforded by his experience here recorded, the reports of which give no account of an attack of articular rheumatism according to the generally accepted diagnosis.

W. F. Hamilton.

Surgery.

Splenectomy.

SPANTON. "On splenectomy, with notes of three cases."—*British Medical Journal*, November 2, 1895.

Mr. Spanton reports three cases, the last one successful. He has collected reports of twenty-five cases of splenectomy in leucocythæmia with one recovery, a death rate of 96 per cent. The case that recovered is considered by Knowsley Thornton to have been one of simple hypertrophy. In non-leucocythæmic cases, however, splenectomy is much more successful; of these there are fifty-nine cases reported The nature of the disease for which the operation was undertaken was as follows:

	Cases.	Recovered.	Died.
Hypertrophy	38	18	20
Wandering spleen	9	9	0
Rotated spleen	2	2	0
Lymphosarcoma	2	2	0
Cystic disease, including hydatid	4	4	0
Other causes, including injury	4	3	1

The chief dangers appear to be shock and hæmorrhage. In nearly all the fatal cases death has been due to hæmorrhage.

Mr. Spanton divided the suspensory ligament first in his successful case. The ligament was transfixed, ligatured and set free, and the moment this was done all signs of shock or collapse passed off. He regards this as an important point, as it overcomes the first tendency to shock and at the same time sets free the pedicle proper. He found it subsequently quite easy to deal with the vessels in the pedicle and recommends this method in all cases where it can be done. He advises separate ligature of the splenic artery and vein. He closes his article with the following paragraph:

"When we consider that during the last thirty years, as shown by the table, the mortality with a large number of cases has been reduced from 80 per cent. to 20·68 on the published cases, we may, I think, fairly say that splenectomy has a grand future before it, though the cases in which it must be demanded are few and far between, and it ought not, in my opinion, to be resorted to unless the patient's condition is such a miserable one as to demand it. Every other resource must be well tried first, though up to the present time the results of medical

treatment in cases of true hypertrophy seem to have been most unsatisfactory. The operation can hardly be considered justifiable with the present rate of mortality in any case of small or simple movable spleen."

It is interesting to note that the first two cases were both successful. The first was performed in 1549 in Naples by Zaccharelli, and the second in 1711 in St. Carnigan by Feererius.

Treatment of Dislocation of the Peroneus Longus Tendon.

WALSHAM. "On the treatment of dislocation of the peroneus longus tendon."—*British Medical Journal*, November 2, 1895.

Mr. Walsham draws attention to the unsatisfactory results obtained in the treatment of this rather unusual accident, by pads and specially made boots and leg-irons, and reports the case of a young lady 22 years of age, who whilst skating caught her foot in a hole in the ice, sustaining a severe sprain of the ankle. During the succeeding four years the peroneus during walking would from time to time spring forward with a distinct and audible snap, causing a sharp and momentary attack of sickening pain and lameness. She had worn various kinds of bandages, anklets, and specially made boots, but they had been of little or no service.

Mr. Walsham then performed an operation which consisted in making an incision about three inches in length over the tendon, as it lies behind the external malleolus, exposing the malleolus and lower end of the fibula and turning down from it a flap composed of the thickened fascia and underlying periosteum. The flap was carried over the tendon and sutured to the fibrous tissue lying at the back of the normal groove. Although some suppuration occurred the result was good. Four months after operation she could walk well, the tendon remained in its groove and could be felt sliding in it freely during the various movements of the foot. She could walk five or six miles without lameness or inconvenience.

Traumatic Insanity.

CALE. "Two successful operations for traumatic insanity."—*New York Medical Journal*, No. 880. October 12, 1895.

The first case, a carpenter, 26 years of age, with a good family history, became insane four years after the reception of a blow from a club, the wound being about midway between the fissure of Rolando and the external occipital protuberance, slightly to the left of the median line. The wound suppurated for three months afterwards.

The patient was imaginative, thought his friends were plotting against him, and suffered from attacks of *petit mal*. He would lie when it was decidedly to his advantage to be truthful and he had a mania for stealing.

A large pear-shaped flap was made over the site of the adherent scar; this was elevated with the periosteum, except a small portion which was attached to the bone at the site of injury. The bone was found to be somewhat depressed; as was also the corresponding portion of the internal table; a piece the size of a silver quarter was removed; the dura appeared normal, although the depression of the inner table was quite marked. The wound was closed after the insertion of a few strands of catgut for drainage and the usual dressings were applied. The change in the patient could be noticed as soon as the effects of the chloroform disappeared; his headache had vanished and his manner was decidedly cheerful.

His recovery was uninterrupted and he left the hospital on the twelfth day. Since that time (nearly four years) he has held a responsible position and is to-day in perfect health.

The second case, also a carpenter, aged 33 years, with a good family history, received a blow on the top of the head about the interauricular line from a brick which had fallen about sixteen feet. He was unconscious for about two hours. During the night he became delirious, got up, dressed himself and started out with his gun. This delirium lasted the greater part of the night, but towards morning he became rational. The next evening he wished to go hunting in town. He also insisted on sending his children to school in the late hours of the night. He had a constant headache about the base of the brain, and a few days after the injury his sight became so affected that he had to be led to a physician's office. This condition lasted about four days. He had several attacks of mild mania, which were brought on by the least excitement. He was extremely restless at night, and the administration of narcotics had little effect.

The operation was performed in the same manner as in case one. There were no adhesions, but the dura was somewhat congested. He made a rapid recovery and is working at his trade daily.

Bronchocele.

SHEPHERD. "The surgical treatment of certain forms of bronchocele, with reports of sixteen cases."—*Annals of Surgery*, Sept., 1895.

Dr. Shepherd adopts the method of operating developed by Juellard, Rattman and others, but brought before the profession very prominently by Professor Socin. It is evidently the ideal method of treat-

ing encapsulated or cystic tumours of the thyroid, and a very large proportion of thyroidal tumours belong in this class. The operation consists in enucleation or shelling out the cyst. The most favourable cases are those in which only one side of the gland is affected. Of course all enlargements or tumours of the thyroid are not suited to this form of treatment. For instance, all those cases of diffuse enlargement of the gland, malignant and inflamed goitres, as well as those vascular bronchoceles associated with Graves's disease, need either to be treated by exsection or ligature of the thyroid arteries. Good results are obtained in the diffuse form by feeding with thyroid extract.

Dr. Shepherd thinks that the congestion of the veins is no greater during ether than during chloroform anæsthesia, and in all his later cases has used ether.

In operating Dr. Shepherd makes rather a small opening at first, carefully exposing the cyst wall, recognized by its bluish-white colour. The incision may then be gradually enlarged, the cyst enucleated, and delivered; or a better way generally is to partially enucleate, and then empty the sac of a sufficient portion of its contents to allow of a partial collapse, when further separation can be more readily accomplished and hæmorrhage more easily controlled.

After the cyst or cysts have been removed a strip of iodoform gauze is introduced, which acts as a drain and also exerts sufficient pressure upon the walls of the sac to stop oozing. This is removed in twenty-four hours.

Healing takes place rapidly. The patients are seldom in the hospital more than a week.

Treatment of Fracture of the Patella.

WHITE. "The operative treatment of fracture of the patella."—*Annals of Surgery*, November, 1895.

KEEN. "Three cases of wiring the patella for old fracture with division of the quadriceps muscle and chiselling loose the tubercle of the tibia in two of the cases."—*Annals of Surgery*, November, 1895.

In his paper read before the Surgical Section of the College of Physicians of Philadelphia, Dr. White takes the ground that the results obtained by the ordinary methods of treatment are not satisfactory. The causes of failure are divided into three classes.

(a.) Lister believes that non-union is usually due to two factors;

the separation of the fragments by the contraction of the quadriceps muscle, and the pressure of accumulated fluid within the joint.

(b.) Von Bergmann thinks that the atrophy of the quadriceps, due to the pressure of the dressings employed and to the disuse, is progressive, and believes that the condition is responsible for a large proportion of the cases in which it is impossible to extend the limb.

(c) Macewen believes that the chief cause of non-osseous union is the interposition of fibrous and aponeurotic structure, between the fractured surfaces, and that, before such union can be obtained, it is requisite in the first instance to elevate all the tissues which overlie the fractured surfaces, and which prevent them from coming into immediate contact. In explanation of this view, he details cases in which he has found portions of the soft parts lying between the fragments, either forced there by the vulnerating body in cases of direct injury, or driven in by atmospheric pressure when the fracture is the result of muscular violence.

Dr. White favours operative treatment, and discusses the relative merits of the different ways of securing the fragments of the patella in apposition. The suture, Malgaigne's hooks, etc., receive favourable notice, but Barker's method of passing sterilized silk around the fragments, subcutaneously, is the plan adopted by Dr. White in the three patients that he brought before the Society. He claimed that they all had bony union or such close fibrous union that no motion between the fragments could be demonstrated.

Dr. Keen's cases were old cases in which the fibrous tissue connecting the fragments together had stretched in one case to three and a half inches in extension and five inches in flexion. In the second case the distance of separation is not given, but the fracture occurred in August, 1893, and there had apparently been little or no treatment employed until Dr. Keen wired the fragments in March, 1894. In the third case the fragments were separated two and a half inches in extension and five inches in flexion.

These papers gave rise to a very interesting discussion, during which very strong objections were taken by some of the members present against any method of treatment, in ordinary cases, that would expose the synovial membrane of the joint to infection. It was plainly stated that opening the joint to suture the fragments had not only cost patients their legs, but also in several instances their lives also.

Barker's operation is open to the same objection, and has in other hands resulted in suppuration of the joint.

Of course in long standing cases like those reported by Dr. Keen,

the opening of the joint, removal of the intervening fibrous tissues, and suturing the fragments, offers the only chance of obtaining anything like a good result. Perhaps in the presence of a large blood clot, in a recent case, the same treatment might be justified, but these cases are the exceptions.

Too much stress should not be laid on the securing of bony union. It is very doubtful if this is obtained very often by any method of treatment. In some cases where bony union was said to be present, maceration proved the contrary. Besides, there is evidence that good ligamentous union is as strong as bony union, and cases are said to have occurred in which a second fracture has occurred, not at the line of union by fibrous tissue, but at a different level and through the bone.

G. E. Armstrong.

Pharmacology and Therapeutics.

The Treatment of Pneumonia.

LEECH, D. J. "Treatment of pneumonia."—*The Medical Chronicle*, September and October, 1895.

POWELL, R. DOUGLAS. "On acute lobar or croupous pneumonia; its etiology, pathology and treatment."—*British Medical Journal*, November 9, 1895.

In few diseases have our ideas of treatment changed so radically during the present century as in the treatment of pneumonia, and many of us are inclined to look with some contempt on methods and remedies, which fifty years ago were believed to be all-important. A comparison of the mortality rates obtained in the hospitals during the early years of the century, with those under the highly rational treatment of the present day, should, however, make us pause before we express our opinions too strongly.

Dr. Leech, in this very interesting article, reviews the results obtained from various methods of treatment during the past sixty years, gathering his statistics, not only from English, American and Continental Hospitals, but also from army medical reports, and such records of private practice as were available. He concludes that, taking all circumstances into consideration, there seems reason to believe that the hospital mortality which prevailed at the time, when so many of those who suffered from pneumonia were either bled in hospital, or before they came, or both, was not materially greater than at present. Many statistics show, indeed, a mortality gradually increasing during the past six decades, a result which may possibly be owing to the rapid increase in population of some of the larger cities, altering for the worse the average vitality of the patient.

The numerous statistics he quotes show incontestably that whilst general and indiscriminate bleeding, with or without antimony in heroic doses, may have given results in the hands of many, possibly worse than those obtained at the present day, yet under favourable circumstances, a mortality as light as we can at present show in our most successful series has been recorded. As an instance, we would quote the report of Dr. Hughes Bennett, of 129 consecutive cases (1848–1865) with only four deaths. Of the four deaths, all had serious complications, and one had died on the day of admission. The

majority of these cases took antimony, and a considerable number were cupped and bled in the arm.

Speaking at the last meeting of the British Medical Association, Dr. Powell gave an excellent exposition of the more advanced views regarding the treatment of this disease. The routine treatment of the present day, namely, salines with the occasional administration of mercurial laxatives, a liquid, unstimulating dietary, and complete rest in an airy room of proper temperature and degree of moisture, he thinks of distinct value in materially depleting the vascular system from the venous side by increasing the functions of the skin, kidneys, and bowels. He condemns the use of antimony or aconite as directly depressing the heart's action, and among the salines has a distinct preference for the citrates of ammonia and potash, with some excess of ammonia, if necessary, rather than for the acetates, inasmuch as he considers the latter, if given in considerable doses, tend to irritate the pulmonary and bronchial membranes and to increase cough.

He regards it as unwise to materially reduce the temperature normal to pneumonia, (102° to 104°) as by doing so he thinks we favour microbic activity.

Antipyretic drugs unless they tend to restrain microbic activity, are distinctly harmful. In hyperpyrexia the cold bath, the cold pack, or cold sluicings are the only measures of any use, but the bath should be short, so that the temperature be not reduced below 102°. Too much must not be expected from this treatment, as such temperatures as 106° are of themselves often of fatal augury on other grounds.

The treatment of pain brings forward the still vexed question as to the *use of poultices*, and whether they should be hot or ice-cold. While admitting the difficulty of weighing evidence when the conditions of the problem are naturally so varied as those in pneumonia, Dr. Powell says that he has seen no evidence that either have any influence upon the intensity, extension, or resolution of pneumonia. The tendency in hospital, as well as in private practice, is to discard local applications, except for special reasons, and a strong argument in favour of their disuse is that their application involves more or less restraint and fatigue of the respiratory movements by the wrappings necessary to keep them in place. This especially applies to moist applications. Practical experience seems to go with theoretical knowledge in refusing any notable effect to ice applications upon the course of pneumonia. His opinion is against their employment in ordinary cases, on the ground that he has observed increased inflammatory lung infiltration follow their use in hæmoptysis, and that he has

found them distinctly harmful in bronchitis. The *nerve shock and agitation* of the early hours of pneumonia bear a close relationship to the pain present and to the rapidity with which the respiratory surface is being cut off by the extending exudation. To meet both indications the addition of small doses of morphine to the saline mixture is valuable during the first forty-eight hours. After this its use requires careful consideration; on the one hand it tends, to check secretion, to increase cyanosis, and to enervate the patient in the struggle that is before him; on the other hand, in the over-wrought nervous systems with which we have often to deal, the skilful use of morphine may be of much assistance.

In the presence of *active delirium* with prolonged sleeplessness Dr. Powell is convinced that the proper treatment is a full or rapidly accumulating dose of alcohol with food, followed at the right moment by a sufficient dose of morphine with atropine subcutaneously.

In reference to *cardiac failure*, he says that there are three conditions which we have especially to bear in mind as leading up to it.

1. Impaired nerve power on the part of the pneumogastric branches of the cardiac plexus.

2. Impaired nutrition of the hard-working heart muscle from insufficient and badly aerated blood supply.

3. A mechanical tendency to over distension of the right heart cavities, and to depletion of the left cavities of blood.

With clinical evidence of an enlarging and labouring right ventricle, and of a compressible, small, rapid, and vacillating pulse, indicating the presence of one or all of these conditions, we have at hand remedies of great power to do what may be possible in any given case.

Morphine and atropine may be very valuable, if cautiously and properly used, in saving from nervous and cardiac exhaustion, as already stated. Strychnine and caffeine are, however, the two drugs which are of the highest value in maintaining the innervation of the heart in many cases of pneumonia; perhaps in all cases of any severity, a moderate dose of $\frac{1}{50}$ to $\frac{1}{30}$ of a grain of strychnine may be given four or six times in the day, from the fourth to the fifth day onwards through the crisis. In very severe cases the stomach may become paralyzed and acutely dilated, so that in such it is safest and best to administer it subcutaneously.

The effect of strychnine in increasing the power and lessening the frequency of the heart's action is undoubted. Caffeine has been used much less; it appears to have the same effect as strychnine, being perhaps, on the one hand less reliable, while on the other there is less danger from an incautious dose.

The value of oxygen in the treatment of pneumonia is two-fold. It helps doubtless to keep the patient alive on a small respiratory space, which would otherwise be inadequate for that purpose, but it has also a direct action upon the heart by sending more richly oxygenated blood to its left cavities, and thence to its muscular walls.

Over-loading of the right ventricle, and depletion of the left is the chief cause of death in pneumonia. In a few plethoric people, this overloading may come on acutely in the very early stage of the illness, but we more often see it in the later period, its occurrence being characterized by increasing epigastric pulsation, and smallness and emptiness with increasing rapidity of the radial pulse. The question of blood-letting in pneumonia is rarely raised now, but this condition warrants its employment, either by the free application of leeches or by a moderate venesection. It is in such cases that digitalis also becomes valuable as an addition to the strychnine, for, although it has little effect in diminishing pulse frequency in pneumonia, Dr. Powell is confident that he has seen danger warded off by its timely use. A dry diet, and the judicious use of mercurial and saline purgatives, help further to lessen the burden on the right ventricle.

Referring to the *etiology* of the disease, after alluding to the fact that its prevalence bears no direct relationship to the actual severity of climate, but that changeableness of temperature, and seasonal periods of depressed temperature, have a distinct influence in increasing the number of cases, Dr. Powell states that his experience leads him to affirm that at least one-third of the cases of pneumonia, as we meet them, arise from foolish and thoughtless disregard, especially by elderly people, of simple precautions against chill. He regards as unfortunate, in that it tends to increased carelessness, the fatalistic and entirely inadequate view that we at all frequently acquire pneumonia as we acquire typhoid fever or diphtheria. It is probable that we are always—no doubt more particularly so in epidemic seasons—in the presence and possession of pneumonic organisms, but it rests much with us whether we shall bring about the conditions favourable for their aggressive germination. Infection, as in tuberculosis, as a cause of pneumonia is a possibility; nevertheless when the etiological conditions common to members of the same family, or closely associated persons, are duly recognized and accounted for, but small need remains for direct infection in the etiology of the disease.

A. D Blackader.

New Vaso-Dilators.

BRADBURY. "The Bradshaw lecture on some new vaso-dilators."—*British Medical Journal.* November 16, 1895.

In this very interesting address Dr. Bradbury introduces to our notice some new vaso-dilators whose action he has been recently investigating. In the Crosnian lectures for 1893 Professor Leech reviewed and much extended our knowledge of the nitrites and of nitro-glycerine (glycerol trinitrate). These substances possess a powerful, but more or less evanescent, action. Since then attempts have been made by many pharmacologists to determine some new compound whose action would be more prolonged and from which we might obtain a more even and sustained effect. As all the alcoholic nitrates previously examined had proved to be active vaso-dilators, and as nitro-glycerine, the only multi-valent nitrate used, has this action in a marked degree, it seemed not improbable that the drug in question might be found among the nitrate derivatives of the higher-valent alcohols or their allies.

All soluble organic nitrates (of the composition R O N O_2) hitherto examined are vaso-dilators, and their activity, which varies within wide limits, appears to be due to their differing solubilities and liability to decomposition. The erythrol and mannitol nitrates are less soluble than the other compounds and have a correspondingly weaker, but much more prolonged, action.

Careful investigation, by means of perfusion experiments, and blood pressure tracings, indicate that during the period, when the nitrites and nitro-glycerine show their greatest activity, these show little or no action. After the administration of one grain of erythrol tetra-nitrate no very marked effect is noticed till fifty minutes have passed, the tension then falls gradually for about an hour and a half and then as gradually returns. In the pulse tracings shown, the tension had not reached its former level, although more than five hours had elapsed since the administration. Very similar results are noted after the exhibition of mannitol hexa-nitrate in the same dose. Although occasional cases may be met with in which, either from the pathological condition present, or from a not yet explained individual idiosyncrasy, we obtain little or no response to the action of vessel-dilating drugs, and this appears to be occasionally the case with these organic nitrates, nevertheless, he considers that they will prove of distinct therapeutical value.

They have little or no action upon other organs. Certain nervous effects which have occasionally been noted as following the adminis-

tration of nitro-glycerine have so far not been observed after these solid organic nitrates. They appear to have no effect upon the urinary secretions, and they possess no cumulative action, and, so far as Dr. Bradbury is aware, are free from poisonous properties. The chief indications for their use would appear to be the condition in which the heart is labouring under increased work imposed upon it by contracted arteries, whether as the result of advanced age, or of some pathogenic process. The difficulty hitherto has been not so much to reduce arterial tension when desired, as to keep the tension steadily below a certain level. From the nitrites or nitro-glycerine we obtain no effects lasting longer than two hours after their exhibition. To maintain this action and produce continuous low tension, it is necessary that the dose be repeated at least every two hours, and even with this frequent administration there would be considerable variation in the pressure. By these two new drugs tension is not brought so low, but the reduction is of longer duration, and the pressure is less liable to fluctuations.

Dr. Bradbury concludes his paper by referring to the possible value of these drugs in some cases of angina pectoris, chronic Bright's disease, aneurism, Raynaud's disease, and in some forms of dyspnœa. The dose of the solid nitrates may be taken as one grain; more may be given if it is thought necessary, but usually this amount will suffice. The dose is preferably given in alcoholic solution, which may be taken in water every four or six hours. *A. D. Blackader.*

Pathology.

Cholera in India.

HANKIN. "Observations on cholera."—*Indian Medical Gazette*, March, 1895.

HANKIN. "Annual Report of the Chemical Examiner and Bacteriologist to the Governments of the North-west Provinces, etc., for the year 1894."—Allahabad, 1895.

HAFFKINE. "Anti-choleraic inoculations in India."—*Indian Medical Gazette*, No. 1, January, 1895.

"Inoculation for cholera."—*The Times*, weekly edition, Oct. 4, 1895, page 783.

MACRAE. "Cholera and preventive inoculation in Gaya jail."—*Indian Medical Gazette*, No. 9, September, 1894.

SIMPSON. "Report of the Corporation of Calcutta."—August 16, 1895. See also *British Medical Journal*, Sept. 21, 1895, p. 735.

It is now more than ten years since Robert Koch visited the region in which cholera is notoriously epidemic, whence have spread the terrible epidemics of the disease which have formed an important feature in the medical history of this century. That memorable visit led to the discovery of a spirillum associated with the disease, and the researches which have since been carried out in various parts of the world, and under the most varying conditions, tend to show that this association is so intimate that now-a-days all bacteriologists are willing to acknowledge that the spirillum is the causative agent of the disease. Nevertheless, with strange obtuseness, the Indian medical service as a department of the Government, and indeed as a branch of the British army, has throughout failed to appreciate the value of Koch's discovery, and what is more, has blindly hung on to old and ineffective methods of coping with the disease, in short, has done nothing to gain any practical results from Koch's all-important discovery. Only now, after all these years, thanks to two remarkable men wholly unconnected with it, is that service beginning to realize that there is something to be gained from the bacteriological study of the disease. These two men are Mr. E. H. Hankin, the chemical examiner and bacteriologist to the Government of the North-western

Provinces, and Dr. Haffkine. Both before visiting India had made names for themselves as bacteriologists, the one by his remarkable series of observations upon the albumoses of anthrax and the defensive proteids of the body, the other by his observations upon cholera and other diseases at the Institut Pasteur, where he was demonstrator under Metchnikoff and Roux. Hankin's work had been performed in the pathological laboratory of the University of Cambridge. These observers have worked along different lines in attempting to stem the disease; both have achieved remarkable results.

Hankin's work has been very largely directed towards a study of the conditions under which the cholera spirillum exists in water. Of late during the progress of epidemics of the disease in France, Germany, Italy and elsewhere, spirilla have been discovered in the water employed for drinking purposes. This was notably the case during the great epidemic at Hamburg, and indeed when in India Koch himself had discovered the microbes in village tanks. In a large number of cases the spirilla isolated have diverged in several particulars from Koch's classical description, and as a consequence there has been grave doubt as to whether they were the pathogenic organisms. It has been left to Hankin to study fully the connection between these spirilla and outbreaks of the disease. This he has done in a large number of places, in Lucknow, Etawah, Unao, Cawnpore, in the Gonda District, in and near Shahgunj, and in Allahabad, and to place his results in as concise a form as possible he has found that in a large nuumber of localities, situated often under very different climatic and other conditions, vibrios, that is to say microbes, resembling those of cholera are extremely rarely to be found, except in places in which cholera has recently existed. During an epidemic, so far as tested they generally show virulence and are capable in pure culture of killing guinea pigs within relatively a very few hours. They give the indol reaction and possess other characters regarded as typical of the cholera microbe. After the cessation of the epidemic the spirilla gained from the water show a greatly diminished virulence for guinea pigs, and in their limited ability to grow on agar-agar they exhibit a diminution of vitality that may perhaps safely be regarded as an indication of diminished virulence. Such degenerated vibrios show great tendency to die out in ordinary cultures, so that it is difficult to keep them alive for any time in the laboratory. The conclusion from these researches would certainly seem to be that these vibrios are nothing more than the microbe of cholera in a degenerated condition. In this way Hankin throws light upon the divergent results of European bacteriologists and on the existence of races of spirilla.

Though there is reason for thinking that the cholera microbe thus degenerates rapidly in well water, there is no similar reason for thinking that conditions may not exist in which it can maintain its virulence, and indeed Hankin presents an account of one or two such cases in which there had been apparently exaltation of virulence. He mentions, for example, a catch-pit at Daragunj, a hole in the sand on the bank of the Ganges about three feet in diameter, containing stagnant water and fed by a small drain running into it from the village. The water of this on his first visit contained over three million microbes per c.c. The cholera germs isolated from it killed guinea pigs in twenty-four hours. A fortnight later he examined the water that was trickling into it from the village (at that period free from cholera). This contained cholera microbes that killed a guinea pig in four hours. For comparison it may be mentioned that Haffkine's most powerful virus requires six hours to kill these animals.

These observations have led Hankin to proceed further, and starting from the basis that cholera is in the main conveyed from individual to individual, by the contamination of water with fæcal matters, to observe whether disinfection of the water supply might not arrest epidemics. This disinfection is all the more important in that whereas in European towns there are at most two or three sources of water in use, in an Indian town there are usually hundreds of sources. In some places, as at Cawnpore, there may be a well in almost every house. He first employed lime. This was certainly successful in destroying the microbe, but as it frequently killed frogs in the well also the results were not regarded as uniformly satisfactory. Permanganate of potash proved to be much more satisfactory. In a majority of cases when a well known to be a source of cholera infection and containing cholera microbes was disinfected with permanganate the cholera ceased at once in the areas supplied by that well. The results, however, were not uniform, indeed I believe that I am correct in stating that Mr. Hankin owed a mild attack of cholera from which he suffered to a premature demonstration of the harmless character of such disinfected water. The use of the permanganate in sufficient quantities to destroy the spirilla has no deleterious effect upon the water, but when this simple method in case after case has arrested the spread of an epidemic among those employing the water, its beneficent working shows that in it Mr. Hankin has devised a remarkable means of prevention of a most dread disease, and so important to the well-being of the Indian peoples do his observations appear to be that he does well to ask for an extended trial of this method of combating cholera and of destroying it at its source.

The account of the above investigations forms, however, but a small portion of the record of Mr. Hankin's great activity. His annual report for the year 1894 is full of other matters of extreme interest. How widespread are the subjects with which he has to deal will be understood when it is stated that the report treats of his investigations into the nature of the hairs obtained from the mud smears on mango trees which caused so much excitement a few months ago, with medico-legal cases of poisoning, with the bacteriology of aërated waters, examination of filters, of mildew on canvas and of microbes in Indian rivers. He shows among other things the inefficiency of "filter-tank" wells. He found, for example, that in one case the water obtained for regimental use from such a filter contained the cholera microbe, while the water passing to it before filtration was free from the germ. Upon inquiry it was found that the sand used for the filters had been taken from an insanitary spot on the banks of the river below the town. He found also that the Macnamara filters in use by certain companies of the East Lancashire regiment appeared to act also as excellent breeding grounds for the microbe and were in fact, highly infected. Failing the use of weak solutions of permanganate, the only safe method of insuring germ-free water would seem to be by boiling it.

Let me now turn to Dr. Haffkine's results. Starting from the hypothesis that the spirillum is the actual cause of cholera, this young Russian observer had been engaged for a considerable period while at the Institut Pasteur in endeavoring to elaborate a method of "vaccination" against cholera. So far as results upon lower animals, such as guinea pigs, could be relied upon, he had shown that it was possible to gain protection against doses of most highly virulent cholera microbes by previous inoculation with attenuated cultures. But means were wanting to test the value of his laboratory experiments. It is true that the guinea pig will succumb to doses of virulent spirilla, but it is also true that the conditions under which this is brought about are highly unsatisfactory. In order to induce what appears to be an intestinal cholera the little animals have to be dosed with alkaline solutions and with opium, treatment which alone will often lead to fatal results. If, as has been now frequently done by enthusiastic bacteriologists, by Hankin, Haffkine, Metchnikoff and others, and by sceptics such as Pettenkofer, pure cultures of what appear to be most virulent microbes are taken by the mouth, in only about 5 per cent. of cases do any results ensue. Haffkine, it is true, further inoculated himself and a large number of his friends with his vaccine, but under the conditions it will be readily understood that the fact that he and

his friends remained in good health when subsequently they ingested countless millions of the spirilla was devoid of any absolute value. It was necessary, therefore, that if the method of vaccination was to be tested, this should be on a large scale, and with the object of obtaining the best field for a search into the value of the method, Haffkine, at his own cost and responsibility, went to India. But once in India his trouble had only begun. A free population, the various influences and currents of opinion intervening, religious feelings and conditions, and the mixture of confidence and distrust on the part of individuals and committees are conditions not entirely favourable for an experimenter having the aims of Dr. Haffkine.

He started with the hope that he might select a village or a small town suffering regularly from a known amount of cholera. By inoculating, before the cholera season, a half or a large portion of the village, he had hoped that a field would be prepared for observing the effects of his operation. But such village did not present itself. It was only after a long period—more than a year—of almost ineffectual work that the right method showed itself. It was not necessary to inoculate half a country, or a city, or even half a village; in the endemic area each house can comprise within its walls an experimental group, and by inoculating some, and not inoculating other, members of the households who otherwise were under similar conditions of food, water, soil, social customs, etc., reliable statistics could be obtained as to the efficacy of the treatment. The method at first sight seems peculiarly cold-blooded. Upon further consideration, however, there is not a little to be said in its favour. The inoculations were harmless and they were experimental; those not inoculated were, it may be presumed, those who did not ask to be.

And now as to the results. By recording carefully the statistics of those treated and untreated in such households, in regiments, upon tea plantations and in gaols, and comparing the mortality in supervening cholera epidemics among those inoculated and those untreated, the following are some of the results: In a total of 42,445 inoculations not a single instance of mishap or injury to health resulted. In Calcutta, 1,860 inoculations were performed by the Health Department of the municipality. Cholera occurred in 36 houses in which a certain proportion of the 516 inmates had been inoculated. Among the uninoculated 13·47 per cent. were attacked by cholera and 11·6 per cent. died. Among the inhabitants partially protected by the first inoculation only 2·2 per cent. were attacked and died. Among those who had undergone the complete second inoculation there were no cases and no deaths.

The Calcutta Municipality was encouraged to carry on the experiment by the results obtained in a localized outbreak of cholera around certain tanks. Of the 200 persons living in the infected group of houses 116 submitted to the operation. Among these 116 no further cases occurred; among the 84 not inoculated 10 were attacked and 7 died.

In the Gaya gaol again, both classes of prisoners, inoculated and non-inoculated, appear to have been equally exposed to infection. While Surgeon-Major Macrae's statistics are not easy to grasp at first sight, they show the same results, namely, that after the full period of inoculation by the first and second vaccine no deaths occurred among the inoculated, whereas deaths continued to occur with fair frequency among the non-inoculated. Or, taking the whole statistics from the period of the first vaccination of the prisoners, the mortality among those untreated was twice that among the treated.

Thus after nearly three years' arduous and self-imposed labour, carried out at his own cost, Dr. Haffkine has brought to a successful issue one of the most remarkable experiments ever undertaken by a man of science. He has lived his life before the Indian doctors during all this period, he has completely won their confidence and esteem. The prejudices, apprehensions and unnatural objections to what seemed a dangerous operation he has gently and calmly overcome. The evidence he brings forward is verified by independent medical experts. He came to India a healthy man, he leaves it weak and broken down, but he leaves it, as the *Times* in a most interesting resumé of his works remarks, as one stamped as no ordinary man, and perhaps destined to rank as the Jenner of India.

Controversy may continue with regard to the precise value of inoculation as a prophylactic against cholera, but there can be no controversy as to the disinterestedness of purpose and the high scientific aim which has led Dr. Haffkine to study how to protect, not only our soldiers in India and the Indian people, but also the people of civilized Europe and America from this terrible disease. There can again be no controversy as to the wisdom displayed by the government of the North-west Provinces of India in taking the bold step of establishing a bacteriological laboratory, and appointing to direct it the brightest and most resourceful of young English bacteriologists in the person of Mr. E. H. Hankin. Now that he has accomplished so much for the good of the Indian peoples, it is to be hoped that he will be permitted to devote all his attention to bacteriology pure and simple, apart from medico-legal analyses and the multifarious duties appertaining to the post of chemical examiner.

J. G. Adami.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

OCTOBER, 1895.

THE CANADIAN PRACTITIONER.

Experimental cachexia strumipriva (Thyroidectomica)—Wesley Mills, Montreal, p. 719.

Thyroid feeding in stupor—G. K. Clarke, Medical Superintendent Rockwood Hospital, Kingston, Ont., p. 729.

Urethral caruncle—L. M. Sweetnam, Toronto, p. 738.

THE CANADA LANCET.

The primary repair of genital lesions of childbirth, K. N. Fenwick, Kingston, p. 35.

The present status of the electrical treatment of fibroids—A. Lapthorn Smith, p. 37.

THE CANADIAN MEDICAL RECORD.

Notes on three septic cases—F. R. England, Montreal, p. 1.

Sudden death from a rare cause—Robert Marks, Ottawa, p. 6.

L'UNION MÉDICALE DU CANADA.

Fièvre des nouveaux-nés—Isaie Cormier, Montreal, p. 505.

Etude medico-légale—Les aliénés devant la loi—Responsabilité légale—George Villeneuve, Montreal, p. 509.

La digitale—S. Gauthier, St. Ephrem d'Upton.

LA CLINIQUE.

De l'emploi de "l'Huile d'Érigéron Canadense" dans la traitement des hémorrhagies, particulièrement des hémorrhages utérines—De Laval Thierney, Marlboro', Mass.

JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION. VOL. I. PART IV.

Notes concerning the nourishment of children in their earliest infancy, exclusive of nursing at the breast—A. Simard and R. Fortier, Quebec, p. 367.

Nomenclature of colours for bacteriologists—E. B. Shuttleworth, Toronto, p. 443.

How is variability in bacteria to be regarded?—J. G. Adami, Montreal, p. 415.

Opening discussion on what new methods can be suggested for the separation of bacteria into groups, and for the identification of groups—J. J. Mackenzie, Toronto, p. 419.

On grouping water bacteria—Wyatt Johnston, Montreal, p. 445.

REPORTS, ETC.

On the sanitary state of the City of Montreal for the year 1894—Louis Laberge, Medical Health Officer.

Experimental Cachexia Strumipriva—Wesley Mills.

At the recent meeting of the Canadian Medical Association at Kingston Dr. Mills gave an interesting demonstration of the results of complete and partial ablation of the thyroid in cats and dogs, and

at the same time recorded the results of other observations made by him of the same nature. His researches entirely confirm those of Horsley and other observers, though apparently he would not lay so much stress as did Horsley (in his article contributed to the *Virchow Festschrift*) upon the relationship between the richness of the food of carnivora in extractives and the rapid appearance of the symptoms of cachexia strumipriva in these animals. From the records of experiments given by him it would certainly appear that cutting off meat diet from young dogs has little or no effect in delaying the manifestations of the morbid state. He points out that while direct experiment has proved that there is heightening of the cortical excitability to electrical stimulation during the first stages of cachexia with later lowering of the same, this has little obvious bearing upon the main nervous symptoms, inasmuch as a young dog upon which he had some weeks previously repeated Goltz's experiment, removing both cortical motor areas, developed, nevertheless, the usual nervous symptoms in the usual way and died upon the sixth day.

Thyroid Feeding in Stupor—G. K. Clarke.

The writer, after pointing out that in many cases, acute disease, such as typhoid fever, modifies mental symptoms, and that striking results are obtained in cases of stupor by some sudden shock or injury, cites several cases that had been experimented upon by feeding with thyroid extract. The cases selected were those with well-marked stupor, where the out-look had become unfavourable, if not hopeless. A decided reaction was looked for, and the dose regulated by the tolerance of each patient.

The first case, a male, aged 20, was admitted January, 1893, in a state of complete stupor, without intelligence, dirty in habits, and requiring as much attention as an infant. In January, 1895, the patient was mentally unchanged. Treatment commenced on January 8th, with 3 grains of raw thyroid, and this dose was gradually increased to 20 grains on the 19th, the effects being free perspiration, muscular twitchings and increasing mental brightness. On February 1st, he was reported to be quite well mentally, as far as could be ascertained, but on February 7th he suddenly relapsed to a condition of complete stupor, from which he has never recovered. A sudden relapse, as in this case, had been several times observed by the writer, to follow the improvement after typhoid.

The second case, a man aged 35, was admitted February, 1894, in a condition of stupor and wretched physical health. In January, 1895, though improved bodily, he was mentally unchanged. Treatment commenced on January 14th and was continued to February 1st, the

maximum dose being 20 grs. three times daily. The patient was discharged cured on March 26th.

The third case, a female, had been insane four months before commencing treatment on January 26th. On March 25th she was discharged apparently cured.

The fourth case, female, aged 34, was one of puerperal mania with stupor. Treatment commenced January 24th, was discontinued February 4th, and on April 10th she was sent home on probation. In August she was reported as being well.

This very interesting series of investigations on thyroid feeding in mental disease is, the author believes, the first on record in America.

Sudden Death from a Rare Cause---Robert Marks.

This case, which was reported and the specimen shown before the Ottawa Clinical Society, came before the coroner of Carlton county. A women, aged 28, eight months pregnant, died suddenly from unknown causes. At the autopsy, on opening the abdomen a large quantity of liquid blood escaped, and a very large clot of blood was found. An eight months fœtus was found in the uterus. At the upper part of the womb there were two ulcerations, larger than a ten cent piece, penetrating through its walls, and extending into the placenta ; several other ulcerations were present, but not penetrating ; the uterus was soft and friable. No report is given of any of the organs except the brain, which was normal.

How is Variability in Bacteria to be Regarded ?---J. G. Adami.

After pointing out how bacteria may be modified according to the media on which they are grown, and their environment, the writer, in order that some definite classification may be arrived at, recommends :

1. That in order to emphasize as much as possible the individuality of any given form isolated, it be studied upon various media so soon as isolated.

2. That to determine the relationships of such a form successive growths should be made upon the ordinary standard media for not less than a year, control and parallel growths of the form to which it appears allied being conducted at the same time and on the same media.

3. That if at the end of the year the difference between the two forms persist, then the form examined must be classed as a sub-species.

4. That otherwise the form is shown to be definitely a variety.

5. That all who describe new species should be urged to afford a second description twelve months later in the same journal as that in which their first communication appeared, this second description stating accurately how far the forms have become modified by continued growth on ordinary standard media.

On Grouping Water Bacteria---Wyatt Johnston.

The writer sums up the present position with regard to grouping the species as follows: (1) The descriptions at present recorded in connection with species of water bacteria do not readily lend themselves for purposes of grouping. They lay stress on points of difference to the neglect of points of resemblance. (2) Too much importance is attached to descriptions of conditions which cannot be readily utilized by others, and too little attention paid to tests by which definite information is obtained. (3) There is a great want of uniformity as to the essential points to be recorded in describing species (4) For grouping purposes a single, strongly-marked characteristic peculiar to a few species is of more value than a number of minor details.

Sanitary State of Montreal for 1894---Louis Laberge.

The Annual Report of the Medical Health Officer for 1894, which has just been published, contains many facts of great interest. The mortality for the year reached 27·27 per 1,000 of the population, an increase of 2·31 per 1,000 over the rate for the previous year and 2·26 over the mean rate for the preceding five years. There were 15 deaths less from constitutional diseases, but all other classes gave a higher mortality, local diseases giving an increase of 378 and zymotic diseases an increase of 377. From the latter there were in all 1,847 deaths. Scarlatina contributed 497 deaths, or more than any of the other infectious diseases, the mortality being the highest recorded since the first annual report was published. The largest number of victims were carried off during the first half of the year, chiefly in the month of March. The type that prevailed was a most malignant one, being almost always, even during the prodromal stages, complicated with rapidly developing aphthous or gangrenous angina. Diphtheria showed an increase of 37, and croup an increase of 33 deaths over the previous year. Typhoid fever, on the other hand, was the cause of only 42 deaths, the lowest number for several years past and 8 less than last year. This increase in mortality is not due to an unsanitary condition of the city but is explained by the increase of deaths due to diseases beyond the control of public hygiene, to a fortuitous epidemic of scarlatina, and to the enforcing with unusual vigour the collection of death certificates from superintendents of cemeteries and from persons removing bodies beyond the limits of the municipality.

Other subjects treated of in the report are the Civic Hospital; the appointment of a bacteriologist to the Health Department; the disinfection of houses infected by tuberculosis; the inspection of milk and dairies; public water-closets (the hope is expressed that in the course of next year a system of public water-closets cleanly and neatly kept will be established); the abolition of privy pits; garbage destruction; and the morgue. *Kenneth Cameron.*

Reviews and Notices of Books.

Hare's Text-Book of Practical Therapeutics. A Text-Book of Practical Therapeutics; with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D, Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. de Schweinitz, Edward Martin and Barton C. Hirst. New (fifth) edition, thoroughly revised. 8vo., pp. 740. Philadelphia: Lea Brothers & Co. 1895.

The fifth edition of this very valuable text-book in as many years indicates in a convincing manner the high esteem in which it is held by the profession in America. The editor has a high reputation, not only as a teacher, but also as an experimental pharmacologist. We find, therefore, as we might expect, that the physiological action of all the drugs as far as it is known is very clearly stated. Above all things, however, the work is a practical one, and the busy practitioner will find that all information respecting practical therapeutics is here made easy of acquisition. The contents are divided under four headings. I. General Therapeutical Considerations, under which Modes of Administration, Dosage, Idiosyncrasy, &c., are discussed. II. Drugs, in which all the official, and many unofficial, remedies are described, and the preparations of both the United States and British Pharmacopœia are given. Many magistral formulæ, illustrating special applications of the drugs, are interspersed wherever they are considered useful. III. In this division Remedial Measures, other than Drugs, and Special Foods for the Sick, are considered. We note excellent chapters on Antisepsis, Use of Heat and Cold, Mineral Springs, Climate, Transfusion, &c. In Chapter IV. the various Diseases are taken alphabetically, and their treatment concisely yet thoroughly discussed. Carefully prepared indexes by which reference to any special information desired is made easy, complete this very practical and reliable volume.

We have already recommended the volume to our students, and we have pleasure in expressing our confidence that it will prove of much service to practitioners generally. A. D. B.

Practical Dietetics, with Special Reference to Diet in Disease. By W. GILMAN THOMPSON, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the University of the City of New York. 8vo, pp. 802. New York: D. Appleton & Co. 1895.

This very valuable work has been written with the intention of furnishing to the practitioner a text-book containing instructions as to the

appropriate diet in diseases which are influenced by right feeding. This the author has exhaustively accomplished. Since the appearance of Pavy's work on "Food and Dietetics" no work of importance on this subject has appeared, and we. therefore, hail with pleasure this new volume on such an important subject, coming, as it does, from one so well fitted by his previous study as a physiologist, and by his present position, for the task which he has undertaken.

After an introductory chapter on the elementary composition and classification of foods, their force production and their economic value, nutrition is considered and the various substances which we take into our bodies as food are classified. In Part I. foods and food preparations are discussed, and all the newer ideas in regard to the methods of sterilization and preservation of milk are considered at length. Part II. is devoted to stimulants, beverages and condiments. In Part III. the preparation of food and the quantity required by the normal body are considered. This is followed in Part IV. by a discussion of the foods required under special conditions. Part V. treats of digestion and the conditions which affect it. In Part VI. the writer speaks of diseases caused by dietetic errors, and in Part VII. of the various foods for the sick. Part VIII., "Diet in Disease" is a very exhaustive article, occupying a fourth of the volume; in this pathology and symptomatology are largely entered into, and the relation of diet to disease very fully discussed from the standpoint of both the physiologist and the physician. Diseases of the alimentary canal claim a large space in this article, and we notice that all the more important tests for gastric secretion are detailed.

The volume closes with a list of rations and dietaries, and with an appendix giving a number of recipes taken from standard authors for the preparation of food for invalids.

Altogether we can recommend this book to our readers as a particularly valuable one, supplying a real need and containing all our present knowledge on this important but too much neglected subject. A. D. B.

A Treatise on Pharmacy, for Students and Pharmacists. By CHAS. CASPARI, Jr., Ph.G. With 288 illustrations. Philadelphia: Lea Bros. & Co. 1895.

We have had much pleasure in examining this volume, in which we think the writer has fully justified his work, and has supplied students and pharmacists with an extremely useful and trustworthy guide, one which will prove of much assistance in the study and use of the United States Pharmacopœia. The subjects treated of in this book are grouped under three divisions. In Part I. the various details and operations connected with general pharmacy are fully described. Part II. treats of practical pharmacy, and embraces a study of the official galenical preparations, together with that of the technique demanded from the dispenser. Part III. is devoted to pharmaceutical chemistry, and to all

those who have to do with the United States Pharmacopœia this part of the work must prove extremely valuable.

The general appearance of the work justifies the author's statement that the publishers have spared neither expense nor labour in the typography, engravings and general outfit of the book. A. D. B.

Medical Electricity; a Practical Hand-book for Students and Practitioners. By H. Lewis Jones, M.A., M.D. Second edition, with illustrations. London: H. K. Lewis. 1895.

This work, which is the second edition of a book published under the same title, and written conjointly by Dr. W. E. Stevenson and the present author, is a succinct and clear statement of the various facts and details concerning electricity as a therapeutic measure, with which it is necessary that the physician should be acquainted, to enable him to make use of this valuable ally in therapeutics. We note, among others, chapters on batteries and apparatus, physiology, diagnosis, and general therapeutics. These are followed by chapters on the application of electricity to special diseases of the nervous system, and to other conditions requiring electricity. We have carefully read over this work and can recommend it to those who desire to become familiar with this means of therapeusis, but who rather shrink from the task of mastering one of the larger treatises on the subject. A. D. B.

Hygiene and Public Health. By Louis Parkes, M.D. Fourth Edition. 1895. Pp. 531. London: H. K. Lewis.

The popularity of this book has caused the editions to be issued at short intervals, and the present one has been brought up to date. We notice that the subject of biological water analysis is rather summarily dealt with in two pages (which is, however, a good deal of space for an English text-book to devote to this topic, a page and a half being about the average). Water closets come off better with sixteen pages, and the whole chapter on the disposal of refuse is particularly good. Nearly one-fourth of the book is taken up with the consideration of the cause and prevention of contagious diseases.

The style throughout is clear and concise, and the arrangement of the subject matter convenient. W. G. J.

Transactions of the Association of American Physicians. Tenth Session. Held at Washington, D.C., May 30th and 31st. 1895. Volume X. J. Minis Hays, M.D., Recorder. Philadelphia.

The following papers are among the contents:

Leucomain Poisoning, by B. K. Rachford, M.D., Clinician to the Children's Clinic, Medical College of Ohio, Cincinnati, Ohio; Renal Affections following Influenza, by G. Baumgarten, M.D., of St. Louis; Etiology of Idiopathic Hypertrophy of the Heart, by James T. Whittaker, M.D., of

Cincinnati; A Case of Madura Foot Disease. (Mycetoma Pedis, Ochroid Variety), by J. George Adami, A.M., M.D. M.R.C.S. Eng., Late Fellow of Jesus College, Cambridge. Professor of Pathology in the McGill University, Montreal; and R. C. Kirkpatrick, M.D., Assistant Surgeon to the Montreal General Hospital; Goitre in Michigan, by George Dock, of Ann Arbor, Michigan; Hyperthermy in a Man up to 148° F. (64.4° C), by A. Jacobi, M.D., of New York; A More Comfortable Way of Using Cold in Fevers, by Francis H. Williams, M.D., of Boston; A Contribution to the Clinical Study of Intrathoracic Tumours, by William Pepper, M.D., LL.D., and Alfred Stengel, M.D., of Philadelphia; Two Cases of Fat-necrosis, by Charles G. Stockton, M.D., and Herbert U. Williams, M.D., of Buffalo, New York; Carosso's Treatment of Pulmonary Tuberculosis, by Harold C. Ernst, M.D., of Boston, Mass.; The Area of the Murmur of Mitral Stenosis, by J. P. Crozer Griffith, M.D., of Philadelphia; The Preparation of the Antitoxin of Diphtheria, by Harold C. Ernst, M.D., of Boston, Mass.; The Treatment of Diphtheria, by Antitoxin, by William H. Welch, M.D., of Baltimore; Observations on the Marrow of the Bone and the Spleen in a Case of Leukæmia, by John Guitéras, M.D., of Philadelphia; The Cause of the Disparity found both in Health and Disease on Physical Examination of the Upper-Portion of the Chest; by Charles Cary, M.D., of Buffalo, New York.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, October 18th, 1895.

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

Drs. W. F. Hamilton, W. H. Jamieson, G. H. Mathewson, E. J. Semple, J. W. Scane, A. T. Bazin, J. D. Cameron and G. H. Manchester were elected ordinary members.

Successful Case of Trephining for Meningeal Hæmorrhage—Ligature of the Carotid.

Dr. F. J. SHEPHERD exhibited a patient who had been successfully trephined for meningeal hæmorrhage. The patient was a man aged 28 years, who whilst coasting down a hill on a bicycle on August 4th lost control of his wheel and was pitched headlong against a telegraph post. He was brought to the Montreal General Hospital in an unconscious condition soon after the accident. On entrance he vomited freely and towards evening regained consciousness and was quite bright. After a restless night he next morning became stupid and paresis of right side developed. Dr. Shepherd saw him then for the first time, and as the stupor was increasing in that it was more difficult to arouse him, and the paralysis of the right side was becoming more pronounced, he came to the conclusion that meningeal hæmorrhage was going on, and determined, therefore, on immediate operation. On examining the head a wound down to the bone was seen extending from the anterior superior border of the left parietal bone downwards and forwards for some three inches. A fissured fracture could be seen at the bottom of the wound running down in the direction of the squamous portion of the temporal bone; a slight depression was also seen at the upper end of the wound. At this latter point the skull was trephined, and on removing the disc of bone a thin clot was reached which spread over the vertex and side of the brain. This clot was much larger towards the temporal bone, so another trephine opening was made about the middle of the wound, and on removing the bone a larger clot was met with, and the middle meningeal artery was seen quite empty lying on the dura-mater, the hæmorrhage evidently coming from deep down. An incision was made down to the zygoma and the skull cleared of soft tissues, and from the last trephine opening downwards a piece of bone, two inches wide by three

inches long, was chiselled out. Still the hæmorrhage appeared to come freely from below, so the brain and its membranes were held aside with broad retractors and, the blood clot being removed, the fracture was seen to run through the foramen spinosum and then across the body of the sphenoid. The artery was evidently torn in the foramen and as the man had lost and was losing a considerable amount of blood, Dr. Shepherd decided to tie the left common carotid artery, which he did very rapidly. The free hæmorrhage immediately stopped, though there was still venous oozing. All the blood clot was washed out, and the space to the base of the skull packed with iodoform gauze. The gauze was brought out of the lower end of the wound; all the rest of the wound was sutured.

On leaving the table the patient was in a very bad condition. Pulse 180 to 190, respiration 30 to 40 and shallow. So a large enema of hot saline solution was administered, which had an immediate effect of lowering the pulse to 140. The patient regained consciousness by the evening and could converse intelligently. Next day his condition was good; pulse 120, respiration 20; paresis of right side was present; patient could articulata perfectly well. There was much oozing of bloody serum through the dressings. On Aug. 7th he was very restless, and there was so much oozing that the wound was examined and the gauze packing carefully removed. No sooner did the last piece come away than there was a tremendous gush of what looked like arterial blood, which jetted out in a very lively manner, so the gauze was immediately replaced. From this time forwards the patient went on well, with the exception of two days, when there was aphasia; the gauze packing was removed on the tenth day (August 17th) without hæmorrhage resulting. Throughout the case there was no sepsis. He was walking about by September 1st and there was no trace of hæmorrhage, nor was speech at all affected. When he was discharged some days later the wound had healed,with the exception of a small spot at the upper and lower ends.

When shown to the meeting the patient was perfectly well, the wound was soundly healed, and his intelligence and speech were perfect. The wound made for the ligature of the carotid united by first intention.

Dr. WESLEY MILLS congratulated Dr. Shepherd on the success of the bold step he had taken. He had found that in experimental operations on the brain hæmorrhage very often spoiled the experiment. He could, therefore, appreciate Dr. Shepherd's remarkable experience.

Whitman's Plates in Flat Foot.

Dr. C. WILSON showed two cases, with the appliances in use. (See page 414.)

Dr. SHEPHERD had seen Dr. Whitman use his appliances in New York and had been greatly struck with them, but as considerable technical skill is required in the manufacture of the plates he had never made use of them here. He had been satisfied to raise the inner side of the foot and thus make the patient walk on the outside. He had also performed the operation suggested by Trendelenburg of dividing the tibia above the ankle so as to produce a condition of bow-legs. The operation was severe and the results not nearly so satisfactory as those obtained from the use of many technical contrivances.

Progressive Muscular Dystrophy.

Dr. JAS. STEWART showed two cases of this disease. In one, a lad 15 years of age, the dystrophy was of the facio-scapulo-humeral type, the affected muscles being wasted to a marked degree. In the other the affection was more general, but the wasting of special muscles less marked. The full reports will be published later.

Gall-Stone Surgery.

Dr. G. E. ARMSTRONG read a paper on this subject. (See page 405.)

Dr. SHEPHERD said that it was a great advance to attack the obstructive point, but that it was not always easy to do so. Some operators (McBurney and others) had opened the bowel and endeavoured to reach the obstruction through the duct from below. He thought that to perform cholecystenterostomy with Murphy's button without first trying to remove the stones was a mistake. He referred to a case upon which he had operated eighteen months ago. The patient, a woman, was deeply jaundiced and the subject of xanthoma tuberosum. It was thought that there was a close connection between the jaundice and the eruption. He was unable to recognize the normal anatomical relations of the gall-bladder, but he cut down where he knew the gall-bladder should be, and opened several pockets containing a number of large stones; there were altogether seven or eight large stones, each in a separate pocket. As the gall-bladder could not be brought to the surface, a tube was inserted and well packed round with iodoform gauze. For a long time the flow of bile was profuse, but without any evil results. The stools gradually became coloured, the urine normal, and the jaundice and xanthoma disappeared. How the common duct had been restored he could not explain. He had presented the case at the recent meeting of the American Dermatological Society held here, as a case of xanthoma

cured by operation. At the time of the operation he could not tell exactly from where the stones came, but thought probably from the cystic, hepatic or common ducts. There was so much inflammatory tissue that it looked as if the common ducts were obliterated. All the stones that could be felt were removed.

Dr. JAMES BELL congratulated Dr. Armstrong on the success of his operation, and said he thought the profession did not realize how satisfactory the surgical treatment of gall-stones was. This was a new department of surgery in which there had been rapid advances from the earlier methods, such as needling and crushing, which he had always felt to be crude and unscientific. He believed removal of gall-stones and suture of the duct, as recommended by Dr. Armstrong, was the proper procedure, but there were many cases in which this was difficult or perhaps impossible. At about this same date last year he had reported a case very similar to Dr. Shepherd's, in which the jaundice had been kept up by a chain of enlarged lymphatic glands in the fissure of the liver and there had been nothing in the duct itself. He had put in a glass drain, packed it round with gauze, and had had a very satisfactory result. Dr. Bell thought that a cardinal point in the treatment was that bile itself was practically innocuous and that a slight escape, unless inflammatory and septic elements were also present, was not a serious complication, The operation of cholecyst-enterostomy was but a step in the evolution of the treatment, and would be abandoned for that of removal of the stone and suture of the duct; where the duct could not be sutured, drainage through the gall-bladder temporarily, or drainage through the abdominal cavity protected by gauze, was the proper course to pursue.

Myoma Uteri.

Dr. T. JOHNSON-ALLOWAY exhibited a myomatous uterus composed almost entirely of nodular masses of fibroid tissue springing from the central cavity in all directions. Most of these nodules were sub-peritoneal and of extreme density. The mass weighed about twelve pounds. The patient was 60 years of age, weighed 200 pounds, and had suffered from menorrhagia. The Zweifel-Chrobak method of extirpation had been adopted. The patient made a good recovery and left the hospital about the fourth week after operation.

Double Ovarian Dermoids.

Dr T. JOHNSON-ALLOWAY showed two dermoid cysts of the ovary, each about the size of a large cocoanut. They were removed from a patient aged 45, who had had eight children. The right tumour was incarcerated in the well of the pelvis and was adherent to all parts in its vicinity. It was delivered intact without rupture. The left tumour

was attached to a long pedicle and floated high up in the abdominal cavity. The cavity was irrigated, the wound closed without drainage, and the patient left the hospital well on the thirtieth day after operation.

Dr. ADAMI pointed out that while the condition was rare this was the third case of double dermoid cysts of the ovary presented before the Society during the last two sessions.

Upon Bifurcation of the Ribs and Costal Cartilages.

Dr. J. G. ADAMI stated that while bifurcation of the ribs was an abnormality apparently of no very great rarity, and while most museums contain one or more examples of the condition, it was remarkable that most of the larger English text-books of anatomy, which devote attention to the abnormalities of various organs, pass over the subject in complete silence.[1] He exhibited three specimens illustrative of the condition. The first of these was a preparation presented to the museum by Dr. Shepherd, consisting of the 2nd to the 6th ribs of the right side, with their cartilages and part of the sternum. The specimen showed that the outer end of the 4th rib was much wider than any of the others, the breadth of the 3rd being 12 mm. at its articulation, of the 5th 11 mm., while that of the 4th was 18 mm. The cartilage of the rib consisted of two processes starting from the widened end of the rib and fusing into one before joining the sternum, thus leaving an oval space 10 mm. long by 6 mm. in a vertical direction.

The next two specimens had been obtained in the post-mortem room at the Royal Victoria Hospital during the last twelve months. Of these, one was from the body of an aged *habitant*, who had died of phlegmonous erysipelas. The specimen consisted of the end of the 3rd and 4th ribs of the left side, with their cartilages and a portion of the sternum. In this specimen the condition was a little more pronounced, the anterior end of the rib was relatively enormously broadened, being 29 mm. across, as compared with 11 mm., the breadth of the articular end of the 3rd rib. The rib presented a short upper process 8 mm. broad at its articulation and scarcely projecting from the main mass of bone, and a lower process 9 mm. broad and 10 mm. long. From each of these processes there passed a separate cartilage, and these, as in the last case, fused together before the attachment to the sternum, leaving a space 17 mm. in depth by 20 mm. in a horizontal direction.

The third specimen showed still further exaggeration of the condition. This was taken from the body of an Irishman 78 years of age,

[1] Of the German text-books both Henle and the earlier Meckel devote a few lines to the condition. Of the English, Morris alone has a passing reference to it.

who had died of cardiac disease. The specimen consisted also of the 4th and 5th ribs, but in this case of the right side.

In this patient there had been a particularly wide space noted between the 5th and 6th ribs on the left side, and on the right side the bifurcation of the rib was very noticeable upon removing the pectoral muscles. Here the upper process was 20 mm. long and continued roughly the general course of the rib, while the lower process, 25 mm. long, was given off from the main body at an angle of about 30°. Careful counting of the ribs in this case showed that only eleven pairs were present, the last of the series having all the characters of the ordinary floating twelfth rib. Unfortunately the exigencies of time prevented in this case the removal of more than the outer portion of the ribs, and the vertebræ were not carefully examined The post-mortem notes contained an entry to the effect that eleven pairs of ribs were present in the second case also. With regard to this he could not speak so positively, but he believed the statement to be correct. If so, these cases presented examples of a condition not hitherto recorded. Additions to the series of ribs both above in the cervical region and below in the lumbar region were not infrequent. There was one case at least on record of almost complete absence of the 1st rib and several instances of complete absence of the 12th; but diminution in number by fusion of mid-dorsal segments and their ribs was a condition of which he could find no mention. At the same time, when the variation in the number of lumbar, sacral and even cervical vertebræ was taken into account, there was undoubtedly an inherent probability that such fusion or dropping out of a somite of the body could occur in the mid-dorsal region. The fullest description that he had come across of cases of bifurcation of the ribs and their cartilages was given by Professor Struthers in the 9th volume of the *Journal of Anatomy and Physiology.* This observer, in describing a collection of specimens exhibiting variations of the vertebræ and ribs in man which he had accumulated during many years, gives notes upon five cases, two of bifurcation, two resembling the first case mentioned of ribs broad at the sternal end with bifurcated cartilage, and one in which the cartilage alone was bifurcated. It was interesting to notice that in three of these cases the variety was ascertained to be of the 4th rib—in one it was probably of the 4th, in the other two probable of the 4th or 5th. Evidently, therefore, taking the cases here described also into consideration, there was a special tendency for this variation to affect either the 4th or the 5th dorsal segment. In one of his cases Struthers stated, and in a second implied, that the number of ribs was normal.

That the ribs should divide at their outer extremity was but in keeping with the general law of variation that re-duplication of parts shows itself most often in the distal portion of an organ, and agreeable to this same law it might be stated that bifurcation of the costal cartilages is more frequent than the well marked bifurcation of the ribs themselves. As Professor Struthers pointed out, the condition has a clinical interest, as it might well give rise to a mistake in indicating the position of a chest symptom or of a fracture.

Dr. F. J. SHEPHERD thought that the suppression of the ribs was the interesting point in these cases. He was not aware that when this condition occurred only eleven ribs were present, and he should like to know if there was a deficiency in the number of vertebræ also. He had four or five specimens at the college, but in none of them had the ribs or vertebræ been counted.

Symphysiotomy.

Dr. KENNETH CAMERON reported a case. (See page 427.)

Dr. LOCKHART referred to the unhygienic surroundings in the house where the operation was performed. He had often wondered why the operation was not performed more frequently, as with care perfect asepsis could be easily obtained. He had seen the patient a few weeks ago in a neighbour's house, and she was doing well, having no difficulty in locomotion.

Dr. T. JOHNSON-ALLOWAY, while in Germany this summer, had had a conversation with Professor Zweifel, of Leipzig, who had seen sixteen cases, several of which had been operated upon by himself. Zweifel thought there was a good future for the operation. His methods differed from those ordinarily carried out in the following points: After dividing the symphysis he did not use the forceps, but left it to nature to deliver the child; he used silver sutures in some cases and silkworm gut in others; and he used a broad leather strap pulled tight around the pelvis and adjusted it, occasionally tightening or loosening according to circumstances. He thought, moreover, that there would undoubtedly be cases of halt, as referred to by Dr. Cameron, from not obtaining good union in all cases, and that this was sometimes a serious matter.

A Case of Pyæmia.

Dr. W. F. HAMILTON read the clinical history, Dr. C. F. MARTIN the pathological report. (See page 421.)

Dr. ADAMI thought that the main interest in the case centered in the heart. There was ulcerative endocarditis affecting not only the left side of the heart, but the tricuspid valve also (a condition distinctly rare). That the lungs were perfectly free from disease was noticeable

One would certainly expect under ordinary conditions to find evidence of embolism, or indeed of multiple abscess development, when the tricuspid valves were so far involved. Could there be any comparison established between the pyæmic condition and tuberculosis? It was well known that heart disease leading to congestion of the lungs rarely was associated with tuberculosis of the lungs. Could the same vicious condition of the blood hinder abscess formation?

Another interesting point was the remarkable condition of the heart muscle. The suggestions offered in the paper on the cause of the presystolic murmur were very valuable. The older physicians regarded the presystolic murmur as an absolute diagnostic sign of stenosis of the mitral valve, but the work of the last few years has thrown doubt upon this view. There may be a presystolic murmur heard just before the ventricular systole in several conditions, such as adherent pericardium, aortic disease, and, as he had shown to the Society, when there was actual enlargement of the mitral orifice.

Dr. WESLEY MILLS thought it unfortunate the case had come up so late in the evening, as the heart problems were worthy of discussion. He had noted that septicæmia in the dog was a very rapidly fatal disease; that sometimes post-mortem the only lesion found was a small wound with a small abscess with absence of pus collections throughout the body.

Stated Meeting, November 1st, 1895.

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

The following were elected ordinary members: Drs. E. P. Benoit, A. N. DeMartigny, C. G. L. Wolf and A. Johnston.

Dr. D. P. Anderson was elected a temporary member.

Temporo-Sphenoidal Abscess following Middle-Ear Disease.

Dr. JAMES BELL presented the patient and gave the following history of the case:

The patient, a young man aged 28, had first suffered from suppurative middle-ear disease with perforation of the tympanic membrane, six years ago in the lumber woods. With the exception of a discharge from the ear he had enjoyed good health until the 1st of July last, when he began to suffer from pain and tenderness about the mastoid. There was also œdema over the mastoid, severe headache, and persistent slight elevation of temperature. About the end of August he was sent down to Dr. Buller, who trephined the mastoid on the first day of September, but found no pus. The symptoms were unrelieved, the temperature remained high, there was intense headache, tonic spasm

of the muscles of the back of the neck, and slight delirium. Five days later inequality of the movements of the lower portion of the face was noted. There was slight paresis of the lower left face. On the 8th of September I decided to operate next day. There was then, in addition to the symptoms already given, a low pulse (45 to 55), but no localizing symptom and no optic neuritis. I therefore decided to expose the brain by the removal of an osteoplastic flap, which would give access to both middle and posterior fossæ of the skull. Next morning, however, there was distinct paralysis of certain groups of muscles of the left arm, especially the extensors of the wrist. As it was then quite clear that the lesion was an ascending one involving the motor area, and from the history and symptoms almost certainly a subdural abscess, I simply exposed the skull by extending the original incision in the soft parts, and made a half inch trephine opening at a point one inch above the posterior root of the zygoma, and in a line with the posterior osseous wall of the meatus. In marking the point for the trephine pin with a drill, although prepared for a thin skull, and exercising the utmost caution, the drill went through the skull and wounded the posterior branch of the middle meningeal artery, which bled very freely. When the button of bone was removed with the trephine I cut away further forwards with rongeur forceps, attempting to expose the artery in order to ligate it. I was unsuccessful and was finally obliged to clamp it with the bone in a pair of Pean forceps, which were left *in situ* for several days. The dura mater bulged but did not pulsate, and on incising it a couple of drachms of fœtid pus escaped from above, and on pressing up the base of the brain about half an ounce more escaped from below with shreds of sloughy tissue. The brain surface was covered with lymph, and neither sulci nor convolutions could be identified. The wound in the mastoid antrum was made to communicate with the base of the skull, and the lower border of the trephine opening was cut away with rongeur forceps down to the level of the base of the middle fossa. A drainage tube was inserted along the base of the skull and brought out through the wound. Chloroform was the anæsthetic used and the operation was well borne. After the operation the temperature fell to the normal, the pulse rose to 80–90, and by next day the paralysis was noticeably less; in forty-eight hours it was almost gone and in another forty-eight hours it was completely gone. All his symptoms improved, and he seemed to be on the way to recovery. On the fifth day after operation he became alternately drowsy and irritable. Later, he became sullen and morose and difficult to manage, complained of severe frontal headache, tore off his dressings, insisted on getting out

of bed, etc.; optic neuritis began to develop, and the pulse became slow and at times irregular. On the 30th of September (three weeks after the first opening of the cranial cavity) the wound was reopened. Through the trephine opening a livid fluctuating mass protruded, which did not pulsate. I opened it and evacuated a couple of drachms of pus. After using an exploring needle I opened higher up, and evacuated about an ounce of pus. Passing my finger into the cavity I found it to contain a considerable mass of sloughy tissue. It was carefully washed out with saline solution, and a glass drain inserted. The cavity was in the temporo-sphenoidal lobe, which was now a mere abscess wall. Chloroform was given at first in this operation but was abandoned for ether before the operation began, as it was not well taken. From the date of this operation there has not been a bad symptom. The patient speedily recovered, until he is now quite well, and his optic neuritis has almost disappeared.

Dr. G. E. ARMSTRONG congratulated Dr. Bell on the success of his case. This was a new field in surgery that had recently been opened up, and enabled us to treat cases which in the past had too often proved fatal No class of brain surgery was more promising than the treatment of abscess from fracture of the base of the skull, or from middle-ear disease, if the pus could be got at and cleaned away. Where there was headache and other symptoms of meningeal irritation, he suggested that before an osteoplastic flap was made, in the absence of localizing symptoms, when the tympanum and antrum were thoroughly cleaned, a strong light should be thrown into the attic. Probably a few drops of pus or a few granulations might give a lead that could be followed with a fine probe, and thus the abscess could be located in the temporo-sphenoidal lobe or often in the cerebellum. In this way the exact position might be more easily detected. He asked Dr. Bell if there was anything in the sigmoid sinus. These cases brought up another question which had been raised by Mr. Victor Horsley as to how soon cases of middle ear disease should be interfered with by trephining the mastoid, There had been many cases of middle-ear disease in which suddenly acute septic, cerebral, or pulmonary troubles ending fatally had occurred. Many of the insurance companies would not accept a person with chronic discharge from the ear. Mr. Macewen answered the question by suggesting the limit of one year, at the end of which the mastoid antrum should be trephined, the tympanum thoroughly cleaned out, and all allowed to heal. The operation was without danger and could be easily performed. The great objection raised was that there might be loss of hearing. While in some cases here was no change, and others were made worse, there were many in which the hearing was distinctly improved.

Dr. BELL, in reply, said that what was suggested by Dr. Armstrong had been done by Dr. Buller before the patient came under his care. From the swelling he had thought at first that the sigmoid sinus was infected. The history showed that the progress of the disease was anteriorly. On the 1st of September the antrum was cleaned out, but the symptoms were unrelieved, and five days later the first motor symptom appeared in the form of a slight paresis of the lower left face.

Experimental Removal of Part of the Thyroid Gland.

Dr. WESLEY MILLS exhibited a small dog from which he had removed one-half of the thyroid gland more than two months previously. It was one of three on which he had operated in order to illustrate his paper on Experimental Cachexia Thyroidectomica, read before the Canadian Medical Association in August. The other two dogs, as well as two cats from which the entire gland had been removed, died a few days afterwards with characteristic acute symptoms. His object was to show that a dog like this one could be well and lively with only half a gland, the entire removal of which caused such pronounced symptoms and speedy death in the carnivora.

This dog had developed several of the characteristic symptoms just after operation, but had gradually recovered from them and for many weeks had been as well as ever. Dr. Mills proposed to remove the rest of the gland before the next meeting and if possible to exhibit the dog again.

Dr. JAMES STEWART suggested to Dr. Mills that he remove the thyroid gland and feed the animal either before or after on thyroids and see if it was possible to prevent the symptoms from developing. There was no doubt that feeding thyroid glands was a valuable form of treatment in certain functional diseases, and the question of how they acted was an important one.

Dr. MILLS, in answer to Dr. Stewart, said that this point had been fully covered and had not been successful. Implantation of thyroids had been tried with more success.

Syphilitic Gummata in the Heart and Liver.

Dr. F. G. FINLEY read the clinical report of the case, which will be published in full later.

Dr. WYATT JOHNSTON exhibited the specimens and described the pathological condition as follows:

The heart was found much enlarged, with dilatation and hypertrophy of both ventricles. The aortic valves did not hold water; they showed much thickening, both at their edges and bases, with

aneurismal dilatation of sinuses of Valsava. The coronary cusps were fused so as to form a single abnormally long segment, in the centre of which was a perforation 2 mm. in diameter with rounded thickened edges.

Close to this cusp and invading to some extent the valve and adjacent part of aorta was a firm sulphur-yellow mass over half an inch in diameter. Microscopically, this showed coagulation necrosis, with fatty change in central portion; the periphery was free from any appearance of tubercles, but presented a zone of granulation with formation of fibrous tissue. The aorta showed moderate atheroma. There was congestion and slight brown induration of lungs. The liver showed numerous similar firm yellowish nodules, from the size of a pea to that of a cherry, both on its surface and throughout its tissue. There was much fibroid change about these, but not as much puckering and contraction as is usually found in gummata. The liver substance presented a marked nutmeg appearance with distention of capillaries and atrophy of the cells round the centre of the lobule. The microscopic appearances of the gummata were similar to those in the heart. There were no tubercles seen, and no tubercle bacilli found. A single gummatous mass about the size of a cherry was found in the left testicle between the body and epididymus The kidneys showed the presence of a moderate interstitial nephritis.

Dr. JAMES BELL had a patient under his care whom he believed to be suffering from cardiac syphilis. Three years previously he had come to him with symptoms of syphilis. After treating him for more than two years Dr. Bell had lost sight of him until a month ago, when he returned, stating that he had been rejected for life insurance on account of heart disease. On examination, loud mitral systolic and double aortic murmurs were heard, and as there was no history of heart disease or rheumatism the possibility of syphilis was suggested. He was put upon anti-syphilitic treatment with apparent benefit, although too short a period of time had elapsed to justify any conclusions.

Distoma of the Liver.

Dr. WYATT JOHNSON showed some parasitic distomata found post-mortem in the liver of a Chinaman, who had been 10 years in Canada, and who had died of chronic phthisis. The parasites were from 17 to 22 mm. long and 2·5 to 3·5 mm. wide. Their ova were ·028 mm. long and ·017 wide. It was evident that this form was closely related to a group of distoma species described as occurring in China and Japan. He had not as yet been able to decide their identity, though from the imperfect descriptions available, the *D. sinense*, described by

Cobbold, appeared to be the form most resembling it. He had removed 140 of the parasites from the gall-bladder and bile ducts. A slight dilatation of the bile ducts, without any apparent change in their mucosa, was the only evidence of any disturbance caused by them.

Dr. ADAMI asked Dr. Johnston if he was perfectly certain what form of distoma he had. He had understood that the dimensions did not quite correspond to any of those described by Cobbold and other more recent writers, and he thought that although Dr. Johnston had spoken so cautiously this might very well be a new species.

Vesical Calculi with Specially Interesting Features.

Dr. JAMES BELL presented specimens of vesical calculi from two old men who had been operated upon eight days previously. He stated that in both cases the calculi possessed features of unusual interest. Both patients were old men in whom stone first appeared after prostatic trouble had existed for some years.

The first patient was a native of France, 70 years of age, who had begun to suffer from prostatic troubles ten years ago. In October, 1892, a large stone had been removed by suprapubic operation in Lyons, France, with relief to symptoms for a year and a half. In August, 1894, he had been subjected to litholapaxy, but was not relieved. The operation was repeated in May, 1895, with no better result, and in August, 1895, a perineal lithotomy (lateral) had been done and a stone removed. The symptoms persisted and on the 24th of October Dr. Bell had operated by suprapubic section and removed eight separate stones and about thirty fragments which had apparently not been evacuated after crushing. The condition of the bladder explained why the stones had not been evacuated by either litholapaxy or perineal lithotomy. The posterior wall and trigone consisted of five separate pouches in which the stones and fragments lay. Some of these pouches had broad bases and narrower necks, like bags of corn, and were with difficulty evacuated even when directly beneath the fingers.

The second case was that of an old man of 75, in a condition of senile (or toxic ?) dementia, who had been first catheterized three years ago. He had gone on for two years and a half using a catheter himself, sometimes as often as every half hour, without making any attempt to keep it clean. He carried it about in his pocket, which probably accounted for the fact that when the large calculus was broken across on removal it was found to contain in the centre some fibrous substance resembling hempen cord. The second stone, about two inches long and as thick as an ordinary lead-pencil, probably contained a nucleus also of matter introduced from without, but had not yet been

examined. The third stone was small and wedge-shaped, and was firmly impacted behind the projecting prostate, and would not have been found by any other than the suprapubic route. Both patients had done well.

Dr. W. S. MORROW thought he had seen the second case related by Dr. Bell. The friends ascribed the formation of the stone to the fact that he had been drinking hard water containing a great deal of lime for many years. He asked Dr. Bell if, in his opinion, this would predispose to the formation of stone.

Dr. F. J. SHEPHERD stated that a year ago he had had a patient who had been repeatedly examined by his physician for stone without success; he, however, after great difficulty, detected one, and performed suprapubic section; a soft stone was discovered behind the prostate. A year later the symptoms had reappeared, and though repeatedly examined, twice under ether, he found nothing. Suprapubic section was again performed, when he found a stone completely covered with mucous which elicited no sound on being touched by an instrument. The patient recovered perfectly.

Dr. JAMES BELL, in reply to Dr. Morrow, stated that the composition of the calculi had not been determined, but he thought they were entirely phosphatic, and that the character of the water drunk had nothing to do with the formation of the stone.

Abscess of the Liver Following Appendicitis.

Dr. WYATT JOHNSTON described the specimens obtained from this case as follows: There is great enlargement of liver, which presents numerous nodules on its surface, some of a slaty-black hue, others of a dirty white, and close set. On section, numerous abscesses are seen with rather firm walls, very variable in size, some larger than a walnut, but the most smaller. A zone of dark slaty pigment is seen around most of them. They all appear connected with dilated branches of the portal vein of which the intima is roughened, slaty-black, and filled with stringy pus. Areas of liver tissue may be seen in the early stage of necrosis of a greyish colour, as if the tissue had been boiled. In these areas the cells show diffuse fatty degeneration, and the nuclei do not stain. The gall-bladder and duct are normal; so also is the splenic vein and pancreas. The superior mesenteric vein is full of pus and dilated; the intima slaty in colour, roughened and in places disintegrated. The dilatations of the vein caused by the pus form smooth lumps in the mesenteric tissue, one to two inches in diameter. The cause of this condition may be traced to a branch of the ileo-colic vein leading to the wall of an old abscess cavity, between the head of the colon and the adjacent part of the duodenum; about one ounce

of pus escaped from this on separating the colon. There is no collection of pus in the region of the amputated appendix. In the lungs there are old tuberculous cavities with much induration. In the liver a few giant cells can be seen about the portal vessels. The mesenteric glands are scarcely affected. Bacterial examination of the pus in the liver abscess showed a mixed infection of cocci and large and small bacilli.

Dr. G. E. ARMSTRONG said the clinical history in brief was as follows: About nineteen days before admission to the Montreal General Hospital the patient was suddenly seized with pain in his abdomen just above the umbilicus. The pain was pretty severe and was soon followed by vomiting. The following day he had a chill followed by sweating. These chills recurred daily, sometimes two or three chills a day, until his admission to the hospital. During this period the pain in abdomen changed its position and became localized in the right side. He was treated for fever and ague and was given large doses of quinine. He had had malaria, the quartan variety, twenty years before. He came to Montreal on the 8th of October, 1895, and consulted Dr. George Wilkins, who recognized some suppurative condition in the neighbourhood of the appendix, and referred him to me for operation.

Examination of the blood by Dr. Lafleur failed to show the presence of the plasmodia malariæ, but showed several melanotic white cells.

I found the appendix distended into a pus sac and adherent to the mesentery. It was removed, the neighbourhood carefully cleansed, and the site packed with iodoform gauze. The separation of the appendix from the mesentery caused a good deal of oozing. Several ligatures were applied and a few points touched with the thermo-cautery. The abdominal symptoms were quite relieved. He had no further abdominal pain and the bowels moved freely.

Pyosalpinx.

Dr. T. JOHNSON-ALLOWAY read a paper on this subject, which will be published next month.

Dr. W. GARDNER congratulated Dr. Alloway on the result of his series of cases. He considered that these cases differed very much in character and acuteness, but he could not go as far as Dr. Alloway and say that every case successfully operated on was a life saved. In many cases after a period the acute stage subsided and the patient was able to be up and about, and though recovery might not be complete, life was not endangered.

With regard to the time at which to operate, Dr. Gardner stated that he preferred to wait until the acute stage was past, unless rupture occurred, which was very exceptional, or urgent symptoms

appeared to endanger life. His reason for delay was that after a certain time had elapsed it was found that the infective organisms had died out, and the pus in the tubes had become sterile, and general infection of the peritoneum was thus much less likely to occur. Drainage, now-a-days, he did not resort to as much as formerly; in a goodly number he had not hesitated to close up the abdominal cavity, and no bad symptoms resulted, but this was not always the case. In choosing between gauze and a tube, he did not find gauze satisfactory, as he had at the end of twenty-four hours removed the gauze, and had it followed by a gush of pent-up fluid. In future he intended to make use of iodoformized or sterilized wicking, which he thought would be more likely to drain. He used gauze to check hæmorrhage more frequently than for drainage. The French operation, which Dr. Alloway condemned, Dr. Gardner felt very differently about, and he had had a good deal of experience with it. Every patient had not got well, but the results in pus-tube cases had been very good. He thought it a valuable operation and that the opinion of the profession was coming round very strongly in favour of it in France, Belgium, and even in America. The cases in which he had done it had been very satisfactory indeed and resulted in complete recovery. Not rarely after the usual method of removal of the appendages patients had recurrent and sometimes profuse hæmorrhage with severe pain, and in the end extirpation of the uterus had to be performed. The operation as done in France certainly looked barbarous, but appearances were a small matter. He thought there was nothing but sentiment to recommend leaving the uterus; the patient was no more unsexed by removing it than removing the appendages alone, and when it is shown that cure of the patient is hastened, it has its advantages. He would not advocate it in all cases, but when he felt sure both appendages were diseased, it was the operation of choice. The operation itself was not easy to perform, one required experience, caution, and even heroism to get through, but it was not as difficult as might be expected, and often adhesions to intestines, which were the worst form of complication, were easily dealt with. Dr. Gardner uses the French method of clamp, and considered the pain which they occasioned for the forty-eight hours while *in situ* was their greatest objection. He found morphine relieved the pain and left no ill effects, and he had lost the former almost hysterical dread of opium or morphia after abdominal sections, and believed now that when cases did badly after using it they did so from other causes.

Pyosalpinx, the speaker thought, was much more commonly due to tuberculosis than was generally held. His own experience and that

of Williams, of Baltimore, had shown this to be the case, and although there were no naked eye appearances to indicate it, when this was the case, the uterus was affected as well, and its extirpation also was indicated.

Dr. ALLOWAY, in reply, said that the cases reported were picked cases of the most severe type, which could not have been relieved by any other form of treatment, though other cases of a less severe type would be published later on. His plan of drainage was a glass tube, with a strip of sterilized gauze in the centre; it had many advantages over the sucker suggested by Tait, and it need not be changed more than once in the twenty-four hours. Gauze packing, by itself, he only used when there was much hæmorrhage due to oozing. He had seen the French method of extirpation of the uterus performed in Paris by Sigond, Champoniere and others, and it struck him as being harsh and unscientific. He had seen severe hæmorrhage occur which the surgeon was unable to control with the clamp. The operation seemed to be done more by the sense of touch than by the sense of sight and the amount of force required to separate adhesions was often extreme. The greatest disadvantage of this method, he thought, was that the keystone of the pelvis was removed and there would be consequent liability to have prolapse of the bowel. He gave morphia more frequently after operations than formerly, when required to relieve pain, but he thought it unwise to use it before operation, as it had a tendency to interfere with the establishment of the normal perista sis of the intestines after operation.

An Unusual Form of Skin Disease.

Dr. J. ALEX. HUTCHISON reported the case. (See page 429.)

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GALL-STONE SURGERY.

The region of the gall-bladder and ducts is one which has only been invaded by the surgeon quite recently, but already many cases are on record to show the brilliant results which may be obtained in patients who were formerly doomed to months, if not years, of suffering.

The ideal operation is undoubtedly to open the gall-bladder, remove the stones, suture the opening in the gall-bladder and drop it back, closing the abdomen without drainage. But the cases in which this can safely be done are few and far between, and that for various causes. Not infrequently suppuration, induced by the presence of the calculi, necessitates drainage of the gall-bladder; or, more frequently it may not be possible to remove the obstruction in the cystic or common duct; or the walls of the gall-bladder may be so friable from the inflammatory action which has been going on that the sutures cut out and do not hold the edges in apposition. So for many reasons this operation has been practically abandoned.

The ordinary operation of cholecystostomy was first performed by Bobbs, of Indianapolis, in 1867, but it was not until 1878 that the operation was perfected and popularized by Marion Sims. Since then the surgery of the gall-bladder has advanced rapidly. Cholecystostomy having been found a safe operation, although one not always perfectly satisfactory in its results, other and more severe operations have been attempted, and success has been achieved.

Langenbuch, in 1880, performed the operation of cholecystectomy, removing the whole of the gall-bladder and ligaturing the cystic duct. This is a serious undertaking, however, and the principal reason for which it was performed, viz., to prevent a recurrence of the gall-stone formation, has been found not to be well founded, as recurrences are very infrequent in any case. It is usually preferred to either crush an obstructing stone *in situ* in the duct by means of padded forceps

after the method of Lawson Tait, or still better, to remove it by opening the duct and afterwards suturing the opening, as was first done by Thornton, and a successful case of which is reported in the JOURNAL. Cholecystenterostomy has rather fallen into disrepute on account of the high mortality attending the operation, which, moreover, is difficult of performance, especially if the gall-bladder is shrunken or its walls thickened by inflammatory tissue. The operations of cholecystostomy and choledochotomy are eminently safe ones in the hands of competent surgeons, as may be seen from the statistics quoted by Dr. Armstrong, the mortality being *nil*, except in those cases where there is malignant disease. Where this exists a new element of danger is introduced, namely, hæmorrhage, which occurring in a patient already debilitated by the jaundice and the carcinomatous disease is of serious moment. However the greater number of even these cases are benefited by the operation and their lives are in no wise shortened, but rather the reverse.

Taking these cases as a whole, the mortality is so low compared with the benefit to be derived from a successful operation, that we have no hesitation in urging our readers, nay, more, in saying that it is their duty to advise their patients to submit to this procedure. Furthermore, it is very probable that the irritation produced by the gall-stones is responsible for many of the cancers which develop about the ducts, so we have another and cogent reason for advising early operation; it is a prophylactic as well as a curative measure.

On the evening of the 5th of November a dinner was given in the Windsor Hotel to Sir William Hingston by the medical profession of Montreal, irrespective of nationality, the occasion being the distinction recently conferred on him by Her Majesty. Dr. Craik occupied the chair, and, after the customary loyal toasts, proposed the health of "Our Guest" in a very neat and appropriate speech. Dr. Rottot followed in French, and several volunteers took advantage of the opportunity to congratulate "our new medical knight.' Sir William replied briefly, but with considerable feeling. The dinner was admirably served, and altogether the evening passed most pleasantly with speech and song. About one hundred and fifty subscribers sat down. The guests from a distance were Sir James Grant, of Ottawa, and the Hon. Dr. Sullivan, of Kingston, who spoke to the toast of the House of Commons and Senate of Canada respectively.

Dr. T. D. Reed (McGill 1871) has been appointed Honorary Dean of the Montreal College of Pharmacy. The doctor has been identified with the College since its foundation, and has held the chair of Materia Medica since 1877.

Obituary.

DR. JOHN BRODIE.

The very sudden death, from apoplexy, of Dr. John Brodie, of Honolulu, occurred on the 2nd November, 1895.

Dr. Brodie graduated in medicine from McGill University in 1877. After spending some time in London, he started practice in Montreal. During the two or three years that he practised here he made many friends and was a favourite with his professional brethren. He then removed to Honolulu where he soon became the most prominent physician in the Sandwich Islands. He was a man of many sterling qualities ; a man of good judgment and a kind heart.

He was the first to recognize the true nature of the recent outbreak of cholera in Honolulu. His death occurred just after he returned from a holiday spent in California. His many friends in Montreal will learn with regret of his death at the early age of forty-two years.

DR. THOMAS KEITH.

Thomas Keith died in London on the 9th of October, after many years of delicate health and suffering, during the greater part of which he heroically kept on with his work. The writer never had the honour of knowing this man. That he was great all the surgical world will unanimously admit; that he was good and altogether lovely in personal character is the universal opinion of those who knew him well enough to judge. The son and grandson of Presbyterian ministers, Keith was one of seven sons, of whom three were medical men. He was apprenticed to Sir James Y. Simpson, and after he graduated became house-surgeon to Mr. Syme, the famous Edinburgh surgeon, who predicted for him a great future. Although he graduated in 1848, it was not till 1862 that he became much attracted to surgery. In that year he did his first ovariotomy, and so began a career which has made his name of world-wide renown in abdominal surgery. Beginning work at a time when all abdominal surgery was most unpopular because of its enormous mortality, Keith did much to rescue it from disfavour. Before adopting antiseptic methods as they were then understood he had saved 86 to 90 per cent. of his cases results that had never been hitherto approached, but under the antiseptic system 97 of 100 recovered, and of the 97 recoveries 73 were

consecutive. In hysterectomy for myoma Dr. Keith was also a pioneer. Though conservative, operating only on cases where symptoms, bleeding or other, were very marked, his results were at that time phenomenal, three deaths in thirty-three cases. Notwithstanding this, when Apostoli published his methods and results Keith studied them carefully and adopted them for all but extreme cases, which he reserved for the knife. It is needless to say that this action came with an intense shock to the surgical world. Its motives and the wisdom of it were severely questioned in many quarters.

At this time Thomas Keith and his son, Skene Keith, who was following in his father's footsteps, removed to London. The wisdom of this step has been much doubted. At all events failing health prevented his doing much more work, and for the last three years very little indeed.

Keith wrote but little, what he did write was remarkable for earnestness and conscientiousness. His contributions to ovariotomy were published in the *Edinburgh Medical Journal*. Other papers of later date were published in the *British Medical Journal*. These were amplified and published in a small monograph embodying brief reports of all his cases of operation for myoma of the uterus, and in a later one on the electrical treatment of the same class of tumours.

Dr. Keith leaves two sons in the medical profession Mr. Skene Keith and Dr. George Keith, both of whom devote themselves to the department of medicine with which their father's name is so honourably associated.

W. G.

Dr. James C. Rattray (McGill '74) died at Cobden, Ont., on Tuesday, November 12th, aged 44 years and 3 months.

NEW BOOKS, ETC., RECEIVED AND NOTED.

A Text-Book of Physiology. By M. Foster, M.A., M.D., &c. Lea Brothers & Co., Philadelphia. 1895.

Practice of Medicine. By William Osler, M.D. D. Appleton & Co., New York. 1895.

An American Text-Book of Obstetrics. W. B. Saunders, Philadelphia. 1895.

A Manual of Operative Surgery. By Louis A. Stimson, B.A., M.D. Lea Brothers & Co., Philadelphia.

The Pathology and Treatment of Venereal Diseases. By Robert W. Taylor, M.D. Lea Brothers & Co., Philadelphia.

Manhattan Eye and Ear Hospital Reports. Vol. II. January, 1895.

Flat-Foot, its Correction and Comparative Study with the Foot of the Orang, Chimpanzee, Gorilla and Baboon. By B. Merrill Ricketts, Ph. B., M.D. 1895.

Lupus Treated by Galvanism. By B. Merrill Ricketts, Ph. B., M.D. 1895.

Double Club Feet and Hands—Treatment. By B. Merrill Ricketts, Ph. B., M.D. 1895.

Clinical Notes on Psoriasis. By L. Duncan Bulkley, A.M., M.D. New York. 1895.