

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /
Couverture de couleur
- Covers damaged /
Couverture endommagée
- Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée
- Cover title missing /
Le titre de couverture manque
- Coloured maps /
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur
- Bound with other material /
Relié avec d'autres documents
- Only edition available /
Seule édition disponible
- Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure.
- Additional comments /
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /
Qualité inégale de l'impression
- Includes supplementary materials /
Comprend du matériel supplémentaire
- Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées.

THE

MONTREAL MEDICAL JOURNAL.

VOL. XXXIV.

FEBRUARY, 1905.

No. 2.

ACTINOMYCOSIS: A DISCUSSION BEFORE THE MONTREAL
MEDICO-CHIRURGICAL SOCIETY, DECEMBER 16TH, 1904.

INTRODUCTION AND RECITAL OF CASES.

BY

JAMES BELL, M.D.

Professor of Clinical Surgery, McGill University; Surgeon Royal
Victoria Hospital.

Actinomycosis is an infectious disease common to man and some of the domestic animals, notably bovines, but also found in sheep and pigs. It is due to the presence in the tissues of a vegetable parasite, the *Streptothrix Actinomycotica*, which gives rise to an inflammatory process, generally chronic, but sometimes acute. The lesion produced is characterized by much proliferation of tissue and little suppuration, and in the chronic forms, situated externally, it falls into the class of granulomata and is likely to be confounded with other granulomata, especially chronic tubercular and tertiary syphilitic lesions. Indeed, I have not the slightest doubt that many cases of actinomycosis have been and are still constantly overlooked in this way.

The diagnosis is most important as we now know sufficient of the character and progress of the disease to be able to adopt definite lines of treatment, when it is recognized. The parasite was first recognized by Langenbeck in 1845 in a patient with caries of the lumbar vertebrae, but the history of the disease, in man, dates from Israel's work, published in 1878. According to Warren, Murphy was the first in America to report a case of actinomycosis in man; and he (Murphy) states that up to January 1st, 1891, there had been reported altogether 250 cases of actinomycosis in the human subject. A great many cases have been reported since, and, as I have already said, I am sure that a great many have been overlooked. Absolutely certain diagnosis depends upon the discovery of the parasite, and this is always more or less difficult and often impossible. In old cases with sinuses which have been discharging for a long time demonstration is very difficult indeed. Clinical diagnosis will often be practically convincing, but cannot, of course, be final in itself. The lesions of actinomycosis may be found in almost

any tissue of the body, the favourite sites being the skin and subcutaneous tissues, especially about the face and neck, the mouth, pharynx and alimentary canal and the lungs. The actinomyces are frequently carried by the portal circulation to the liver and metastases through the blood current to other remote organs are common, while extension by the lymph channels is rare, and primary invasion of bone probably does not occur.

Some observers have succeeded in inoculating animals, but it is believed that the disease is rarely, if ever, communicated directly from one animal to another, or from an animal to man, either by contact or by the use of the flesh of actinomycotic animals as food. The parasite enters the body directly by the mouth, by ingestion or inhalation, or through wounds of the skin; it does not enter through the sound skin. The fungus occurs as smut on certain grains and grasses, notably the bearded grains, as barley and rye, hence the subjects of the disease are generally from rural districts, and it will easily be understood that fruits, grains and grasses in their natural state may be the means of conveying the parasite to the mouth, whence it may enter through wounds or abrasions of the mucous membrane of the mouth or any part of the alimentary canal. It is also likely to be inhaled with the dust produced by threshing. Actinomycosis is said to be much more common in Europe than in America, and to be especially common in certain districts of Russia among the peasant population, where rye is grown extensively for food. It is also a very common disease of cattle in these same districts, but I am unable to say whether the same conditions have been observed in this country or not.

Clinical diagnosis is based upon, *first*, the tendency to much proliferation and tissue increase, with relatively little suppuration; *second*, the tendency of the fungus to extend from the point of entrance outwards, and to find its way into the blood current. For example, when the parasite enters the mucous membrane of the mouth, as it frequently does through the ulcerated gums around carious teeth, it extends to the cheek, and when it goes directly into the alimentary canal it extends into the surrounding tissues from the intestine, and often ultimately to the liver through the portal circulation. *Third*, the presence of yellow granules in the pus. This sign, in my experience, is not very reliable; I have often found such granules in pus which seemed to indicate actinomycosis, where further investigation failed to corroborate the suspicion, and, on the other hand, I have several times failed to recognize any such bodies (although looking for them) where the Ray fungus was subsequently clearly demonstrated. (The wide range of situations in which the lesion may be found and variations in its acute-

ness or chronicity, coupled with the fact that until recently it has generally been unsuspected, make it liable to be mistaken for a great many diseases. Intestinal lesions are apt to be mistaken for appendicitis or cholecystitis, lung and pleural lesions for empyema, and the chronic superficial lesions for the lesions of tertiary syphilis or tuberculosis. It can hardly be mistaken for either cancer or sarcoma.

The prognosis depends largely upon the site and the acuteness of the lesions. The lesions of the deeper tissues are almost always fatal. Visceral lesions are generally fatal, while superficial lesions are more promising, and indeed some superficial lesions do not seem to be very serious at all. The formation of a calcareous delimiting boundary, which is so common in the lesions of cattle, forming "lumpy jaw," is not observed in the human subject.

Treatment consists in, first, radical extirpation of the diseased tissues, where this is possible; second, curettage, with or without the application of nitrate of silver or iodine compounds in some forms; and third, iodide of potassium internally. If all the grossly diseased tissue is removed, there will be no recurrence. Curettage, while sometimes successful, is not, in my opinion, to be relied upon; and radical extirpation is a much safer procedure where it is possible. The iodide of potassium has seemed to give almost marvellous results in two cases which I have observed, but in other cases it has had no effect whatever.

Having thus briefly outlined the main facts of the disease, I will proceed to give a short resume of my personal experience of actinomycosis, mentioning only the skeleton facts of each case. Since the middle of March, 1900, I have seen nine cases in which the fungus has been demonstrated microscopically. They are as follows:—

Case I.—R. C. McL., aged 22, farmer's son, Oliver's Ferry, Ont., came under observation March 27th, 1900, for what had been diagnosed as a right-sided empyema discharging through a bronchus. Exploratory puncture failed to discover anything in the pleural cavity. On the 23rd of May portions of the 10th and 11th ribs were resected in the mid-axillary line. Adhesion of the lung to the diaphragm was found, communicating with a mass situated in the dome of the liver. This was not considered removable, and drainage was established. A portion of the mass was removed for examination. The patient developed brain symptoms on the 12th of June, and died of cerebral metastasis on the 19th. A post-mortem examination was made by Dr. Adami, who discovered the actinomyces.

This patient had had right-sided pleurisy twelve years before admission to the hospital, but had recovered perfectly, and had remained well until January 1900. The first symptoms of the final illness were pulmon-

ary, and were evidently due to invasion of the lung from the lesion in the liver. There was no history to show when or how the primary lesion had occurred, but it was probably intestinal and prior to the pleurisy above mentioned.

Case II.—W. H., customs officer, aged 54, Farnham, Que., came under observation April 26th, 1900, with a mass in the right lumbar region and contraction of the psoas muscle. His illness had begun early in February with a sudden attack of abdominal pain and diarrhoea, which had lasted more or less continuously till March 23rd, when he first noticed his inability to fully extend the right thigh. The abdominal pain and diarrhoea disappeared about this time. On the 29th of April the mass was exposed and incised, but no pus was found, only a yellowish, semi-diffuent, necrotic substance, and firm inflammatory tissue.

This patient took large quantities of iodide of potassium, but gradually sank and died on the following January (1901).

Case III.—R. McN., aged 38, general merchant, Bryson, Que., was brought to me with a diagnosis of chronic appendicitis on the 31st of August, 1902. His illness had begun about the 25th of June with moderate pain and tenderness in the right iliac region, soon followed by the development of a tender palpable mass in the appendix region, and pain down the front of the thigh, which caused him to walk with a slight limp. His condition did not vary much until September 1st, when the appendix was removed. It was found lying behind the cæcum in a firm mass of inflammatory tissue. There was no pus. The appendix was swollen and its mucosa ulcerated in parts, and it contained two small seeds which, after examination, were thought to be flax seeds. Suppuration soon occurred, and the fungus was found in the pus; a mass of inflammatory tissue developed, several operations were performed, iodide of potassium was given in large quantities, but the patient sank gradually and died several months afterwards. He left the hospital on the 5th of December.

Case IV.—J. W. S., aged 36, farmer, North Williamsburg, Ont., was brought to hospital on the 22nd of April, 1903, for immediate appendix operation. His illness had begun six weeks previously with pain and tenderness across the upper part of the abdomen, and had continued with varying severity until he came to hospital. On admission, there was a large palpable tender mass in the appendix region, and operation was performed on the 24th of April. A large mass of infiltrated tissue was exposed lying behind the cæcum and extending down to Poupart's ligament. On opening it up a considerable quantity of pus escaped. Actinomyces were found in the granulation tissue removed, but not in the pus. The wound was packed with iodoform gauze, and healed satisfactorily. He was discharged June 2nd, 1903.

This patient was readmitted on the 15th of August, two months and a half later, with very severe pain and tenderness along the right costal border. He had never been quite well, and three weeks before this second admission pain had begun in his right chest and shoulder. This was undoubtedly the beginning of secondary portal invasion, which soon led to effusion into the pleural cavity and pus expectoration. He was sent home on the 2nd of October, and died some weeks later.

Case V.—Mrs. O. T., aged 29, farmer's wife, Lunenburg, Ont., came under observation March 7th, 1903, with a swelling extending from the pubis outwards above Poupart's ligament. Her illness had begun two months previously with pain in the left lower quadrant of the abdomen, frequency of micturition and other acute bladder symptoms. Two weeks before admission, the mass above described was first noticed and two days before admission, after very urgent bladder symptoms, she passed a large quantity of pus with the urine; after which the mass was noticeably diminished in size. On the 16th of March the abscess was opened, and a large quantity of pus evacuated, which contained actinomyces, but was otherwise sterile. The cavity was packed with iodoform gauze and iodide of potassium given internally, and the patient made a rapid recovery, and was discharged on the 26th of April.

A letter received from her physician on the 15th of September, 1904, a year and a half after operation, states that she has remained perfectly well ever since.

Case VI.—H. F., aged 24, lawyer, St. John, N. B., was a patient of Dr. Garrow's, seen in consultation July, 1904. In this case the first signs were noticed in the month of January, 1904. The fungus was discovered after a good deal of trouble.

Case VII.—Miss E. C., aged 22, farmer's daughter, Morrisburg, Ont., came under observation October 30th, 1904, with an indurated suppurating mass in the right cheek near the angle of the jaw. The first symptoms had begun in the mouth about six weeks previously. Actinomyces were discovered in the pus and tissue. The whole mass was removed with an entirely satisfactory result.

Case VIII.—Miss L. H., aged 25, nurse, Toronto, Ont., came under observation in September, 1904, with an indurated superficial suppurating mass in the left cheek, opposite the molar teeth. The first symptoms had begun in December, 1903, in the gum, external to the carious molar tooth in the lower jaw. Actinomyces were discovered, and the mass removed with satisfactory results.

Case IX.—Mrs. McM., aged 30, Morrisburg, Ont., came under observation November 23rd, 1904, with an indurated, superficial, suppurating

mass, which had not been opened, in the left cheek, opposite the lower molar teeth. The first sign had been noticed in June, 1904, as a swelling between a carious wisdom tooth and the cheek. The appearance of the mass, and the history were so suggestive that the mass was removed without any preliminary examination. Actinomyces in the most typical form were discovered easily. The patient made a good recovery.

In these last four cases the history and appearances were most typical of actinomycotic mouth infection—a swelling beginning in the gum in the neighbourhood of a carious tooth, gradually and quietly receding from the gum until no signs remained in the mouth, and infiltrating the tissues in the cheek until a hard mass was formed, with a little seropus beneath the thinned and reddened skin externally. The facility with which the actinomyces were discovered in the last case, which had not been opened, in contrast to the difficulty with which they were found in the other cases, where sinuses had existed, is also very instructive. Mouth infections seem to be the least serious forms of infection.

I am indebted to Dr. Keenan for the demonstration of the parasite in the last eight cases, in most of which the discovery was not made without much patient and persevering investigation.

In the three following cases I am convinced of the accuracy of the clinical diagnosis, which is, however, unsupported by the demonstration of the fungus:—

Case I.—B. L., aged 36, farmer, Kemptville, Ont., admitted to the Royal Victoria Hospital on November 15, 1904, with a large, irregular, indurated ulceration of the skin of the right palm, covering an area of about one and a half by two inches superficially, which had begun as a small pimple about a year previously, and had been treated by incision, curettage and caustics several times. The ulcerated mass was excised, and although Dr. Keenan could not find any clue to its origin, I have no doubt that it was actinomycosis.

Case II.—This is the only case of acute actinomycosis which has come directly under my notice. A. McD., aged about 35, farmer, Glengarry, Ont., was sent to me with a large painless swelling below the angle of the jaw, which looked, to me, like a sarcoma or a secondary carcinoma. The history was, however, that about five days previously, whilst working about a threshing machine, a barley awn had stuck in the left side of the pharynx or tonsil, and he was not sure that it had all been removed. The swelling of the neck began next day, and had continued to increase. He would not remain in Montreal, and I am indebted to Dr. McLennan, of Alexandria, Ont., for the subsequent history. Three days after I saw him, the swelling had increased and had caused œdema

of the pharynx, and an incision was made along the posterior border of the sterno-mastoid muscle. There was much oozing of blood, but there was no pus. The wound was packed with gauze, and bubbles of air escaped from it later. Thirty-six hours later tracheotomy was required. He recovered from the œdema of the glottis, but died suddenly of hæmorrhage one week after the tracheotomy operation. During this time a thin, blood-stained, shreddy, offensive sero-pus escaped from the wound, and another collection had formed just above the clavicle. There was no microscopical examination of the discharges nor of the affected tissues in this case, and I make the diagnosis from the manner of the infection, the general clinical picture and the mode of termination; in all of which this case corresponds with a number of cases reported by continental observers.

Case III.—M. G. S., aged about 40, Keysville, N.Y., was first admitted to my service in the General Hospital about 1888 or 1889 with swelling of the neck and sinuses from the jaws to below the clavicles, down over the upper part of the sternum. After much operative treatment for three or four years, I gave him large doses of iodide of potassium, and he recovered promptly and completely. He again came under my notice in the Royal Victoria Hospital in 1900 with cirrhosis of the liver, from which he has since died. There was no microscopical examination in this case, and my diagnosis is based upon the characters of the lesion and the appearance of the neck, which was exactly like some of the plates which we now see illustrating actinomycosis of the neck in the works of continental surgeons. I do not think that the cirrhosis of the liver had anything to do with the actinomycosis.

It is noteworthy that all of these twelve cases originated in country districts within a radius of 100 miles of Montreal, that from one small district on the St. Lawrence River five cases have come under observation within the last year and a half, and that the one acute case and the three cases of intestinal origin were all fatal; while the chronic superficial lesions were never dangerous to life. Cases 3 and 4 show the importance of investigating carefully all chronic and atypical lesions of the appendix and of keeping actinomycosis in mind as one of the possibilities.

In conclusion, it seems to me that the importance of this subject lies not alone in the comparative frequency of the disease, its wide distribution and serious character, and its amenability to suitable treatment, but also in the fact that the knowledge of this one disease, definitely due to a vegetable fungus, may be but a step towards the discovery of the essential cause of other more important and at present more serious diseases. It seems scarcely too great a flight of the imagination to conceive of some similar fungus being the causative agent in cancer and

sarcoma; perhaps even the same fungus or a fungus of the same genus may be the active agent in producing carcinoma by its action upon the tissues of the epithelial type and sarcoma by its action on those of the connective tissue type?

CERTAIN POINTS IN CONNEXION WITH THE DEVELOPMENT OF OUR
KNOWLEDGE OF ACTINOMYCOSIS AND ITS CAUSATION.

J. G. ADAMI, M.D.

I had hoped on this occasion that Dr. Keenan¹ would have given us a resumé of his own bacteriological studies upon actinomycosis instead of merely dealing with the generalities of the subject. To him has been due the positive bacteriological, as distinguished from the earlier clinical, diagnosis of the majority of the cases described this evening by Dr. Bell, and, in his studies, he has accumulated a considerable number of data regarding the morphology and mode of growth of the forms from these various cases. More particularly, I had hoped that we should have heard from him his opinions as to whether we are dealing with one or several forms of the Ray fungus producing disturbances in man. I trust that, on some other occasion, he will deal more fully with these matters.

It struck me that this evening it might be serviceable to say some few words regarding the development of our knowledge of this subject of actinomycosis. It has, indeed, rather an interesting history, carefully compiled by Crookshank in the third edition of his Bacteriology. While it is usual to date the first positive recognition of the disease to Bollinger's observations in 1876, the history goes back to as long ago as 1815, when Von Langenbeck, of Kiel, noted the characteristic little grains, which now we know to be those of the Ray fungus, in pus from a case of caries of the vertebra in man. Thus, as a matter of fact, it was in man, in whom the disease is more rare, and not in cattle that the first observations were made. Langenbeck, however, while he made drawings of these peculiar bodies, never published them. In fact, only in 1878 were Von Langenbeck's drawings given to the world by Israel. The first recorded observations were also from a case in man, and here a great pathologist comes in, no less a man than Louis, who gave to Lebert some curious gelatinous pus to examine which he had obtained from an abscess in the thoracic wall in a man presenting somewhat obscure pulmonary disturbances, which M. Louis thought might be cancerous. Lebert gave a very full description of the little spherical bodies of greenish yellow colour, and about the size of the head of a pin, with

¹ See page 105.

peripheral wedge-shaped corpuscles, which he obtained from this pus. Robin also gave very accurate descriptions. In cattle, the first observations upon the organism are said to be those by Perroncito in Italy in 1863, published in 1875. Another Italian, Rivolta, in 1868, in a paper upon a "sarcomatous" tumour of the jaw of an ox, described the characteristic bodies. He was followed by Hahn, of Munich, in 1870, and Hahn was the first to make the suggestion that these were a species of mould.

The fullest study and the one that established the existence of this condition of actinomycosis, showing that it was not sarcomatous or tuberculous, or simple chronic inflammation, was that of Bollinger, of Munich. He gave a most full study of the condition, described the nodules or tubercles; described, further, the organisms within these nodules, and maintained that they were true fungi and the cause of the condition. He found that the disease was very common among cattle of some parts of North Germany—in some cases as many as fifty per cent. of the animals being affected. He was unable to gain cultures, as also to convey the disease by inoculation. Only in 1885 did Johne and Ponfick independently succeed in communicating the disease to other animals, and Ponfick it was who demonstrated that the disease in man was identical in its characters with the disease in cattle.

Up to this point the attempt to make cultures had failed. Bostroem in 1888, in his remarkably full study upon the disease, was the first to cultivate the Ray fungus. This he did from five cases in animals and from one in man. Bostroem was also the first to throw doubts upon the relationship of the actinomyces to the hyphomycetes or mould fungi. For myself, I have never quite recognized the force of Bostroem's argument. It is true that the filaments are very much smaller than those seen in the moulds we are most familiar with, true also that there are no highly developed aerial fructifications or conidia, and, certainly, it is characteristic of the filaments of the Ray fungus that, while branching, as do the true moulds, later the threads divide up into rod-like sections, and these, again, may give rise to or separate up into coccoid little bodies. There is, indeed, in these segments a striking resemblance to bacilli and cocci, and the appearances closely resemble those described by Cohn in the *Streptothrix Fœrsteri*. But, because Cohn includes this streptothrix among the higher bacteria, that does not, of necessity, make it such. The very characteristic true branching of the Ray fungus, the formation of an equally characteristic felted mycelium when grown outside the body and within the tissues, the general appearance of the cultures, all strongly recall the true moulds, while the break-

ing up into segments and even into coccus-like bodies is paralleled by many of the mucors among the moulds, though I am inclined to think that an even closer resemblance is to be seen in the sexual fructifications of forms like penicillium, where the terminal filaments branch and break off into a series of round spores. I am inclined, that is, to regard these coccoid bodies as conidia or as being of the nature of spores. This view, I know, is controverted by Lehmann and others. It is interesting to note that, when the organism grows in the tissues, while the majority of the peripheral filaments become thickened and club-like—presumably as a reaction and protection against the action of the body cells and humours—some filaments are often to be seen passing between the clubs into the tissues, and these are peculiarly apt to show the coccoid metamorphosis. We know that, as a general rule, spore-bearing organisms, when placed under unfavourable conditions, are peculiarly apt to pass from mere vegetative existence to spore formation. It is just under these conditions above mentioned that we should be prepared to find spore formation.

This question of the exact relationship of the Ray fungus is the subject of active debate at the present moment, and here, perhaps, I may say that the view I would take is that actinomycetes or Ray fungus constitute an intermediate form between the bacteria and hyphomycetes proper. We have, it seems to me, a series of forms starting from definite bacilli, like, for example, *B. typhosus*, which show no signs of branching, through forms like the *B. diphtheriæ* and *B. tuberculosis*, which under certain conditions exhibit undoubted branching (Dr. A. G. Nicholls recently exhibited before the Lister Club certain tubercle bacilli grown in Courmont's media, in which this branching was most extensive), up to the Ray fungi in which branching and the formation of mycelium are very prominent, but there are little or no signs of aerial hyphæ; so up to the lower hyphomycetes, in which there are branching and formation of aerial hyphæ with asexual fructifications, and so on to the higher hyphomycetes or moulds, in which, in addition to all these, we obtain definite indications of sexual reproduction. It is true that nowadays this term hyphomycete is going out of use. What in the old days we termed hyphomycetes are now largely separated off into separate families—ascomyces, basidiomycetes, zygomycetes, and so on. Nevertheless the name is still useful as indicating all those mould-like organisms characterized by the formation of a dense, felted mycelium, composed of hyphæ or branched filaments.

And here a word may be said with regard to the nomenclature of the Ray fungus. During the last year, more particularly in America, following certain European observers, it has become fashionable to speak

of the Ray fungus, not as *Actinomyces*, but as *Streptothrix*, or, rather, to speak of a group of streptothrices of which the *Actinomyces hominis* is one member. Is this permissible? Undoubtedly the form described by Cohn long years ago as the *Streptothrix Fœrsteri* conformed very closely in its morphology with the actinomyces, and, if he had been the first to employ this name, then we should be justified in going back to the early terminology, nay, should be forced to do so; and there would be a certain amount of convenience in so doing. There are, however, certain laws regarding scientific nomenclature which, by international agreement, are accepted by all educated people, or, more correctly, which have been so accepted by the different international congresses of members of the different branches of descriptive science; laws which we cannot neglect to recognize unless, frankly, we acknowledge that medicine is not a science, and that nothing in connexion with medicine is scientific. Among these laws I may mention the following:—

1. That every animal and every plant—and also every fission fungus—belongs to a species, every species to a genus, and every genus to a family.

2. Every living organism should have two Latin names; the first a substantive designating the genus to which the organism belongs; the second indicating the variety or species and being an adjective qualifying the former, or, if not an adjective, the genitive of a substantive. We speak thus of *B. typhosus* or *B. anthracis* with perfect accuracy. To use more than one adjective in the name of a species is incorrect, unless the two words indicate a single idea. It is thus proper to speak of *B. acidi lactici*.

3. If it is found that some species has been named previously by an earlier observer in strict accordance with the rules of scientific nomenclature, then the later name has to give place to the first even if the second be the more appropriate.

4. If a name be given to any definite species is later found to have been previously employed to designate another form, then it has to be given up, and whoever first finds the error is justified in renaming the species.

There are many other rules, but these most affect us in the present case. So soon as it was found that the form termed *Actinomyces hominis* by Bollinger had the generic characters of the form previously described as a streptothrix by Cohn, then the name actinomyces had to be given up, and it seemed justifiable to speak of this as the *Streptothrix hominis*. But as soon as Lehmann pointed out¹ that thirty years

¹ Lehmann and Neumann, *Atlas and Principles of Bacteriology*. Second German Edition, translated by Weaver, Philadelphia, Vol. II., 1901, p. 121.

before Cohn, Corda had given this name streptothrix to a totally different fungus, then it was no longer permissible to use the term streptothrix, and Lehmann was justified in renaming this Actinomyces, and we find ourselves very largely in sympathy with Lehmann in his making a group of the Actinomycetes, to include all those forms of higher bacteria in which branching has been observed, including the diphtheria, glanders and tubercle bacilli and allied forms, and retaining the generic term of actinomyces for the genus which includes the Actinomyces hominis. As already stated, I regard this as a group intermediate between the bacteria proper and the lower moulds.

Now, it may be asked, is there only one specific actinomyces which is the pathogenic organism in both man and cattle? It seems to me that we have definite indications that we have to deal, not with one organism and one disease common to the two species of animals, but that probably in each species we encounter it may be several species or varieties of the Ray fungus. This is still a matter of debate, but one has, I think, only to study the illustrations given by different authorities to recognize that some at least have dealt with wholly distinct forms. In some cases the organism is small, with simple clubs; in others, large with branching clubs. This, indeed, has been explained as due very largely to the reactive powers of the tissues, the formation of clubs being the reaction against the body juices, and, as a matter of fact, in very acute actinomycosis, where there is little reaction apparently on the part of the organism, the clubs may be wholly wanting.

In some cases it seems to be impossible to gain growths in the ordinary media; in others, growth is fairly free in the presence of air, while certain observers have stated that they have obtained most successful growths in the absence of oxygen. Here again there seems to come in a complication, namely, that a large proportion of the granules obtained in pus are already exhausted and dead, the microbe having been destroyed. Thus to fail to get growths does not necessarily mean that we are dealing with different species. One form, the A. Israeli of Lehmann and Neumaun, obtained from the human disease, undoubtedly grows best under anaërobic conditions. But, if this is not conclusive, I certainly have noted—herein confirming what Dr. Kcenan has pointed out to me—that in some of our Montreal cases the mycelium has been formed of very fine, and in others of relatively coarse threads. This must indicate different species. And, in man, I may remind you, there is one group of species which clearly are distinct, namely, those setting up the chronic localized disease, chiefly of the hands and feet, known as Madura Foot or Mycetoma, the organism from which has been cultivated

by Vincent in Algeria and by Wright in Boston. You will remember that Dr. Kirkpatrick and I,¹ in 1894, brought a case of this disease before this Society, and demonstrated the Ray fungus obtained from the fistulæ, this being the first positive demonstration of the disease with its associated peculiar fungus on this continent, although certain museums in Washington and elsewhere were found later by us to contain specimens of the disease which had not definitely been recognized. Since our communication, other cases have been recognized, both in Chicago and Boston. The condition, in short, while common in India, does occur in other parts of the world.

Here, in Canada, actinomycosis or lumpy-jaw, in certain areas at least, is very far from being unknown among our cattle, and, while one knew that the disease is not directly conveyed from cattle to man, it was not a matter of surprise for us to find, in 1900, that it occurred in man also (just as some years previously it had been found by Dr. Murphy in the United States), though we were scarcely prepared to find that, as Dr. Bell's remarkable series of cases brought forward this evening has shown us, the disease is so frequent. It appears to be the old story, that we have only to be alert and prepared in order to encounter morbid conditions which otherwise would pass unnoticed.

THE CLINICAL ASPECT OF ACTINOMYCOSIS.

W. W. CHIPMAN, M.D.

Some two years ago, before the Reporting Club of McGill Medical Faculty, I gave a short résumé of our knowledge of Actinomycosis. When the present discussion was mooted, your Secretary must have remembered this occasion, for he asked me to repeat here before this Society my previous contribution. This I declined to do, knowing that the present discussion would proceed along lines much more extensive, and that the pathology of the disease would be presented by others in a much more able and complete way. I gladly agreed, however, to present the clinical portion of my paper, and this I now proceed to do.

The occasion, some two years ago, of my special interest in actinomycosis was that shortly before my old chief, Dr. Berry Hart, of Edinburgh, had published in the *Empire Journal* "A Case of Actinomycosis of the Ovary and Pelvic Connective Tissue," while at that very time Dr. Gardner, my new chief, if I may so call him, had under his care, at the Royal Victoria Hospital, an obscure abdomino-pelvic lesion, which

¹ This JOURNAL, Vol. XXIII, 1894, p. 68, and Vol. XXIV, 1896, p. 485.

gradually disclosed itself as an instance of this disease. It was the knowledge of these two cases occurring almost together that attracted my special attention to the subject. Moreover, actinomycosis, as it affects the female pelvic viscera, is an extremely rare condition, so rare that Pozzi speaks of it as an anatomical curiosity; and the occurrence of these two cases almost together, even if proverbial, was significant and noteworthy.

I have subsequently had an opportunity of discussing his case with Dr. Berry Hart, and I now give you the clinical history of these two cases; you will pardon me if they are somewhat detailed.

Case I.—That of Dr. Berry Hart. Mrs. H., aged 49, married and nulliparous, was admitted to Ward 36 of the Royal Infirmary of Edinburgh, August 23rd, 1901. She complained of a swelling in the left iliac region and weakness. Her illness began in June with down-bearing pain in the bowels and a gradual onset of weakness. This weakness increased, and she developed fever and night sweats, and rapidly lost flesh. Her previous history had been good. On her admission to hospital she was found to be a thin, pale woman; in the left iliac region was an ill-formed resistance; she had a temperature in the evening of 101-102°. The vaginal examination revealed through the left lateral fornix a swelling, which was thought to be tubal, and about this a firm, flat effusion occupying the left lateral and posterior fornices. In September the patient developed Phlegmasia alba of the left leg. There was a good deal of pain, and the swelling in the left iliac region increased in size, and the connexion of this swelling with the mass in the pelvis could now be made out. Operation was not undertaken, as Dr. Hart inclined to the opinion that the condition was one of incurable malignant disease.

In October the temperature became higher, and rigours occurred. There was some œdema in the groin, and the swelling in the left iliac region increased. Thinking that the case might be one of tubercular mischief going on to abscess formation, in November, Dr. Hart opened the abdomen. He could make out nothing distinctly; the pelvic organs were matted together and indistinguishable so that the abdomen was merely closed. On November 8th the woman died.

The autopsy revealed in the left side of the pelvis, and reaching almost up to the kidney, placed retroperitoneally, a large amount of blood and pus. The bladder contained a pint of recent blood, the rectum was eroded and perforated, and there was septic thrombosis in the pelvic veins. The left ovary was flabby, soft and apparently suppurative. There was a double-sided pleurisy. Further examination revealed in

the ovary the presence of the Ray fungus, and the diagnosis of the case was at once made clear.

In this case implication of the left ovary and tube was probably secondary to the lesion in the rectum and cellular tissue. Speaking of this case, Dr. Hart says: "I stand in the white sheet of repentance, for had I attained to a diagnosis of actinomycosis early in the case, who knows what drainage and iodide of potash might have done?"

Case II. Mrs. S., aged 35, Morrisburg, Ont., a patient of Dr. Charles Hickey's, who sent her to Dr. J. J. Ross of this city, who in turn placed her under the care of Dr. Gardner in the Royal Victoria Hospital. The patient entered this institution on January 6th, 1903, and her history was this:—A year before, namely, in the spring of 1902, she developed very severe backache, with distress in the right groin. Shortly after, a small abscess pointed in the right iliac region directly over the vermiform appendix. This was opened in June, and a teacupful of pus evacuated. The abscess cavity refilled, and in September was reopened. Through the autumn the patient's condition was not satisfactory. She suffered a good deal from more or less constant pain in her back and right side; the sinus never closed and discharged continuously.

On her admission to the hospital, the patient was found to be thin and anæmic. She complained of a more or less constant pain in her right side and in the hypogastrium. There was little fever, at the most a rise of 2°, and the pulse was quiet. Her previous history and general condition were good, and she belonged to a healthy family.

Examination of the abdomen revealed a short sinus in the right iliac region with pouting edges, from which a thick yellow pus, small in quantity, exuded. There was resistance in this right iliac region, which was ill-defined; and there was some sensitiveness over this and the hypochondriac regions. Vaginal examination revealed a large, firm uterus, partially retroverted and somewhat fixed. Between the uterus and the ill-defined mass in the right iliac region a distinct sulcus could be felt. The right ovary and tube could not be defined; the left ovary and tube were slightly enlarged. On January 9th Dr. Gardner operated, curetting the uterus and the sinus. The depth of this sinus was barely two inches, and the amount removed from its cavity was inconsiderable; the uterine scrapings showed interstitial endometritis. On the 13th of January the patient felt very miserable and looked ill. Her evening temperature rose to 101, and she complained bitterly of pain in the abdomen, especially now on the left side, and there was marked abdominal tenderness, all the signs and symptoms of a pelvic peritonitis. In a few days the symptoms somewhat abated, but the patient still com-

plained of this pain in the left inguinal and iliac regions, and the tenderness in these regions persisted. On the 23rd of January, Dr. Gardner opened the abdomen. Some free straw-coloured fluid was found in the peritoneal cavity, and the omentum was drawn down and adherent to the mass in the right iliac region. This mass was made up of omentum and bowel, and was found to have no connexion with the pelvic viscera, the right ovary and tube lying healthy below it. The left ovary was the size of an orange, and extruded from it, lying free in the pouch of Douglas was a yellow gelatinous substance; the tube was swollen and oedematous. The parietal peritoneum of the anterior abdominal wall was thickened, this thickness taking the shape of a wedge, with its base lying to the right side and close to the inflammatory deposit about the vermiform appendix, and its apex reaching across to the left side of the abdomen. The left ovary and tube were removed, and the adhesions on the right side were partially separated, but were left intact close about the track of the sinus.

The patient made a good recovery from the operation, and the urgent symptoms never recurred. On January 30th she is reported as having little pain and being very comfortable. On February 22nd there was a slight rise of temperature, with pain in the region of the abdominal sinus and a cessation of discharge from this sinus. A probe was introduced, and a moderate amount of foetid, thick discharge containing yellow sulphur-like granules escaped. These, on being examined, revealed the characteristic filaments and clubs of the Ray fungus, and decided the nature of the lesion. The patient was promptly put on large doses of iodide of potash, 30 grains three times a day, and her condition steadily improved. On March 8th, however, she had a chill, some nausea and vomiting and severe pain in the region of the sinus; and there gradually developed in the close vicinity of this sinus a tender, red, fluctuating area—the pointing of a fresh abscess. On March 20th ether was again given, and a thorough curettage of the sinus carried out. This time a large amount of solid yellow substance of a gritty consistence was removed. From this time the patient's condition steadily improved, and the treatment consisted merely of thorough dressing of the sinus throughout its whole length and in the exhibition of iodide of potash.

She left the hospital finally on the 25th of April, having gained four pounds in the last ten days of her stay. The sinus remained open until December, 1903, when it finally closed. Dr. Ross has this week heard from the patient; she has remained for a year perfectly well, the sinus is healed, and the patient has gained 60 lbs. in weight.

This case, gentlemen, was one of actinomycosis of the vermiform appendix, and with some slight secondary involvement of the pelvis. Microscopical sections made of the thickening of the parietal peritoneum of the anterior abdominal wall showed a chronic inflammatory process—numerous giant cells scattered throughout areas of round-celled infiltration; sections of the left broad ligament revealed in lesser degree a similar process. The case at first was thought to be tuberculous, but careful and repeated examinations failed to reveal the presence of the tubercle bacillus. It was this hunt after the tubercle bacillus that rather led us away from a thorough sectioning and examination of the parts removed.

Comparison of the Two Cases.—Both these cases are of actinomycosis, and yet how different are their clinical courses. Case I. ran an acute course from June till November, while Case II. led a chronic history of some two and a half years. In one there was high fever, rigors, sweating and rapid emaciation; in the other, the fever was slight, there were no rigors, while the general health was comparatively little impaired. In Case I. there were metastases, and none in Case II. Case I. ran the usual course of typical actinomycosis; Case II. is atypical in nearly every particular, and apart from the finding of the Ray fungus in the discharge from the abdominal sinus, presents few features of visceral actinomycosis. Both these cases were secondary, the primary focus of the organism being in each case the intestinal canal.

Cases of primary involvement of the female pelvic viscera are, and must be, extremely rare. So far as I know, there is only one case on record, a case reported in 1893 by the late Sir Thomas Grainger Stewart and Dr. Robert Muir. The report of this case is found in the Edinburgh Hospital Reports, Vol. I., and I remember when a student in medicine at Edinburgh of hearing this case discussed. This case died, and at autopsy no intestinal lesion was revealed; the uterus ovaries and tubes were involved in a chronic suppurative process and the Ray fungus was therein demonstrated. The vagina was implicated, a long, suppurating sinus led to it from the left ovary, but the whole length of the intestinal canal was healthy. The infection here had evidently been introduced through the vagina, and, so far as I know, it is the only case in literature where such a direct infection has occurred.

Considering the nature of the organism, and also the character of the lesions which it produces, primary infection of the internal generative organs must always be extremely rare. The lesions when they occur

will nearly always be secondary to a previous involvement of the intestinal tract.

I wish to thank Dr. Gardner for his kindness in permitting me to present this case this evening; to thank Dr. Goodall for his patience and skill in prosecuting the pathological research, and Dr. J. J. Ross for his kindness in following this case after her departure from the hospital.

Dr. GARDNER.—With reference to the case reported by Dr. Chipman which came under my care in the hospital, I also stand in the white sheet of repentance, as the suspicion and discovery of the disease is due to Dr. Goodall, who, in the course of his dressing of the case, found these little sulphur-like granules and set to work to make the necessary examinations. The satisfactory result of the case is, of course, one for congratulation, and the extraordinary tolerance of this patient for enormous doses of potassium iodide, over several months together, seems to have been the most important element in her favour. I saw this patient last May or June, and found the sinus closed, and that practically she was entirely free from all symptoms, having also gained in weight to a very great extent. This is the first case in my considerable experience in which, looking back, a possibility of actinomycosis had existed. This case was puzzling somewhat from the first, until the examination by Dr. Goodall aroused our suspicions, which suspicions were confirmed as to its true nature. Certainly, actinomycosis of the genital organs must be extremely rare, at all events primarily so.

ACTINOMYCOSIS FROM THE MEDICAL POINT OF VIEW.

W. F. HAMILTON, M.D.

While actinomycosis, as it is found in the human subject, is for the most part a surgical disease, yet there are certain cases presenting features bringing such patients more or less directly under the physician's notice. Among sixty cases reported by Prof. v. Baracz, only three possessed pulmonary complications, while in the group presented by Dr. Bell this evening but two show thoracic signs and symptoms. One of these Dr. Bell kindly asked me to see, and the observations made upon that patient afford me the only apology for my appearing before you to present the medical aspect of the disease.

Case No. 4 of Dr. Bell's Series.—As we have seen, the clinical features of the case were at first abdominal, mainly limited to the right upper and lower quadrants and leading to the diagnosis of appendicitis. After operation for this condition, the patient improved somewhat, and left

the hospital, but returned within six months of the date of the onset of his illness with an aggravation of all his symptoms—pain and tenderness in the abdomen and lower thorax on the right side, pain in the right shoulder with jaundice. The pain was most severe over the hepatic area. The respiratory rate was accelerated, and deep breathing increased the pain. At this time there was no cough. On examination of the chest one found signs of fluid in the right pleura—dullness with diminished breath sounds. At first there were no adventitious sounds. Shortly there developed numerous crepitations over the region of the dullness, and ægophony was also heard over a limited area. Œdema developed in the skin over the lower part of the chest on the right. Before the pleura was aspirated the patient expectorated a considerable quantity of purulent matter, containing the characteristic fungus.

Aspiration was attempted twice with negative results in the 8th and 10th spaces; the third aspiration succeeded. The puncture was made in the 9th interspace near the spine, and nearly a pint of apparently bile-stained dark-coloured serum was removed. The fourth aspiration in the 8th space, more towards the axilla, was attended with negative results.

The discharge of sputum in variable quantities continued for about ten days, when it was decided to aspirate again. The needle entered the 8th space just internal to the angle of the scapula, and twenty ounces of thick yellow pus was withdrawn. As the course of the case was unsatisfactory, notwithstanding the free use of potassium iodide, it was decided to resect a portion of one of the ribs, and this was promptly done under local anæsthesia. The subsequent events in this case have been already described by Dr. Bell.

Remarks.—1. From the history afforded us in this instance, we plainly had to deal with a case of actinomycosis, secondary in pleura and lung, spreading upward through the diaphragm from an abdominal focus.

2. When the patient was first seen, the history of actinomycosis in the pus from the abdominal wound strongly suggested the character of the pleural invasion, and the tenderness over the hepatic region with jaundice plainly supported that view.

3. The development of cough, and the sudden copious discharge of purulent matter bearing the characteristic fungus, was conclusive evidence of a pleural and pulmonary invasion in this case.

4. Cases of pulmonary actinomycosis are unfortunately not always so clear as this one. They usually pass as cases of pleurisy with

effusion or as cases of empyema. In some instances pneumonia of a chronic type or tuberculosis may be suspected. One can plainly see, too, how necessary in the chronic wasting cases it is to exclude malignant disease.

5. While pulmonary actinomycosis is comparatively rare, as we have already shown, undoubted cases with the disease primary in the lungs or pleura are still more rare. West records about thirty such cases. Kashiwamura¹ has recently reported upon four cases which, from clinical and anatomical evidence, he considers are primary in the lung. In two of these the evidence is clear, while in the other cases there is some room for doubt.

6. The pericardium and endocardium have been invaded in some few reported cases. A case reported by Fütterer,² of Chicago, illustrates an endocardial involvement.

7. In 1889, Delépine³ presented a comprehensive and anatomical study of actinomycosis in the human subject. His case developed Jacksonian epilepsy, followed by right hemiparesis, and at autopsy the left motor area was the seat of abscess formation. An illustration of cerebral metastases has already been afforded in Dr. Bell's paper.

8. While the great majority of patients with actinomycosis must be treated surgically, there remain a few whose condition promises no amelioration with surgical measures. Then, of course, there is but little hope from any method of treatment. Drug treatment has its advocates; potassium iodide has been tried with good results in some cases, and doubtless it should be given even when surgical treatment is adopted. It is recommended to be given in large doses and intermittently. The X-Ray treatment, so generally adopted for hopeless malignant conditions has been tried. Yet it is far from satisfactory. The latest method advocated by Prof. v. Baracz is what may be termed blood antisepsis—by means of the intravenous injection of colloid silver,—collargol.

THE BACTERIOLOGY OF ACTINOMYCOSIS.

A. G. NICHOLLS, M.D.

The subject of actinomycosis has a good deal of interest for me, inasmuch as I was somewhat directly concerned in the diagnosis and study of the first two cases reported by Dr. Bell to-night, which, I believe, were the first instances of this disease recognized in the human sub-

¹ Archiv. of Path. Anat., Bk. 171, Seché 257.

² Archiv. of Path. Anat., Bk. 171, Seché 278.

³ Trans. Path. Soc., Lond., 1889.

ject in Canada. Dr. Bell, I think, is to be congratulated on getting together such an admirable series of examples of what is undoubtedly an uncommon, or, what is perhaps more correct, an uncommonly recognized affection, for I know of no one who has had so many cases to report at one time. His series serves to corroborate the already well-known fact that actinomycosis is met with most frequently in connexion with the alimentary tract and its associated structures. The most extensive observations with which I am acquainted are those of Rüräh, in the *Annals of Surgery*, Vol. XXX., 1899, Nos. 4, 5 and 6, who has collected 1,094 cases of actinomycosis from different parts of the world. In 50 per cent. of these the lesions affected the alimentary tract, particularly the buccal cavity, but also the intestines, notably in the region of the appendix and cæcum; in 20 per cent. the lungs were involved, and in 15 per cent., the skin. As Dr. Bell has pointed out, actinomycosis belongs to a group of diseases known as the infective granulomata. Among these, which have much in common, may be mentioned, farcin du bœuf, glanders, tertiary syphilis, leprosy, tuberculosis, actinomycosis, mycetoma pedis, and mycosis aspergillina. All produce lesions that, histologically speaking, are identical, any differences being merely of minor import, such as the relative amount of destruction and of connective-tissue hyperplasia. When we consider the micro-organisms at work in these diseases, we find what appears at first sight to be certain clear points of differentiation. Thus, in glanders, leprosy, and tuberculosis, we have a frank bacillus, in farcin du bœuf, a branched, thread-like form, in actinomycosis, a rosette-shaped organism, and in the melanoid variety of mycetoma, and in mycosis aspergillina, a much higher type, a hyphomyces. A more careful study of the life-history of these various organisms tends, however, to obscure these points of distinction. As an illustration of this, I may cite the very remarkable aberrations from the classical type which so well known a germ as the bacillus of tuberculosis may evince under certain conditions. I have at present under observation a certain strain of this bacillus, which grows freely in a peptone solution, and can readily be studied from day to day. During the first twenty-four to forty-eight hours all that can be seen is a number of minute coccoid bodies, which undoubtedly are young forms of the bacillus. I have occasionally seen such in sputum stained by Gabbet's method. Later, diplococci and short bacilli, and, later still, long and branching forms may be observed, many of them being clubbed at the ends. This clubbing is common to a number of bacteria, among which may be mentioned the diphtheria bacillus, so that some good writers recognize a class spoken of as the corynebacteriæ. I have found, too, when the higher moulds, such as the

aspergilli, which are provided with mycelium, hyphæ, and sporangia, are injected into the bloodvessels of experimental animals, they assume a simpler form, namely, large and small coccoids, and polymorphous bacilli. In the case of the actinomycosis clubbing is not always present. Thus it is seen how difficult it is to classify these various organisms. Just where the actinomyces comes in is still unsettled. The tendency is to class it with the other long branching forms as a streptothrix.

With regard to the morbid anatomy of actinomycosis, I have had the opportunity of seeing four or five cases, involving the viscera, and the lesions were striking and characteristic. In the liver, for instance, the central portion of the organ is occupied by a large mass, which at first sight looks not unlike an abscess full of thick, gummy, yellowish pus. When the pus is washed away, the cavity is found to be traversed by innumerable dense, fibrous bands, reminding one more than anything else of a loofah sponge. The specimen brought here by Dr. Abbott from the McGill Museum shows this peculiarity very well. In the interstices is the pus. In the case of the lungs and kidneys the lesions look like ordinary pyæmic abscesses surrounded by an inflammatory zone.

Some debate has arisen as to the question whether the actinomyces is competent to produce pus. In general terms, it may be said that the organism tends to produce a lesion characterized by great proliferation of connective-tissue, leading to the formation of tumour-like masses. In the case of lesions so situated that there is a communication with the external air or a hollow viscus, secondary infection is common, and therefore pus production.

With regard to the differential diagnosis of actinomycosis, it may be stated that the most likely disease with which it may be confused is tuberculosis, which, of course, is the most common form of infective granuloma. It is not always easy to form a correct opinion, but several considerations will help. In the first place, the lesion of actinomycosis is characterized by the formation of a much greater amount of connective-tissue than is the case in tuberculosis, although this is not nearly so extreme as in the bovine disease. Tuberculosis usually spreads by means of the lymphatics to the glands, or by the arterial system. Actinomycosis generally forms metastases through the veins, and tends to remain strictly localized for a long time. A further important point is that in actinomycosis fistulæ with scanty discharge are rather common. To cite a particular case by way of illustration, where the diagnosis would be difficult—In chronic pleurisy or consolidation of the lung with softening, such as we would get in any granulomatous affection, should a sinus form in the thoracic wall, this would be proof

positive in favour of actinomycosis, for in tuberculosis such a thing does not occur.

The final demonstration of the nature of any given case would be made by the discovery of the Ray fungus in the granulation tissue or in the discharge. In the case of sputum or pus we look for the so-called "sulphur grains," which are the fungus itself. It is often necessary to hunt over quite a large amount of material, and even then the grains may not be found. By spreading the pus on a plate of glass and examining it on a black background the process is facilitated. In default of finding the "grains," long threads should be searched for. In tissues the actinomyces are often scanty. In the case I worked at the diagnosis was for a long time obscure, until a great number of sections had been made. The fungi stain by hæmatoxylin, but the best stain is Gram. Owing to the great number of related forms among these fungi, it is advisable, where possible, to make cultures of the organism. Cultures of the actinomyces bovis differ in certain particulars from the others, the most important being the difficulty of growing it in the presence of oxygen. Again, inoculation experiments are of the greatest value. Most of the fungi I have mentioned produce the lesions of pseudo-tuberculosis in the ordinary laboratory animals, while the actinomyces bovis produces no gross disease.

CLINICAL BACTERIOLOGY OF ACTINOMYCOSIS.

E. W. ARCHIBALD, M.D.

I can hardly agree with the statement that the disease is a rare one here as compared with other countries. It is rather, in my opinion, that only in recent years have we been on the lookout for it; and I fancy that many surgeons have, time and again, come across obscure conditions, which, undoubtedly, with our fuller knowledge, would have proved to be actinomycotic. That the disease is not infrequent is sufficiently proven by the series of cases reported here by Dr. Bell to-night, drawn, as they are, from a population which is sparse as compared with that of Europe. Indeed, it was a favourite remark of Von Mikulicz at his clinic that the diagnosis of no obscure abdominal condition should be made until the possibility of actinomycosis had been considered.

My own experience with the condition began four years ago in Ponfick's laboratory (Breslau), where I had the opportunity of studying two cases which had come to autopsy. Although interesting in many particulars, they were chiefly so to me as illustrating in a striking way the two modes in which the organism spreads—by contiguity and by the

blood current. In the first case, an abdominal one, the primary lesion was in the cæcum, and it was slight; the metastasis was in the liver, and it was very large. Evidently the transport was by the blood, and, as a matter of fact, I was able in sections to demonstrate the fungus lying in a portal vein. This involvement of the liver in gastro-intestinal cases is fairly frequent; in statistics of 111 cases, Grill found it 22 times. The frequency of spread by contiguity is shown in the fact that of the 111 cases, 84 involved the abdominal wall. On the other hand, transport by the lymphatics is practically unknown; and though, occasionally, the neighbouring lymph glands are swollen, this is plainly a reactionary œdema, comparable to what one finds frequently in the glands draining a cancer of the bowel, and not due to the actinomycosis, which cannot be found in them.

The second case, though doubtless primary in the lung, showed an extensive involvement of the prevertebral mediastinal tissue, having spread very widely indeed by contiguity. Many such cases form sinuses, and are naturally set down under the rubric of tuberculosis.

In Dr. Bell's first case, which came to post-mortem, and in which Dr. Adami made the pathological diagnosis, there was very extensive involvement of both liver and lung by contiguity through the diaphragm; and Dr. Adami kindly allowed me to study the material. There was nothing particularly new in the results—cultures failed to grow, as is frequently the case—but the sections showed one thing in especial, which, though familiar to those who have worked over the ground, might escape such as are yet unacquainted with the pathological side of the disease. I refer to the fact that one may look through a hundred sections and never find the ray fungus as the text-books describe it. The ray appearance is due to a degeneration of the clubbed ends of the mycelial threads where they meet tissue resistance (so it is supposed) at the periphery of the snarl; and this may, and often does, occur very sparsely indeed in the tissue examined. Yet, if these sections be stained with the Gram-Weigert, and examined closely with the care that one uses in looking for tubercle bacilli, the mycelia will, I believe, be found in most instances, running as single threads or in little tangles between the tissue cells. Decolorization, by the way, must be perfect, else cell outlines may be mistaken for mycelial threads. Even under these circumstances, one sometimes is obliged to look through many sections before finding the organism, a circumstance which led Ponfick to speak paradoxically of "actinomycosis without actinomyces."

In Dr. Bell's second case, in September, 1900, I was able to grow the organism from the pus evacuated at one of the operations. The cultural characteristics corresponded most nearly with those of the

Actinomyces bovis first described by Bollinger. It grew not at all at first on the ordinary laboratory media, but yielded a fair growth on a special medium, consisting of blood serum and egg-yolk slightly acidified. It came up best aerobically; in the absence of oxygen it showed very little growth indeed. In spite of transfers on various media, it soon died out. At least seven different actinomyces varieties have now been described as pathogenic for man, varying mainly in their cultural characteristics; and it is evident that there is still much work to be done before we arrive at a proper comprehension of streptothrix disease.

DETERMINATION OF SPECIES.

C. B. KEENAN, M.D.

With regard to the different forms of the so-called actinomyces, we all know that there are a great many forms, and the one question is which are the pathogenic and which the non-pathogenic. Many pathologists claim the disease comes from the air, and have exposed plates with successful cultivation. Howard, investigating glycerinated vaccine points, found that in 50 per cent. he could isolate an actinomycotic growth, but whether this form was proved pathogenic or not I do not know. I only mention this to give an idea of the very wide distribution of this fungus. Actinomycosis has been separated into different classes, and a great many men at present seem to feel that the cultural characteristics by which we separate the different classes are very immature and are not constant, and, since the general appearances are so much alike, it is very difficult to make a classification at present of the actinomyces as found in man. As to whether this can produce pus or not, I have had doubts about this myself, and I was very glad that Dr. Bell, in one of his cases, excised the lesion without previous opening and draining. Here I found the typical granules showing clubs and filaments, and cultures of these showed no other bacteria whatever. This supports the statement that actinomyces of themselves can and do produce pus, although commonly they are associated with other bacteria. With regard to the difficulty in diagnosis, we may not always get the actinomyces in the tissues. On an average, one would have to examine 50 sections to get one section showing the organism, that is in the more chronic forms. In the tissues we do not get clubs, and the reason for that is that these clubs are not a definite body, but practically degenerated material clinging around the end of a filament. The end may swell, and so form a club, but that is not the meaning usually given to the term clubbing, which is a definite mass of material which surrounds or terminates the filament. Finding actinomyces in a specimen has

been rendered comparatively easy for me owing to the method Dr. Adami showed me of mixing with a 10 per cent. solution of caustic potash, when I find that the little pus particles will tend to go to the top while the actinomycotic granules tend to sink very rapidly.

MAUDE ABBOTT, B.A., M.D.

Dr. ABBOTT exhibited the following specimens from the pathological museum of McGill Medical Faculty:—

1. Three specimens of extensive actinomycotic disease of the lower jaw in the cow.—Lumpy jaw.

2. The liver, lung and kidney from a case (No. 1 of his series) under the care of Dr. Bell, who died in the Royal Victoria Hospital.

The liver showed a large circular abscess penetrating the diaphragm into the right lung. The abscess cavity was crossed by numerous fibrous bands, which divided it into small loculi containing pus. The kidney showed one small abscess about the size of a filbert, which presented the same loculated structure with pus in the meshes. The lung was riddled with small circular abscesses from the size of a small pea to a hemp seed.

Dr. GARROW.—In connexion with actinomycosis of the skin, particularly of the face, it is interesting to note that while metastases have been frequently spoken of as following a primary focus, multiple foci have not been referred to, and yet this condition existed in the case I demonstrated, involving both sides of the face and neck within a few months of the onset of the disease.

Dr. MCKENZIE.—The disease seems to be quite common in Austria. Whilst there I saw a case of primary actinomycosis of the lung which was recognized microscopically.

Dr. ADAMI.—One practical point I would suggest to those who have cases in which they suspect actinomycosis, that is, where you have a fistula, that some of this pus or even some of the material should be collected; and it can often be cleared by weak caustic potash and smears made from the deposit, and in this way it is possible to find these scattered mycelial threads.

Dr. BELL.—I would like to emphasize the statement which I originally made, that I believe the disease is much more common than any of us suspect, and the reason why one cannot show more cases is that it has not been looked for. I am certain that, looking back over many of the cases where I have failed to demonstrate the cause of the lesion, if I were investigating them to-day I should find many of them due to

the actinomyces. Another reason is that while we must rely for final diagnosis upon the microscope, there must be many cases, especially those with chronic sinuses, in which it is impossible to demonstrate the micro-organism sinuses. Just as we must all recognize cases of tuberculosis, in which only after operation or post mortem are we able to demonstrate the tubercle bacillus, so in actinomycosis. I look upon diagnosis in the three cases which I include in the second series as being just as convincing as if the actinomyces had been microscopically demonstrated, and I believe that if we are alive to the possibilities in diagnosis a great many more cases will be found. Another important fact is the localized areas from which these cases come in groups; five of my cases came from a small district, probably not more than 30 miles in diameter, and this within the last two years.

THE VALUE OF URINARY EXAMINATIONS IN NEPHRITIS.

BY

W. W. FRANCIS, B.A., M.D.

Resident Physician Royal Victoria Hospital.

It was a surgeon, or rather an operator of some fame and reputation, who once made the astonishing statement that urine was meant to be voided not examined, and that specimens brought to his office were usually disregarded by him.

There are but few men of scientific aspirations, or of ambition for careful methods of diagnosis, who will accord with so heterodox a view. Physicians the world over recognize the general rule that the various lesions of the urinary tract are in great part identified by the nature of the renal secretions, and trust in no small measure to this resource to differentiate the seat of the disturbance.

It would nevertheless be interesting to compute from a number of well-regulated hospitals in how far success has met these efforts, and to what extent the urinary examinations have been proved inadequate for complete and satisfactory diagnosis.

For some time past, we have been much interested in the subject, and have taken some pains to note to what extent the pathological findings in the kidneys have verified the suspicions aroused by clinical examination of the urine.

To many who are accustomed to repeated observations of the kind, the subjoined remarks may savour of the nature of platitudes—and yet we have learned that similar observations of much greater heresy than our own have been made among men of eminence to the south of us.

It is among the fatal cases of nephritis that our disappointments

in the value of urinary examinations is perhaps most evident. The most alarming and serious of all cases are those in which there is not only no external evidence of renal disease, but even in the urine one finds little or nothing to anticipate serious results. Perhaps the obstetrician meets with such instances more often than do others. Among our cases one is especially recalled in which repeated examinations of the urine at the eighth month of pregnancy had revealed nothing abnormal. One test, made early in the ninth month, revealed a mere trace of albumen, and two days later the patient succumbed to uræmic convulsions. In another instance, a patient was admitted to hospital on account of uræmic convulsions. The urine, however, showed no abnormality beyond a trace of albumen, and the autopsy made by Dr. Wyatt Johnston showed but a very slight acute parenchymatous nephritis without other lesions to explain the cause of the lethal termination. How one is enabled to estimate the onset of convulsions under such conditions, it is difficult to say. Certainly an estimation of the uræa or total nitrogen is of little aid, inasmuch as Von Noorden has long ago shown that there is no constancy in the excretion of nitrogen in this very disease, and that though the average total output may be small, yet so great are the variations from day to day that no importance may be attached to one or two examinations alone.

There is another feature in the examination of urine to which attention has been repeatedly drawn in recent years—viz., the frequency with which casts may be present in the urine without albumen. Dr. F. B. Jones has amply demonstrated this fact in a series of examinations made on all classes of cases and varieties of diseases other than primary nephritis at the Royal Victoria Hospital, and the condition is universally recognized and the comparative significance of the finding duly understood. Yet, one doubts if it is sufficiently recognized that casts in *very great* abundance may exist under similar conditions. We have at present under treatment a young man with gout and arterial sclerosis. The urine rarely shows even a trace of albumen, and yet every examination of the sediment showed, on admission, an unusually large number of casts of various kinds. One of the most abundant samples we have seen belonged to an old man who had every other evidence of chronic interstitial nephritis, and though no albumen was present, there were casts in enormous numbers. Such examples are frequent enough, and especially common during convalescence in nephritis, both acute and subacute. In one patient recovering from an erysipelatous nephritis, the urine showed on repeated examination, a mere trace of albumen but hosts of casts (50 in a slide without sedimentation).

It is likewise of interest to note in how many instances the reverse condition may be present, viz., that with various forms of nephritis there is an abundance of albumen with an entire absence of casts, and this, too, without necessarily an alkalinity of the urine.

This condition has interested us not a little, and in at least three cases the urine was found to have more than eight grammes to the litre, and yet casts were of extreme rarity in each instance. Such a finding may be present in either chronic parenchymatous nephritis or with advanced interstitial inflammation. The amount of albumen in our cases of this kind varied from one to fifteen grammes.

A very marked instance occurred in a young man of 18 years, who had been ill for more than a year with progressive pallor, œdema and weakness. On admission to hospital he presented the puffy, pallid appearance so commonly found in chronic parenchymatous nephritis. The urine was somewhat diminished, but the specific gravity was lower than normal. A very large amount of albumen was repeatedly found, the estimates showing a variation from four to fifteen grammes to the litre. Casts were never found in the urine. As a rule, the reaction was faintly alkaline, though often acid, and yet no casts were detected at any of the examinations. The boy died a few weeks after admission, and the kidneys showed a marked chronic interstitial nephritis.

In yet another class of cases the clinical conditions, even combined with urinary examinations, render a positive detailed diagnosis of great difficulty; where blood casts are repeatedly passed, in a urine which is more often free from albumen than otherwise, it is hard always to know what condition is the cause. Such a case was found in a young man who consulted us for frequent headaches and insomnia. Examinations revealed no other lesions than those above mentioned. The urine was of normal amount and specific gravity, but from time to time traces of albumen were present, sometimes a very definite ring being found with Heller's test, but at no time sufficient to estimate by Esbach's method. Microscopically, one found hyaline and blood casts at each examination—often fairly abundant.

The man had attacks of uræmia every few months, with marked headaches, vomiting, cramps in the legs and diminution of the quantity of urine. There was but little evidence of arterial disease. There was no sign of calculus.

To have then a condition of the urine in which blood casts are persistently present, and yet no other sign of acute nephritis, renders that diagnosis quite unlikely—and yet so constant a finding is certainly rare in the more chronic forms of cardio-renal disease.

Indeed, the microscopical finding of blood in the urine is in not a

few cases of utterly unexplained origin. There are so frequently instances in which it is utterly impossible to say whence it has come, and if even suspected to be from the kidneys, one cannot by any means say absolutely as to its clinical significance.

Its presence is not uncommon even in chronic interstitial nephritis, and though we are accustomed to speak of some of these cases as instances of acute attacks engrafted on the old, it is more than doubtful if such an explanation is in reality satisfactory.

It is, however, in the efforts at differential diagnosis of the special kind of nephritis present that we are most liable to suffer from the mortifying disclosures of the autopsy room, for just in these very cases are sometimes the urinary examinations apt to deceive. Dr. Cabot has already drawn attention to the fact in a paper read at the Johns Hopkins Hospital some months ago. In many of his cases the clinical examinations of the urine were entirely at variance with the condition in the kidneys expected at autopsy, and where clinically the diagnosis of marked renal disease was made, the latter examinations revealed normal kidneys. Where one expects to find clinical evidences, such as a large amount of albumen, and perhaps numerous casts of different kinds of chronic parenchymatous nephritis, one is at times surprised to discover at autopsy granular kidneys of advanced degree; certainly in advanced interstitial nephritis one may get both marked anasarca and a very large amount of albumen, quite as much indeed as in any case of chronic parenchymatous inflammation.

Other cases, again, will show from day to day such extreme variations in the quantity of albumen and the specific gravity that it is difficult to decide on this basis as to the detailed diagnosis. Thus, for example, there came to hospital a man, aged 44, with pale cyanosis, general anasarca, marked dyspnoea, and a hypertrophied heart. The urine, which was less than normal in quantity and of a rather low specific gravity, showed on one day $4\frac{1}{2}$ grammes of albumen to the litre, and on the following day and subsequently till his discharge less than .25 grammes. The same held true in a case of nephritis following pregnancy, though the variations were more marked—on one day five grammes of albumen being present, on the next day a mere trace, while 24 hours later the specimen examined revealed again as much as four grammes. This question of variation in gravity of the disease is of special interest, in view of the results claimed for operative interference, and two of our cases are worthy of note in this respect. In one instance, the patient suffered from severe and protracted chronic parenchymatous nephritis, which for some time was resistant to all methods of treatment adopted. The condition being rather discouraging, very

little was done, and operation was discussed for some weeks, during which time spontaneous improvement followed and continued till the patient left the hospital with a mere trace of albumen, little or no anasarca, ascites and hydrothorax gone and general conditions greatly improved. Operation would doubtless have been credited with an improvement, to which, on pathological grounds, it is scarcely entitled.

A similar case occurred in a child of eight years, who left the hospital almost moribund from a post scarlatinal nephritis, with general anasarca, and all hopes of improvement were abandoned. After some days of lingering in her own home, she showed signs of a change, and has gradually become free from most of the signs attending her illness. Albumen is, of course, still present, and the lethal termination is but deferred.

The resemblance in this case to the condition discussed by Dr. Primrose at a previous meeting is worthy of note.

It is again but little recognized to what a severe degree the renal tissue may be invaded by malignant new growths, and yet leave the urine practically normal. We recall two cases of generalized sarcoma in which both kidneys were so gravely involved that most of the normal tissue was replaced by new growth. The urine was repeatedly examined from day to day, and yet only an occasional trace of albumen and an occasional hyaline or granular cast gave evidence of renal involvement.

It can be readily seen then that while careful examinations of the urine are often of the greatest value, and that it is a part of every physician's duty to make the most accurate examinations of the urine possible, that nevertheless the results are not infrequently disappointing, and we have much yet to learn if we will acquire a thorough understanding of the relation of urinalysis and diseased renal tissue. Just what is the clinical significance of quantitative estimates of albumen is not by any means understood. Wherein lies the significance of hyaline and granular casts is a matter of much discussion, while, again, the ordinary estimation of urea, as so frequently done by many physicians, is absolutely valueless for diagnosis or prognosis.

The quantity of urine and the specific gravity appear to be of more value than anything else, and Cabot, in his recent investigations, came to the same conclusion.

We are asked to state that His Majesty the King has been pleased to accept a copy of the "Autobiography of Mr. Frederick J. Gant, F.R.C.S., Consulting Surgeon to the Royal Free Hospital," which has just been published.—*British Medical Journal*.

PANOTITIS DURING TYPHOID FEVER.

BY

G. K. GRIMMER, M. D., F. R. C. S. E.

Panotitis is a term, which was introduced by Politzer some years since, to describe a form of disease of the organ of hearing in which the middle ear and labyrinth become affected by inflammation either simultaneously or in rapid succession. That author states that it occurs chiefly in children, either as a primary affection or in the course of scarlatinal diphtheria, that it always attacks both ears and leads to total deafness, after a strikingly short period. The primary form begins with high fever and is often accompanied by eclamptic seizures with or without loss of consciousness. The eclamptic attacks extend intermittently over a period of a few hours to several days; and on their cessation the patient is found to be totally deaf, with both tympanic membranes perforated and a discharge issuing from the tympanic cavities. "In all cases thus far reported, the affection was associated with a staggering, uncertain gait" (Poltzer).

In the case to be described, the symptoms observed were strikingly like those enumerated above as characteristic of panotitis, and since a search through available literature failed to reveal the record of a similar one occurring as a complication of typhoid fever, these facts have been considered sufficient warrant for giving the following report:

On January 24th., 1904, P. E. H., a girl of eleven years was sent by her family physician to consult me in consequence of extreme deafness and a persistent purulent otitis media of both ears.

Family History.—Both parents healthy; father is robust city police constable; one sister and one brother living, healthy; one brother of three years died after a few hours illness with convulsions.

Personal History.—Good up to present illness.—On 11th December, 1903, after being unusually dull and heavy for a few days the patient complained of a headache and sore throat, and was found to be feverish. The family doctor who then saw her took the case to be one of early typhoid fever and this diagnosis was confirmed later. The sore throat consisted of an acute pharyngitis; no membrane was present in the fauces or pharynx at any time during the illness nor did desquamation of the skin occur. There was a muco-purulent discharge from the nose for a few days at the onset of the attack.

On the night of the 13th December, the father states that he noticed occasional twitchings of the limbs and face, and about this time the child commenced to complain of great pain in the ears. On the following day there were several periods of delirium, associated with convulsive movements of the limbs and complete unconsciousness lasting for some hours; between these attacks there were intervals of consciousness,

but it was not observed whether or not she was deaf at that time. The delirium, convulsions and unconsciousness continued to appear for about 48 hours, when a sudden improvement in these symptoms was evident; the intellect became clear and active, and then, or very soon after, a profuse discharge was detected escaping from both ears. The patient was now observed to be deaf, and the deafness was extreme; since the mother states that although the child noticed movements quickly her attention could not be attracted by loud shouting, or by an alarm clock set striking near her ear; and that she could only be communicated with by writing questions on paper to be read, which was easily and quickly done. Immediately after this the patient passed through a moderately severe attack of typhoid fever with the characteristic stools, enlarged spleen, etc. of that disease.

In the fifth week of the illness she was allowed to sit up and at once complained of giddiness, a day or two later when she attempted to stand a similar complaint was made, this was then thought to be due to the weakness caused by typhoid fever. But giddiness continued to be frequently complained of for some weeks and staggering accompanied all efforts to walk for a like period. consequently it is presumed that the labyrinthine involvement was the chief causative factor of these symptoms.

For six months after the illness, if the patient made a sudden turn when standing or walking she became giddy and would frequently fall.

The discharge from the ear at the onset was profuse and muco-purulent, then yellow, creamy and purulent. later it became thinner, darker coloured and very offensive in odour, notwithstanding frequent antiseptic syringing by the family physician and mother.

Condition on January, 24th, 1904. — The patient is an anæmic, fairly well nourished girl, and seems intellectually bright. She stands and walks unsteadily; with the feet wide apart as if uncertain of maintaining her balance.

The Hearing. — She cannot understand words spoken in any tone of voice, and appears not to hear a very loud sounding whistle, or other loud sounds when made behind her back, and when asked in writing if she had heard any sounds or noises, says she had not. She answers written questions quickly and intelligently. C. and C4 tuning forks strongly vibrating applied to any part of the cranium, she said she could hear. but since she could not describe the sounds she claimed to hear, it was presumed that she felt the vibration only.

After syringing foetid puss from both ears the following was observed:

The right ear showed a large polypoid mass blocking completely the view of the deeper structures. In the left a narrow rim of the tympanic

membrane only remained, about one sixteenth, (1-16) of an inch wide with the malleus and incus lying dislocated in the tympanic cavity surrounded by granulations.

On January 25th, the patient was placed under an anæsthetic and the polypoid granulations removed from the right ear with the cold wire snare, and later the incus came away with syringing; the malleus was not seen. From the left ear the malleus and incus, being dislocated, were picked out, their attachments being so loose that they came away without the least resistance, the granulations were carefully curetted away.

Antiseptic syringing was then carried out regularly and the discharge gradually lessened.

9th. March.—The right ear had not been treated for a week and the tympanic cavity was perfectly dry, the only remaining portion of the tympanic membrane was a small semi-lunar shaped portion in the Shrapnell region. The left tympanic cavity was still moist but discharge very slight, the rim of tympanic membrane was still present.

11th. April.—Both tympanic cavities were dry and have remained so without local treatment to present date, December 7th., when the general health is excellent, but the deafness absolute.

In cases like this one, Politzer claims that the loss of hearing is brought about either by purulent inflammation of the membranous structure of the internal ear or by the invasion of micrococci into the labyrinth, which leads to disorganization of the terminal filaments of the acoustic nerve.

The medical treatment carried out in this case was the hypodermic injection of 4 to 8 minims of 1 per cent. solution of hydrochlorate of pilocarpine daily for a month, with the internal administration of iodide of potash over an extended period. But the result has been, as in nearly every case of the kind previously reported, namely extremely rapid, complete and permanent loss of hearing, for all tones, sounds and noises.

MALIGNANT PUSTULE.

BY

R. P. CAMPBELL, M.D.,

Medical Superintendent Montreal General Hospital.

The following case, which occurred in the surgical service of the Montreal General Hospital, under Dr. Armstrong, is of such rarity in Canada as to justify the following notes of its main features.

M. F. was admitted to the Montreal General Hospital on September 28th with a large malignant-looking carbuncle on the apex of his right shoulder. He gave the following history:—

On Sunday, September 25th, patient had felt out of sorts, but had

had no definite complaints. The following day he noticed that his right arm and shoulder felt stiff and itchy, and experienced several chills and chilly sensations. In 48 hours he was obliged to remain in bed, and vomited two or three times, and on the evening of this the third day accidentally discovered a swelling on his right shoulder. On account of the stiffness in his arm and general feeling of illness, rather than from any pain in the swelling, he consulted a physician, who reported that he found two large blebs surrounded by a dark blue-black area, the size of a silver dollar, and this in turn surrounded by a reddened zone. The patient's general condition, as marked by his prostration, vomiting and rapid, feeble pulse, appeared to him so serious that he advised him to seek admission to the hospital. This he refused, but after another 24 hours elapsed, the condition in general was so aggravated that he consented, and was brought to hospital at 11 p.m. September 24th, 1904, nearly four days after onset.

The patient was a well-nourished, well-developed man, with an unusual development of hair over chest and body generally, and a well-marked hæmorrhagic rash, which was explained by the presence of pediculi. His general condition was that of a very sick man. Pulse, 130, small and easily compressible. Respirations slightly increased, 28, and temperature 98½. He would answer questions readily, but a connected account of his illness was obtained with difficulty. He was extremely restless, and complained of the stiffness and discomfort of his shoulder rather than of actual pain. Beyond the increased pulse rate, his heart showed nothing abnormal, and a careful physical examination of thorax and abdomen showed their respective organs apparently unchanged.

On the apex of right shoulder over the outer third of the spinous process of scapula is a large carbuncular-looking sore, which consists of two large blebs about the size and shape of a large almond, and lying side by side, one broken and its contents forming crusts, the other filled with sero purulent contents. Immediately about these were numerous smaller ones, varying from the size of a split pea to that of a pin's head, and only evident on close examination, the contents being serous. The skin, for an area of one to two inches around about these pustules was blue black, and shaded rapidly off into dark dusky red, which was sharply limited above at root of neck, and shaded into lighter tints elsewhere, spreading anteriorly and posteriorly to axillary folds, and down the arm as far as insertion of deltoid muscle.

The whole shoulder was extremely swollen. The skin tense and glistening, the bony and muscular prominences obliterated, the swelling and cedema reaching as low as elbow or lower. He could move his

arm to limited extent. Sensation to pin prick was almost absent. The axillary and cervical glands were not palpable. The malignancy and pustular character suggested the diagnosis, and a smear was immediately made from the contents of one of the larger pustules. A large bacillus—with square ends—was repeatedly found, generally in short chains of two, but frequently singly.

Immediate excision was recommended and performed by circular incision about pustule, the piece removed being just short of four inches in diameter. The wound was left open. Hypodermic stimulation was pushed and subcutaneous injections of normal saline. In eight hours the wound was dressed, and surrounding parts had improved in appearance. A blood culture taken at this time showed presence of anthrax bacillus. Previous cultures made from the pustule showed the same organism, a leucocytosis was apparently present, but an accurate white count was attempted too near death to be of much importance.

The general condition grew gradually worse, vomiting and sub-normal temperature continued, mental condition and restlessness unchanged, and patient died 19 hours after admission.

The autopsy showed the following points of interest:—The spleen only moderately enlarged, and from its substance a pure culture of anthrax bacilli was obtained.

In the heart blood a smear showed the bacillus. A culture gave a mixed growth of *B. coli* and anthrax.

Apart from cloudy swelling of organs and a slight bronchitis, nothing further of note was observed. Culture from meninges was sterile.

One of the most interesting features of the case is the apparent mode of infection. The patient was a labourer, and had always been healthy. He had done no work of late, with the exception of the two or three weeks immediately preceding his illness, when he had worked in a tannery, sorting beef hides. These he handled at first with his naked hands, and in consequence these became much lacerated and bleeding. He therefore had a leather glove made for right hand, with which he did his work, aiding occasionally with his left.

According to patient and his wife, he had a habit of scratching himself about the shoulders, for which the presence of pediculi gives ample cause. It is only necessary to presume that the patient with his unprotected left hand infected his right shoulder through one of these bites. Unfortunately I have been unable to discover the source of the hides.

This is the third case of malignant pustule which has occurred in the Montreal General Hospital, as far as the records show. The first occurred in 1873, under the late Dr. Fenwick, and was reported in

Canada Medical and Surgical Journal by Dr. Roddick, then house surgeon of the hospital. Although the bacteriology of this case was not worked out, its clinical features seem sufficient to justify a diagnosis.

The second occurred in 1901, under Dr. Armstrong, and was reported before this Society by Dr. Von Eberts. The treatment here resorted to was incision, and was followed by the best results. No bacilli were found in blood on this occasion. The temperature was $102\frac{2}{3}$ and pulse 50 on admission, the fever decreasing and pulse increasing almost immediately after the operation.

While it is impossible to draw definite conclusions from so few cases, yet the evidence would tend to show that the presence of bacilli in the blood is at least in man an evidence of a fatal termination.

With regard to treatment, we have made little or no advance in thirty years, perhaps much longer. Excision, the actual cautery and many special solutions have been employed with varying success, and discarded, and from Bergman's clinic comes perhaps the most recent advice to do nothing further than keep the part at rest, with antiseptic dressing.

SEPTICO-PYÆMIA.

BY

RIDLEY MACKENZIE, M.D., and B. D. GILLIES, M.D.

F. L., female, aged 25, unmarried.—I saw the patient on the night of December 20 for supposed alcoholism. She was up and about, but in a stupid condition, and could give no very clear account of herself. The temperature was subnormal, the pulse rapid, and I prescribed a sedative.

The following morning she had a temperature of 102° , pulse 140, great tenderness in the abdomen, and an enlarged spleen. The condition suggesting typhoid, and she was sent to the hospital. On admission: temperature, $103\frac{2}{3}$; pulse, 148, respirations, 56. The urine contained albumin and casts; the abdomen very sensitive; a pelvic examination was made with unsatisfactory results.

She was transferred to the medical wards. A garbled history was obtained; the only fact of interest was that she had had a fit a week previous, lasting half an hour; she had had no epistaxis, but diarrhoea had prevailed for a week. The respiratory and cardiac system showed nothing abnormal. The abdomen was full, and so sensitive that palpation was unsatisfactory. There were no rose spots. The spleen was much enlarged, the dull area measuring $6\frac{1}{2} \times 4\frac{1}{2}$ inches. The pupils were equal and active, and slightly dilated. The knee jerks were present, no ankle clonus; plantar reflexes present, no Kernig's sign; Ehrlich's reaction was positive, Widal reaction negative.

A diagnosis of typhoid fever was made, and the patient was put on bath treatment, which had very little effect upon the temperature—pulse, 160; respirations, 48; heart sounds clear.

The day following the patient was very restless, with twitching of the left foot and arm, and paresis of the right arm and leg; head and eyes turned to the right; no pupillary change.

The following day, in which she died, the temperature rose to 107° and the pulse to 176. The right side of the face paralyzed; Babinski's sign present, lumbar puncture was done, and about three drams of clear watery fluid withdrawn, which on media gave a pure growth of staphylococci.

The autopsy findings gave a clear picture of the conditions present. The points of interest in the case are:—

1. The typhoid condition; enlarged spleen; Ehrlich reaction, and the temperature range (nonseptic type)
2. The large vegetations on the mitral valve without clinical signs.
3. The original focus from the salpingitis usually considered sterile; and the findings of the bacilli in the cerebro spinal fluid

Dr. W. D. GILLIES:—The autopsy was made sixteen hours after death. The patient was well nourished, and showed nothing special on inspection. On opening the chest the heart was found to be somewhat enlarged, and on making an examination of it the vegetations on the mitral valve were very marked, some measuring half an inch in length. Smears showed no cellular elements whatever, merely fibrin and pure cultures of staphylococci, the staphylococcus aureus, as also did cultures from the heart blood; there was nothing in the lungs. In the abdomen the spleen was enlarged, capsule smooth, and externally was exactly like a typhoid spleen; there was nothing but a friable hyperplastic pulp on incision of the organ. In the intestine the Peyer's patches were somewhat hyperplastic. At two points there were embolic foci about an inch and a half above the lower part of the ileum. Both kidneys showed embolic abscesses scattered irregularly throughout the kidney tissue itself. On coming to the pelvis the organs were found to be completely matted together; the uterus was somewhat enlarged and bound down, and there were evidences of an old pelvic peritonitis. Both tubes were enlarged, the left containing some turbid fluid, which showed in smears staphylococci and a few colon bacilli. Cultures were made from this and confirmed the smears; only staphylococci and colon bacilli grew. This was the only focus that we could find which might give origin to the septico-pyæmia from which the patient died. On opening the brain, accounting for the clinical feature of paralysis of the right side, we found embolic foci situated over the left ascending parietal

convolution, and on the posterior part of the left second frontal convolution, also over the median surface of the anterior part of the left quadrate lobule there was a similar embolic focus, and about these there was evidence of an acute encephalitis. The fluid we obtained from spinal canal was as clear as water, which on standing formed no coagulum, and the cellular elements were a few polymorphonuclear leucocytes. However, we obtained a pure staphylococcus culture. Throughout the organs the infection was pure staphylococcic, and the only place I could establish as a focus was the left tube.

DR. VIDAL of Nisson, who appears to be a fine old country doctor all of the olden time, gives the following account of a recent encounter with a wild bacteriologist: The incident so admirably illustrates the contrast between the old style and the new in medical practice that we venture to tell the story here as it may tend to the edification of some of our readers. A child, aged ten, had a bilious attack, which the over-anxious parents took it into their heads to be a manifestation of tuberculous meningitis. Behind the back of Dr. Vidal, who was their ordinary attendant, they sought counsel of a young physician in a neighbouring town. The opinion of this pundit was conveyed to Dr. Vidal on a card enclosed in an unsealed envelope. It was in the following terms: "Kernig positive; slight embryocardia, especially in Azoulay's position; cryoscopy and Kochibacilloscopy of Quincke's fluid would supply basis for judgment. If negative, Eberth or Talamon-Fraenkel might be thought of. In the former of these two hypotheses, I could bring, on receiving intimation from you, some Chantemesse serum; in the second, I could bring specialist to do Quincke's puncture." To this cryptic message Dr. Vidal sent the following reply: "Veni, vidi, vici. *Veni*: neither on bike nor auto, nor moto, nor in a boat, but in a phaeton. *Vidi*: neither myosis nor mydriasis, nor vasomotor red line nor Wunderlich—simple synocha. *Vici?* *Naturam sequere*. Expectant treatment. The patient goes on under his blankets *ἐξ ἀκινήτου ποδός* (without stirring a step) in the words of Sophocles, whom in spite of his antiquity I love, towards *restitutio in integrum*. Archfraternal thanks to the Quincke specialist." We need not dwell on the piquant contrast here presented, between the old and the new generation of practitioners. The country doctor's wit may be a trifle laboured, but there can, we think, be no doubt that he had the best of the encounter, and that his sound clinical sense shows well against the laboratory jargon of the younger man who saw bacteriological torpedoes where there was only a patient with a stomachache.—*British Medical Journal*.

Montreal Medical Journal.

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

EDITED BY

JAMES STEWART,
A. D. BLACKADER,
G. GORDON CAMPBELL,
FRANK BULLER,
H. A. LAFLEUR,

GEO. E. ARMSTRONG
J. GEORGE ADAMI,
WILLIAM GARDNER,
F. G. FINLEY,
F. J. SHEPHERD,

ANDREW MACPHAIL. MANAGING EDITOR.

WITH THE COLLABORATION OF

EDWARD ARCHIBALD,
W. L. BARLOW,
H. S. BIRKETT,
T. J. W. BURGESS,
W. G. M. BYERS,
KENNETH CAMERON
J. C. CAMERON
W. W. CHIPMAN,

J. M. ELDER,
D. J. EVANS,
J. J. GARDNER,
A. E. GARROW,
W. F. HAMILTON,
J. ALEX. HUTCHISON,
F. A. L. LOCKHART.
E. T. WILLIAMS.

C. F. MARTIN,
JOHN McCRAE,
A. G. NICHOLLS,
E. J. SEMPLE,
J. W. STIRLING,
C. W. WILSON
C. H. BROWN

Remittances, advertisements or business communications are to be addressed to the Montreal Medical Journal Co., Box 273; all others to the Managing Editor, 216 Peel Street, Montreal. All communications intended for insertion in this Journal are received with the understanding that they are contributed exclusively to this Journal. A limited number of reprints of articles will be furnished to authors at cost price, if a request to that effect accompany the manuscript.

VOL. XXXIV.

FEBRUARY, 1905.

No. 2.

AN OFFICIAL IMPIETY.

One day last week two men appeared at the Montreal Maternity Hospital, and alleged that they were officers of the law. Partly by fraud and partly by force, they violated the sanctity of the institution by opening every door and exposing every inmate—sleeping nurses and sleeping or suffering patients—to their profane gaze. One of the men was Deputy High Constable Lambert. These are the facts as set forth by the sworn attestations of eye-witnesses to the outrage, and the feeling which has been aroused in the public mind is one of horror at this gross infringement of morality and decency. The action of these men was odious. Their conduct was wanton, violent and cruel. By these simple terms we mean to imply that these two men have violated every sentiment which distinguishes humanity. Indeed, Dr. Evans, the accoucheur, who was an unwilling witness of the shameful incident, de-

liberately applied the epithet of "brute" to the principal offender in the open court, and we are inclined to believe that the term has some definitive value.

It is the impiety of the action which is so shocking. A maternity hospital is a sacred place, made sacred by the great sorrow and suffering which is experienced within its walls. What makes the outrage more shameful is that this hospital is conducted according to the highest principles of philanthropy; and almost at the very moment when these ruthless acts were being perpetrated, a great function was in progress for the furtherance of the work, which was assisted by the presence of the representative of His Majesty—and his wife. The hospital is not a place for women alone who are fallen away from the conventions of society and of morality. Women of unimpeachable virtue are encouraged to pass their great hour within its doors, and every sentiment of humanity rises up in revolt against the violation of their confidence.

If the authorities of the hospital leave anything undone to avenge this violation, they will prove themselves unworthy of their trust. If they cannot obtain an absolute guarantee for ever against a repetition of the outrage, they had better close the doors of the hospital for good. Finally, we are advised that the officials and employees of the hospital who were actually present would have been justified in using "all reasonable violence" to prevent the commission of the crime, in precisely the same manner as they would resist a gang of burglars who had broken into the hospital in pursuit of their profession. A very acceptable atonement would be the official head of Deputy High Constable Lambert in an envelope.

Yet are we not blind to Lambert's point of view. As an individual, we are informed, he is a man of many good parts. To a detective every citizen is a criminal, either *in esse* or *in posse*. Constant contact with criminals blunts the sensibility, and a time comes when society must be protected against its own protectors. That time has now come in the career of the Deputy High Constable.

THE IMPERIAL MEDICAL ACT.

A bill has been introduced in the Imperial House of Commons to amend the Medical Act of 1858. It was presented by General Lauria, and supported by Mr. Rothschild, Sir Howard Vincent, Mr. Middlemore and Sir Mancherjee Bhowaggee. It was ordered to be printed so long ago as 23rd February, 1903, and will come up again at the next session. The most important provision of the bill is contained in paragraph twelve, which reads as follows:—"Doctor or Bachelor, or Licentiate of Medicine, or Master in Surgery of any University or

Medical School in the Empire at which the curriculum of studies and the examinations required to be passed by the undergraduates shall be accepted and recognized by the General Medical Council as equal in all respects to the requirements from students and candidates for degrees in the institutions shown in paragraphs one to eleven of Schedule A."

Since the passing of the Medical Act of 1858, great advance has been made in medical education throughout the Empire, especially in the dominions across the seas. This bill provides that where the examinations and course of education at the principal colonial schools of medicine are in all respects the same as those practised in the United Kingdom, and subject to the supervision of the General Medical Council, medical men from Greater Britain should, when proved to be properly qualified, be admissible to serve the Empire in the naval and military and civic services of the Crown.

Surgeons of high standing in Canada, and holding commissions from His Majesty in the militia, volunteered for service in South Africa, and a complete field hospital was offered by Canada, and in both cases the War Office refused to accept such service, on the ground that it was contrary to the Medical Act of 1858 to permit a surgeon on the Colonial Register and colonially trained to attend professionally to British troops.

The object of the amending bill is to remove this disqualification, and the importance of it cannot be overestimated. If the bill pass into law, the benefits which will arise under it will be for the Imperial services as much for medical men from the colonies.

THE UNION BANQUET.

The medical profession of Montreal will sit together at dinner on the 21st of February. The occasion is a joint banquet which will be held by the Medico-Chirurgical Society and La Société Médicale. This is the first time in the long history of these Societies when both elements in the profession, French and English, will meet together in this manner of friendship. It is significant of the closing of the breach which has too long kept French and English divided. The wonder is not that we should come together, but that we should have remained so long apart. It is not an affair of religion which has divided the profession and the Societies, for men who profess an adherence to both creeds belong to the Medico-Chirurgical Society, and have occupied the highest offices; nor of language, for nearly all the members of both Societies speak both English and French; nor of professional attainments, for both have equal facilities for training and make adequate use of them. This division belongs to the past, with its bad prejudices.

The dinner will be held at the Windsor Hotel, and tickets may be had from Dr. A. Ethier, 320 St. Denis Street, or Dr. A. T. Bazin, 454 St. Antoine Street, treasurers respectively of the Societies. The price of tickets is placed at three dollars, and any member who absents himself without good cause is not doing his duty by himself and his colleagues. Let us make this event the beginning of better things.

In May, 1904, attention was called to a civic by-law under which physicians were ordered to report all births occurring in their practice. After six months' operation, the regulation has proved ineffective, not more than half the births being reported. A new enactment is now under advisement by which the duty is placed primarily upon the parents, where it properly belongs. We pointed out at the time that the enforcement of the original by-law was probably beyond the power of the civic authority or even the provincial legislature, as a gratuitous duty could not be imposed upon a body of men without their consent. Now that the regulation is about to be placed upon tenable ground, we trust that it will be enforced to the letter. The registration of births is essential in every civilized community. An obligation which is assumed voluntarily is rarely satisfactory, and now that the civic authorities are proceeding upon constitutional grounds, the enforcement of the regulation rests entirely with themselves.

By the resignation of Dr. Oskar Klotz, the Governors' Fellowship in Pathology at McGill University, instituted in 1899, has become vacant. Dr. Klotz is a graduate of Toronto University, and has during the tenure of his fellowship done much valuable research work, including studies upon a bacillus isolated from water agglutinating with high dilutions of typhoid serum, and on the isolation of a motile micrococcus causing an epizootic among rabbits, both published in the *Journal of Medical Research*, together with several studies in morbid anatomy. His most important work, shortly to be published, is on the part played by soaps in the process of pathological calcification. The fellowship is open to graduates in medicine who have done some previous medical research work, and is tenable for two years, with a salary of \$500 per annum.

The disaster of fire which overtook the Royal Victoria Hospital served to demonstrate the excellence of its construction, and the competency of its management. The fire, while serious enough, was confined to the kitchen, where it originated, and never at any time threatened the wards. The patients were scarcely alarmed, and very little inconvenience was

caused by the interruption of the food supply. The officials, nurses and staff dealt with the emergency in a manner which was entirely creditable, and the governors were at hand early to give advice and instructions. The fire was scarcely extinguished before a communication was received from Lord Strathcona, the President, urging that the restoration be proceeded with at once, and that the means would be forthcoming. The incident will serve as a warning to other institutions to be on the alert against a danger to which all are subject.

Two years ago the provincial legislature, with its habitual jocularly, handed over the regulation of barbers' shops to the barbers themselves. The appearance of zeal which those operators manifested for the public health was worthy of a congress of professors of hygiene, but we have not observed that the shops are more cleanly than they used to be, any more than we have observed that plumbers are more efficient since that branch of sanitary science was entrusted to the plumbers' union. The thing was a pretext to create a close corporation; so we are assured by the barbers who have been denied admittance to it. If the barbers desire inspection, let them have it; but let it be done by inspectors properly appointed by the civic authorities.

The December issue of the *Annals of Surgery* sustains the verdict that it has achieved an undisputed place as the leading exponent of surgery in the English language. This issue signalizes the close of the first twenty years of the publication of this journal, and the publishers have properly marked the event by issuing a Festschrift number, which is more than double the usual size, and is remarkable for the value of its contents, the number and authority of its contributors, and the abundance and quality of its illustrations. We note the appearance of Dr. F. J. Shepherd's paper upon Hernia of the Bladder complicating Inguinal Hernia.

The present civic arrangements in Montreal for conducting examinations into the cause of death are worthy of a mediæval city. The facilities which are enjoyed by the pathologists at the morgue would not be tolerated in an abbatoir. As usual, the difficulty arises out of a conflict between civic and provincial authority. But there is promise of better things. At the next meeting of the Health Committee, the documents bearing upon the case will come up for consideration. Even the present arrangements are better than the proposal that a morgue should be erected by a private contractor, who would recoup himself out of the burial fees.

The reception which Earl Grey, the Governor-General, received at the University on the 25th of January was extremely cordial, and the impression which he created was profound. The representative of His Majesty is the official Visitor to the University, and it was fitting that all the elements of university life should be present upon the occasion of his receiving the honorary degree. We understand that Earl Grey was much impressed by the various departments of the University, and by the hospitals which are so closely allied with it.

Senator Fulford, who is said to be the proprietor of a popular preparation for anaemia and other disorders and diseases, has donated to the Brockville Hospital the sum of ten thousand dollars for the erection of a nurses' home. This is a form of expenditure which will commend itself to the profession more fully than that which goes into the coffers of the newspapers which have advertising space to dispose of.

The Librarian of the Medical Faculty of McGill University, announces that the library is open in the evenings to medical graduates from 7 to 10.

Reviews and Notices of Books.

GALLSTONES AND THEIR SURGICAL TREATMENT. By B. G. A. MOYNIHAN, M. S. (LOND.), F. R. C. S., Senior Assistant Surgeon to Leeds General Infirmary, England. Octavo volume of 386 pages, illustrated with text cuts, some in colours, and nine coloured insert plates. Philadelphia, New York, London: W. B. SAUNDERS & COMPANY, 1904. Cloth, \$4.00 net. Canadian agents, J. A. Carveth & Co., Toronto.

This handsome book contains the material upon which Mr. Moynihan based a course of lectures delivered at the Medical Graduates College, in London, in May, 1904. It includes a detailed account of the etiology, pathology, clinical manifestations and operative treatment of gallstones. It is well illustrated and has a number of excellent coloured plates.

The fact that this work is by so well known and experienced an abdominal surgeon as Mr. Moynihan will at once give it a status. Mr. Moynihan was for many years in Leeds a colleague of Mr. Mayo Robson, and has had immense experience in gallstone surgery. The book is most interesting, and cases which have occurred in the author's practice are used to illustrate and emphasize various points. The directions for preparing operator, patient and assistants are most minute and complete, but are not more especially applicable to gallstone surgery than any

other kind of surgery. It seems, therefore somewhat out of place in such a work, though perhaps there cannot be too much assistance on such things in any work in surgery, special or general.

Cleansing of the patient's mouth beforehand, and even the giving of sterilized food is insisted as a preventative to parotitis and pneumonia. Rubber gloves are to be worn by operator and assistants.

A very good historical account is given of operations on the gall bladder and bile ducts. The first record, we are told, of removal of a gallstone from a living patient was that of Fabricius Hildanus in 1618. In all operations on the gall bladder or bile ducts the use of a sandbag under the patient's back is advised, and Mr. Moynihan gives credit to Elliot, of Boston, for the introduction of this great aid to liver surgery. Most surgeons are under the erroneous impression it was introduced by Mayo Robson. The incision advised is that used by Mayo Robson, namely, a vertical one, made four or five inches in length, through the right rectus muscle near its outer border. If more room is needed, the incision may be prolonged downwards or upwards and inwards, dividing the fibres of the rectus half an inch from the costal margin. In cholecystotomy drainage is advised, and the tube is sewed with gut to the band in the bladder, the wound closed by a purse-string or continuous suture, and the gall bladder dropped back into the abdomen or preferably sutured to the parietal peritoneum by two sutures which suspend it.

The removal of the gall bladder is advised in many cases where it is diseased, and if drainage is necessary, this can be done by suturing a tube to the stump of the cystic duct or even into the common duct itself.

In choledochotomy suturing the common duct has been abandoned without any ill results, drainage of the ducts being always advised.

There is very little said about the influence of gallstones and gallstone obstruction in the pancreas; the subject is merely mentioned incidentally. The symptomatology, early and late, of gallstone disease is very fully and well described, and no unnecessary verbiage or padding is used throughout the book. This "brochure" is pleasant and instructive reading, essentially practical, and should be in the hands of every operating surgeon. We congratulate Mr. Moynihan on having written so valuable a contribution to the surgery of gallstones.

LANDMARKS AND SURFACE MARKINGS OF THE HUMAN BODY. By LOUIS BATHE RAWLING, M.B., B.A., F.R.C.S., Eng. H. K. Lewis, London, 1904, pp. 72. Chandler & Massey, Toronto.

Holden was one of the first to write on landmarks, and his work is

not yet obsolete. It was written in a pleasant style, and was made attractive to the student, but had no illustrations. Later, every treatise on Descriptive Anatomy had a chapter on surface markings, and then separate books appeared all more or less complex, and founded largely on the observations obtained by frozen cross sections. The present work, which is "intended to fill a gap in the series of text-books," is concisely written and well illustrated by photographs of men with the surface marks on them. Not sufficient attention, however, is paid to the surface anatomy of the bones and too much to the arteries. It will be a useful book for medical students going up for examination, and will show them how to examine and mark the landmarks on each other, and in this way be a stimulus to personal investigation of facts. The surface anatomy of the nerves, neck, thorax and abdomen is well done. We recommend it as a handy text-book on surface marking.

AN OUTLINE OF THE THEORY OF ORGANIC EVOLUTION, WITH A DESCRIPTION OF SOME OF THE PHENOMENA WHICH IT EXPLAINS. By MAYNARD M. METCALE, Ph.D., Professor of Biology in the Woman's College of Baltimore. New York: The Macmillan Co., 1904. Toronto: Morang & Co. Price, \$2.50.

It is nearly as interesting to know the history of a book as of a man. The writer tells us that "the lectures out of which this book has grown were written for the author's students at the Woman's College of Baltimore, and for others in the college not familiar with biology who had expressed a desire to attend such a course."

So far as we can judge from the work, these lectures must have proved highly successful. They give much and they omit much, and what is presented is put before the reader in a form not only clear but fascinating. The author has not gone forth arrayed in a coat of mail, sword in hand, challenging to battle real or imaginary foes. The necessity for that is past; the battle of evolution as evolution has been fought and won, though many problems yet remain unsolved, and doubtless many more will confront the earnest seeker after truth.

Dr. Maynard has attempted to inform the inquiring but not necessarily technically trained person of the state of scientific opinion on the subject of evolution at the date of the publication of Darwin's great epoch-making work, and for some time after. He has not perplexed him with the more recent doctrines of Mendel, De Vries, Bateson and others, over which such a fierce battle raged at the meeting of the British Association at Cambridge last summer.

Excellent as are the many works that have been published on evolution since the appearance of the "Origin of Species," it may be confidently

said that few have been able to make such a strong appeal to the average intelligent reader as this one.

Fact and theory are mingled in due proportion, which, if Darwin's example is to be followed, always means more fact than theory; while the eye is charmed with beautiful paper, large type and, above all, illustrations, which are worthy of the highest commendation both as to choice of subject and execution. Many of them are in colours. In this book the tired doctor who can get beyond the accustomed round of duty and the usual ruts of thought will find something to beguile him into fields pleasant to the sense and refreshing and expanding to the intellect; and the doctor's wife and children, if they but take one peep, will be sure to want to go further. If this book does not inspire many with a desire to know more of nature, it will be because it is not given a chance. There is so much good to be said of it that we do not care to look for shortcomings, if such exist.

W. M.

A MANUAL OF PERSONAL HYGIENE. By American Authors. Edited by WALTER L. PYLE, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Second Edition. Revised and Enlarged. 12mo volumes of 441 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Bound in silk, \$1.50 net. Toronto: J. A. Carveth & Co., Limited, 434 Yonge Street.

The object of this manual is to set forth plainly the best means of developing and maintaining physical and mental vigour. Throughout the book there is concise but adequate discussion of the anatomy and physiology of the parts under consideration, upon which is based the subjoined advice. In other words, there is an exposition of proper living upon a physiological basis. In this new second edition there have been added, fully illustrated, chapters on Domestic Hygiene and on Home Gymnastics, besides an appendix containing methods of hydrotherapy, thermotherapy, mechanotherapy, and first aid measures in medical and surgical accidents and emergencies.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D., and H. R. M. LANDIS, M.D. December, 1904. Lea Brothers & Company.

This quarterly digest of new material in the medical and surgical sciences is quite up to the high standard which was set by previous volumes. The contributors are Dr. J. Dutton Steele upon diseases of the digestive tract, including the liver, pancreas and peritoncum; Dr. Joseph C. Bloodgood, upon anæsthetics, fractures, dislocations, amputations, surgery of the extremities and orthopedics: genito-urinary dis-

cases by Dr. William T. Belfield; diseases of the kidneys, by Dr. John Rose Bradford, and practical therapeutics, by Dr. H. R. M. Landis. This retrospect of Medicine is so well known that it is only necessary to add that this volume is particularly good.

DIET IN HEALTH AND DISEASE. By JULIUS FRIEDENWALD, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and JOHN RUIHRAIL, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Octavo volume of 689 pages. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, \$4.00 net. Toronto: J. A. Carveth & Co., Limited, 434 Yonge Street.

From the frequent appearance of admirable volumes upon diet and personal hygiene, it is evident that the importance of these subjects is being appreciated by the profession. This latest work on diet is comprehensive enough to meet the needs of the general practitioner, medical student, hospital interne, and trained nurse. It contains a full account of food stuffs, their uses and chemical compositions. Dietetic management in all diseases in which diet plays a part in treatment is carefully considered, the articles on diet in diseases of the digestive organs containing numerous diet lists and explicit instructions for administering. The feeding of infants and children, of patients before and after anaesthesia and surgical operations and the latest methods for feeding after gastro-intestinal operations are discussed with detail. The subject of rectal enemata is given completely, with recipes and full instructions as to technique. Diet is considered in its relations to age, occupation, and environment; and the beneficial results from the rest cure have been accorded due consideration. There is also a section on food adulteration and diseases resulting from the practice.

THE ANATOMY OF THE BRAIN. A Study of the Human Brain from the Brain of the Sheep. A Manual for Students in Medicine, Biology and Psychology. By J. F. BURKHOLDER, M. D., Professor of Anatomy in the Illinois Medical College. 175 Pages, Octavo, 32 Full Page Plates (5 coloured), Cloth, Price \$2.00 Postpaid. Chicago: G. P. Engelhard & Co., 358-362 Dearborn Street.

It is difficult to understand the *raison d'être* of this work on the Gross Anatomy of the Sheep's Brain, by which it is intended to teach students of medicine the human brain. The great scarcity of material is the chief reason advanced by its author. Fortunately Canadian schools are not so disadvantageously placed. They possess an abundance of material and each student is able to acquire a general knowledge of the human brain

from its dissection. This happy result is obtained by the removal of the brain from all subjects received, after preparation and injection, when the brains are placed in a preservative fluid until needed for dissection.

Certainly, students may with advantage undertake the dissection of the internal gross anatomy of the brain of the lower animals, such as the sheep, but simply as preparatory work to the dissection of the human brain. For this any of the text books of anatomy will prove ample. The central nervous system of man now forms so important a part of the medical student's course in anatomy, that its dissection becomes absolutely essential. As a means of teaching the human brain, this work is insufficient, and we cannot recommend its employment by students of medicine to the exclusion of text books which deal with the study of the human brain.

J. G. M.

SCIENCE AND IMMORTALITY. By WILLIAM OSLER. Houghton, Mifflin & Co., Boston. \$0.85.

In the December number of *The Journal* we called attention to the Ingersoll Lecture upon Science and Immortality, which was delivered at Harvard University by Dr. Osler, and desire to do so again more formally, now that the lecture is published in book form by Messrs. Houghton Mifflin & Co., of Boston and New York. The book has created a profound impression. If it leaves something unrevealed about the future state it discloses the present attitude of mind towards the subject, as interpreted by a master in the art of exposition.

ONE HUNDRED YEARS OF PUBLISHING.

Under this title Messrs. William Wood and Company have issued a brochure recounting briefly the history of the house since its foundation in 1804 by Samuel Wood, who opened a book-shop that year on Pearl Street in New York. With the exception of the Methodist Book Concern, this is the oldest publishing house in New York City, and throughout its existence the management has remained in the hands of one family—a fact worthy of remark in that country of frequent business changes, as is pointed out in the *Medical Record*. Soon after opening his store Samuel Wood set up a small printing press, and began to publish primers and other little books for children. The first of these publications, issued in 1806, was called "The Young Child's A B C, or First Book." In the course of time the sons and sons' sons were one after another taken into partnership as the elders retired, and under the influence of William Wood and of his son, the senior member of the present firm, the business of the house became gradually specialized in the direction of medical publications. This interesting historical ac-

count of the house of William Wood and Company is illustrated with pictures of the quarters occupied by the firm at various times, as the growth of the city drove them gradually further up town, and with portraits of the successive heads of the house.

Messrs. Lea Brothers announce for early publication a new work upon the practice of medicine, by Hobart Amory Hare.

In the review of "Medical Electricity" in the January Number, the reviewer omitted to mention that Messrs. Chandler and Massey are the Canadian agents for the publisher, Mr. H. K. Lewis, London.

Medical News.

CANADIAN MEDICAL ASSOCIATION.

The thirty-eighth annual meeting of the Canadian Medical Association will be held in Halifax from the 22nd to the 25th of August, 1905, both days inclusive, under the presidency of Dr. John Stewart, of that city. Recently there was held at Halifax a special meeting of the Medical Society of Nova Scotia, when were present several members from the surrounding country near Halifax. It was decided that the Medical Society of Nova Scotia should act as hosts and entertainers of the Canadian Medical Association. Dr. G. Carleton Jones has resigned from the position as local secretary, and the President, on the advice of his executive, has appointed Dr. J. R. Corston as local secretary, Dr. Jones having been appointed chairman of the General Committee of Arrangements. The address in Surgery will be delivered by Mr. Francis Caird, of the Royal Infirmary, Edinburgh, and the address in Gynæcology will be delivered by Dr. Howard A. Kelly, of Johns Hopkins, Baltimore. The title of his address will be "Cystitis in Women." Dr. J. W. Stirling, of Montreal, will deliver an address in Ophthalmology, in addition to this there will be addresses in Medicine and Pathology, and Dr. A. J. McCosh, of New York, will also be asked to present a paper.

The General Secretary is now in communication with the transportation companies as regards rates, and an effort will be made to have transportation extended to Sydney, with return via Portland, Boston or New York. From the manner in which the Maritime medical men have taken hold of matters, it is expected that the meeting in Halifax will be fully up to the best meeting yet held.

Any one desiring to present papers, present specimens or make demonstrations should enter at an early date into communication with the General Secretary, Dr. George Elliott, 203 Beverley Street, Toronto.

ROYAL VICTORIA HOSPITAL.

The eleventh annual meeting of the governors of the Royal Victoria Hospital was held on the 17th January, 1905.

The following appointments were made to the staff of the hospital:—
Associates in Medicine—Drs. Fry, Cushing and McCrac.

Clinical Assistants in Medicine—Drs. Burnett and McAuley.

Clinical Assistants in Neurology—Drs. Robertson, Robins and Russell.

Clinical Assistant in Ophthalmology—Dr. Tooke.

Clinical Assistant in Gynaecology—Dr. Goodall.

Clinical Assistant in Laryngology—Dr. Hamilton White.

Registrar and Assistant Registrar—Dr. Cushing and Dr. McAuley.

Dr. W. J. Cram was appointed externe in the X-Ray department, and Dr. Klotz house pathologist.

The number of patients admitted during 1904, 3,054, showed an increase of 123 over the year previous. There were 1,799 Protestants, 1,106 Roman Catholics, 131 Hebrews, and 18 of other faiths; 1,614 were free patients, 919 public ward patients, paying 50c and \$1 per day, and 521 private ward patients; 2,193 were residents of Montreal, and 861 came from districts outside of the city.

The total days of hospital treatment aggregated 74,777, as against 74,111 during the previous year, an increase of 666 days.

The average number of days' stay in hospital per patient was 24.15, as against 25.71 the previous year.

On the 1st of January, 1904, there were 210 patients in the hospital remaining from 1903, and during the year 3,096 were discharged, of whom 1,537 were well, 856 improved, 189 not improved, 329 not treated, and 175 died. Remaining in hospital 31st of December, 1904, 184.

Of the 175 deaths, 52 took place within 48 hours of admission.

The death rate for the year has been 5.66 per cent., or, if those dying within 48 hours after admission be deducted, 3.97 per cent.

The highest number of patients in the hospital on any one day was 226 on the 19th of January, and the lowest was 173 on the 26th December; the highest monthly average was 218 in January, and the lowest 190 in July; the daily average for the year being 205, as against 203 for the previous year.

During the eleven years that the hospital has been in existence, 26,589 patients have been admitted to the wards for treatment.

In the out-patient department the total number of patients treated was 3,992; the number of visits of these patients aggregated 23,094:—Medical, 8,996; surgical, 4,478; eye and ear, 4,142; nose and throat, 4,052; diseases of women, 1,426.

The income for the year 1904 was \$148,836, while the ordinary ex-

penditure amounted to \$120,449.18; the balance of \$28,386.82 being applied in reduction of the indebtedness incurred by the new operating rooms and other additions to the building.

There has been an increase of \$30.14 in the expenditure for 1904 over 1903.

The total cost per day per patient has been \$1.61; the cost per day of maintaining each person in the hospital—staff, servants, and patients—being 87 cents and the daily cost for provisions for each person 22 cents.

HOTEL DIEU.

During December, 1904, 397 patients were treated. Admitted, 101 men and 89 women; discharged, 106 men and 115 women; died during the month, 4 men and 11 women. The ambulance answered 60 calls, 11 of which were for accidents.

NOTRE DAME HOSPITAL.

One thousand five hundred and seventy outdoor patients received treatment in the various dispensaries during the month of December; 85 ambulance calls were responded to, 46 of which were for accidents; patients admitted, 159; discharged, 165.

A meeting of the County of Labelle Medical Association was held in Buckingham on Wednesday the 18th of January. Drs. J. D. Sicard and Alex. Roderique were entrusted with the carrying out of the arrangements for the reception of the members of the profession. Dr. Robillard, of Thurso, is President and Dr. J. A. Damours the Secretary-Treasurer. Mr. Henri Bourassa, M.P., delivered an address on the bill providing for reciprocity in the professions between the provinces. Drs. Mackay, of Papineauville, Paquette and Edmond Aubry, of Hull, delivered addresses.

Dr. George A. Charlton, late Governor's Fellow in Pathology of McGill University, and late Fellow of the Rockefeller Institute, has been appointed pathologist and bacteriologist to the North-West Territories, with headquarters at Regina, where the Government of the Territories and the College of Physicians and Surgeons will together equip a laboratory under his charge.

The Anti-Tuberculosis League of British Columbia have made overtures for renting the Royal Naval Hospital at Esquimalt, which the Admiralty is abandoning. It will accommodate fifty patients, and is

well equipped. Dr. Fagan, who is the father of the movement in British Columbia, announces that the Association proposes to establish a station for the treatment of tuberculosis in June—money or no money.

The Committee in charge of the "Osler Testimonial Fund" have issued a second appeal for subscriptions. Cheques may be sent to Dr. Wm. Gardner, 899 Sherbrooke Street, Montreal.

The total number of patients treated in the Toronto General Hospital during the past year numbered 3,875. There were 2,191 males and 1,684 females. On the 31st of December, 1904, there were 276 patients in the wards.

The annual meeting of the Ontario Medical Association will be held in Toronto, June the 6th, 7th and 8th, 1905, under the presidency of Dr. Wm. Burt, of Paris.

Dr. Jacob D. White, of St. John, died on the 4th of January in the seventy-eighth year of his age. Dr. White had been visiting physician to the General Hospital up to seven years ago, and was public coroner at the time of his death.

Dr. Harry W. Spence, of Toronto, died on the 23rd January. He was a graduate of Toronto University, 1900, and served in South Africa during the war.

Dr. W. Lamontagne, of Levis, died on the 19th of January in the 60th year of his age.

Dr. Ulyott, of Elmira, died on the 11th of January of pneumonia. He leaves a widow and a family of five children.

Dr. Robert Somers, a graduate of Toronto School of Medicine '94, died in Iowa of pneumonia on the 3rd of January.

Dr. N. F. Snider, of Odessa, near Kingston, was killed in a runaway accident on the 5th of January. He was 63 years of age.

Dr. R. M. Riddle, of Winnipeg, died on the 22nd of January of typhoid fever. He was a graduate of Manitoba Medical College.

We are informed that Her Majesty the Queen, whose interest in sick nursing is well known, has accepted from Mrs. Sarah A. Tooley a copy of her "Life of Florence Nightingale" (Bousfield & Co., London), recently reviewed in our columns.—*British Medical Journal*.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

PROF. VON BECK. "The Operation of Cardiolysis in Chronic Adhesive Post-Pleuritic Mediastino-Pericarditis." *Arch. Klin. Chir. Bd. 73, Heft 4.*

There is a certain group of cases of adhesive mediastino-pericarditis, usually following a left sided pleurisy, which is characterized by a systolic in-drawing of a wide area of the thoracic wall together with a diastolic "shake" of the chest. This mechanical interference with the work of the heart is apt to bring on muscle-degeneration, with its sequela of "stanungs" liver, cyanosis, rapid irregular heart-action, ascites, oedema over the malleoli, and possibly albuminuria. Apparently this is the latest district in the country of medicine to be invaded successfully by surgery. In 1902, Brauer, of Heidelberg, proposed to relieve the condition by means of an "operative bursting" of the thorax wall—a removal of the ribs overlying the heart; and, thereupon, Petersen and Simon in conjunction with Brauer operated upon three cases of this kind successfully.

In the present article, Von Beck reports three cases of his own. In one there was a wide area of in-drawing of the thorax; in another only at the apex, and in the third hardly any movement of the wall was visible. In all three a diastolic impulse over the heart was evident, and there were present the *reliquiae* of left-sided pleurisy, with the other signs above mentioned.

The operation consisted in the removal of the third, fourth, fifth and sixth ribs from the sternum to the anterior axillary line, including the periosteum and the intercostal muscles, underneath a horseshoe flap of skin and subcutaneous tissue.

In all three cases this operation of cardiolysis, as it is called, by relieving the heart of the mechanical interference under which it was labouring, brought about a complete restoration of its contractile power and its regularity of action; and in addition relieved the secondary stagnation phenomena in liver, spleen, and extremities.

The first case, an old *empyæma necessitatis* in a boy of 8 years, was able two years after operation to enter into all the sports of boyhood. The second was a long-standing empyæma, in which the heart was so bad that the necessary extensive thoracoplasty could never have been done without the preliminary cardiolysis, which, besides, had the advantage of being in itself a partial thoracoplasty operation.

In the third case, following a pleurisy two years previously, there were present severe anæmia, cyanosis, great dyspnoea, and oedema of

the legs. Walking was almost impossible because of the feeling of suffocation. Great pleuritic thickening, blowing breathing and râles on the left side. Heart enlarged, very irregular, and sounds muffled; with systolic in-drawing, diastolic impulse, and precordial thrill. Ascites, enlargement of liver and spleen; oliguria; and considerable albuminuria present. Five days after operation the heart action was regular and quiet; breathing was easy, and the patient was free of distress; a month later he was able to get up and go about without trouble, and he slept well. The urine was increased in amount, and the stagnation phenomena had largely disappeared. Truly a striking case!

FRANCIS B. HARRINGTON, M.D., and ALFRED H. GOULD, M.D. "The Use of the Segmented Ring in Gastric and Intestinal Anastomosis." *Annals of Surgery*, November, 1904.

The contribution is a clinical and experimental study. Twenty-two animals were operated upon, and the clinical report consists of nine cases. The advantages claimed for its use are, speed. A complete anastomosis can be easily done in fifteen minutes. Cleanliness, assisted by the clamps, the purse-string suture prevents even a mucous ooze while the continuous stitch is being placed. An intestinal suture is more easily done over the ring than without it. It is safe to use a single layer of continuous stitches, since the ring allows a perfect approximation to be made, and afterwards protects the suture until adhesions have formed. The handle is very useful for holding the intestines in convenient positions for suture. It is not necessary to sew up in layers, since a study from animals and human beings shows that the mucous membrane will slough in any case, and that repair is more rapid when the mucous membrane is not sutured. The presence of the ring guarantees a free opening at the site of operation. In case the continuous stitch should be improperly applied, the weak spots are protected by the ring itself for at least three days, until the ring breaks down. This allows strong adhesions to form. After operation the ring holds the sutures immovable and acts like a splint. The weight of the individual segments of the ring vary from 10 to 30 grains, according to size. This is in marked contrast to most other appliances of a similar nature. The disadvantages of the ring are, general objections to mechanical contrivances, and to one layer of sutures. Too large a ring may cause sloughing of the suture from pressure. A foreign body in the intestine is always a source of danger. The conclusions arrived at are that the process of repair is as rapid after use of the segmented ring as after a plain suture, the time required is less than in a straight intestinal suture. Certain objections, such as weight, ulcer, difficulty

of passage, inherent in other mechanical contrivances, are minimized by the ring. The analogy between experimental and the human observations is so close as to show the propriety of the deductions made from animal experiments. The employment of the ring in human beings is safe and satisfactory for all sutures.

BYRON ROBINSON. "Sudden Death, especially from Embolism following Surgical Intervention." *Medical Record*, January 14, 1905.

Byron Robinson subjects the causes of sudden death to an exhaustive analysis, and then describes nineteen illustrative cases. A large proportion of the instances of sudden death are due to embolism, usually through invasion of a vegetative centre in the floor of the fourth ventricle, or through asphyxia, caused by embolic lodgment in the pulmonary artery. The operations most often followed by embolism are those for appendicitis, hæmorrhoids, hernia and pelvic diseases, and on the kidney, prostate and bladder. Prophylaxis includes placing the patient in as perfect a condition of physiological and anatomical rest as possible, several days before the operation, and by a complete evacuation (a dozen movements) of the intestinal tract, and flushing of the kidney by giving eight ounces of half decinormal salt solution, every two hours, six times a day. With these two systems drained to a maximum, the patient can be placed in the most perfect state of physiological and anatomical rest, which is the safest condition for any surgical intervention, and is a prophylactic against embolism. Such a state withstands to the highest degree the trauma of anæsthesia, shock, peritonitis, infectious, invasions, nephritis, pneumonia, and embolus.

CHARLES HARRINGTON. "Some Studies in Asepsis." *Annals of Surgery*, October, 1904.

Harrington considers that the danger of infection from sweat during operations is minimal; he has repeatedly examined sweat secretion after the ordinary pre-operative cleansing of the hands, and found it usually sterile. On the other hand the danger of infection from saliva droplets projected into the wound by the mere act of speaking (Flügge's well-known experiments) is in his opinion of far greater importance, because "the secretions of the mouth are likely to be richer in virulent bacteria than the foulest sewage." We must either be silent when operating, or wear proper masks. In the matter of dressings, Harrington emphasizes two points. Tight packing in the sterilizer prevents the access of the steam, and should be avoided. With proper precautions as to packing and vacuum formation, sterilization of dressings and

sponges required, but one exposure to steam under fifteen pounds pressure for thirty minutes at most.

As to the sterilization of the hand, Harrington is quite iconoclastic in his statements—for all of which, by the way, he brings bacteriological proof. He finds the long-used permanganate-oxalic process quite ineffective in a ten-minutes exposure against the staphylococci and *B. Coli*. All the other ordinary preparations, except alcohol, in the usual strengths and over he finds practically ineffective; “out of 22 not one acted under two minutes, and most of them only after five.” Harrington’s endeavour was to find a preparation that would kill not in minutes but in seconds. And, to be brief, he proposes the following mixture: commercial alcohol (94 per cent.), 640 cc.; hydrochloric acid, 60 cc.; water, 300 cc.; corrosive sublimate, 0.8 gramme.

The mixture thus contains 60 per cent. absol. alcohol, 6 per cent. commercial (strong) Hcl, and 1-1250 subclimate. It seems, in general, to kill bacteria from 5 to 10 times as quickly as the strongest of ordinary antiseptic solutions. Soaking, even of the unscrubbed hands for two minutes gave almost regularly perfect asepsis. The mixture does not seem to be materially irritating to the skin.

F. J. SHEPHERD, M.D. “Hernia of the Bladder complicating Inguinal Hernia.” *Annals of Surgery*. December, 1904.

Dr. Shepherd cites four cases from his own experience in which inguinal hernia complicated the operation for inguinal hernia, a condition which is present in one per cent. of all cases. Reference is made to Farquhar Curtis’ collection of 41 cases, in which the mortality was 25 per cent., and Dr. Shepherd mentions two fatalities which have not been reported. In all of his cases it was the extra peritoneal position of the bladder which protruded; the lower wall of the hernial sac was bounded by the bladder, the peritoncum forming this position of the sac being closely attached to the bladder and pulling it down as it protruded. In Case I., Dr. Shepherd inadvertently opened the bladder, but sewed up the rent immediately, and no harm resulted. In Case II., guided by previous experience, he returned the bladder uninjured, and the recovery from the entire operation was uneventful. The third case was similar to the second, and the result was the same. Case IV. was much complicated by the fact that there was a sac of fluid in front of the tumour, not communicating either with the hernial sac proper or with the bladder. On passing a sound into the bladder, it was seen that the inner and anterior wall of the sac was formed of that organ. The omentum, which was partly adherent, was tied off and cut away, and the sac was carefully dissected from the protruding bladder. In this

dissection the muscular coat of the bladder was wounded, but the bladder was not opened. After suturing the wounded bladder, the sac was tied off and the bladder reduced, all with good results.

In connexion with the condition, Dr. Shepherd calls attention to the following facts:—*First*, the inguinal opening is always large and out of proportion to the size of the protruding intestines. *Second*, the cord is not intimately associated with the sac of the tumour, but can be readily held aside without dissection; it is usually to the outer side of the tumour. *Third*, in two at least of the cases the hernia was a direct one, and in all had been produced by a sudden strain. *Fourth*, the difficulty of finding a neck to the sac, for the anterior portion of the sac stretches away towards the pubis, and may be covered with granular and vascular fat.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY, H. A. LAFLEUR AND
W. F. HAMILTON.

ALBERT ABRAMS, A.M., M.D., San Francisco, "*The Cardio Splanchnic Phenomenon.*" *American Journal of the Medical Sciences*, January, 1904.

The facts of this phenomenon are correlated to intra-abdominal tension, and the effects of such tension on the circulation. Definition:—If the lower sternal region, i. e. the sternum contiguous to the heart, is first percussed in the standing and then again in the recumbent posture, one may appreciate a decided alteration in the percussion tone. In the former attitude it is resonant or even hyperresonant, in the latter it is dull or flat. This constitutes the cardio splanchnic phenomenon.

Much of the physiology of the phenomenon has been experimentally described by Hill and Barnard in *Journal of Physiology*, Vol. XXI. Vigorous compression of the abdomen will exaggerate the phenomenon in all instances. Three factors enter into consideration in the mechanism of blood supply to the splanchnic vessels, viz.: (1) contraction of the abdominal muscles, (2) respiration, and (3) the regulating vasomotor action of the splanchnic vessels.

In the elicitation of the cardio splanchnic phenomenon, palpatory percussion must be our chief mentor. It is not considered that the cardiac diameters are increased when the phenomenon is present, but the increased dulness is considered due to the fact that the right ventricle is then filled with blood, and this is sufficiently pronounced to dampen the sound obtained from the vibration of air within the lung alveoli.

Clinical and therapeutic points:—Suppose a person complains of

sternal pressure. If this is dependent upon a dilated heart it would disappear on application of a vacuum cup to the abdomen, as the blood would be expressed from the heart to the abdomen and the sensation of pressure would disappear at once.

The phenomenon would prove valuable in the differential diagnosis of a dilated heart from a pericardial exudate; in the latter affection it would not be elicited.

The overtaxed right heart is operative in predisposing to an asthmatic paroxysm and augmenting its severity. In a severe asthmatic attack which resisted the conventional remedies, a vacuum cup to the abdomen arrested the attack.

In dyspnœa from any cause the implication of the heart in this symptom may be gauged by expressing blood from the right heart by means of a vacuum cup applied to the abdomen; if the dyspnœa is relieved we have reasonable assurance that it is caused by an overburdened heart.

The elicitation of the cardio splanchnic phenomenon is unattended by any increase in the blood tension. Our only guide in estimating the amount of blood which is diverted to the right heart is the cardio splanchnic phenomenon, not only the phenomenon *per se*, but the degree of its demonstration.

In syncope it appears that the object achieved is not so much the determination of blood to the brain as it is to the determination of blood to the right heart. The following manœuvres, in order of citation, will express the largest amount of blood to the right heart: (1) Suspension by the feet. (2) Inversion of the patient. (3) Compression of the abdomen. (4) Recumbency.

An overtaxed right heart is present in many cardio respiratory conditions. Instances do occur when bleeding is justifiable, and it would prove more effective if the patient were bled into his own vessels. The application of a vacuum cup to the abdomen meets the emergency and should be employed, if only as a tentative measure, should an overburdened heart with its consecutive phenomena warrant its employment. If this manœuvre is effective, it may be repeated any number of times, as it is a method harmless and painless if the exhaustion of the cup is not executed beyond a reasonable degree.

T. J. MAYS, A.M., M.D. "*Vagus Reflex.*" A new physical and prognostic sign in Pulmonary Disease. *New York and Philadelphia Medical Journal*, September 3rd, 1904.

The test is applied by compressing the vagi in the neck. The nerve is readily compressed by standing or sitting before the patient, and laying the thumb over the carotid artery, or better slightly behind it, and

resting the other finger on the nape of the neck and gently pressing the nerve backward against the hard part below.

Characteristics of its presence. In some the sensation is the same on both sides, while in others there is a marked difference between the two. If the sensation is the same on both sides and is not greater than would be produced ordinarily or naturally by the pressure applied, the vagi may be called normal. If the reaction which is called forth on both sides is even and out of proportion to the degree of pressure applied, the vagus reflex may be said to exist on both sides of the neck. Frequently it is present on one side only. Where vagus reflex is very marked there may be the additional symptoms of dyspnea, dizziness, sweating, retardation of pulse and heart, weakness of extremities, and patient may even become pale, speechless, and drop down before you unconscious and have a slight convulsive contraction of the shoulder and arm muscles. The painful sensation may or may not be accompanied by pain in the eye, ear, head, shoulder, arm or leg of same side.

Results of examining 380 cases (138 persons suffering from pulmonary consumption and 242 healthy persons).

Of the 138 cases of pulmonary consumption 97 per cent. of the cases had the vagus reflex and the pulmonary affection on the same side, or had the reflex on both sides where both lungs were affected. In 3 per cent of the cases the vagus reflex and the lung disease were located on opposite sides of the body.

Of these cases, 109 had a family history of consumption, and additionally 3 had family history of epilepsy, 4 of alcoholism, and one of asthma.

It has been frequently observed that in consumptive patients who recovered or improved, the vagus reflex disappeared or became greatly ameliorated.

Of the 242 healthy persons examined, in 125 there was complete absence of family history of consumption and vagus reflex. The remaining 117 of this class presented either a vagus reflex or a family history of consumption.

Of these 117 cases, in 80 per cent. a vagus reflex and a family history of consumption co-existed in the same individual. In 12 per cent. a family history of consumption was unaccompanied by a vagus reflex. In 8 per cent. the vagus reflex was present without a family history of consumption. The intensity of the vagus reflex is largely governed by the proximity and the number of the family members who died of phthisis.

Of the 8 per cent. of cases in which a vagus reflex was found without a family history of consumption, there were 3 with an alcoholic and 2 with an insane ancestry.

The author considers that, by projecting the family history of the potential consumptive into the present, the vagus reflex not only foreshadows that which is not otherwise evident to the senses, but becomes an important factor in the prophylaxis and treatment of this disease.

On the Occurrence of Broadbent's Sign, by ALICE W. TALLANT, M.D.
Boston Medical and Surgical Journal, October 27, 1904.

This sign was first described by Walter Broadbent in 1895, as a "visible retraction, synchronous with the cardiac systole, of the left back in the region of the eleventh and twelfth ribs," occurring in cases of adherent pericardium.

Dr. Tallant examined 130 hospital patients with reference to the presence or absence of this sign. In 25 cases she found marked retraction of one or more ribs, and in 20 others slight retraction of an interspace. None of these 45 cases showed any other sign of adherent pericardium, but 23 of them had various cardiac lesions and 11 others were very thin individuals. From this she concludes that retractions in the left back are much more common than is generally supposed, occurring in many cases of cardiac hypertrophy, and especially well seen in thin individuals.

Since the pericardium is, even under normal conditions, adherent to the central tendon of the diaphragm, it is conceivable that with each systole there is a slight full on the diaphragm. Under ordinary circumstances this is not marked enough to be transmitted to the points of attachment of the diaphragm to the chest wall, but if the heart is hypertrophied the full may be sufficient to be visible externally, while in a thin individual even a slight movement would be more easily perceived.

Ueber Lungensteine, by PROF. R. STEIN. *Deutsche Medizinische Wochenschrift*, September 22nd, 1904.

The expectoration of pulmonary calculi is a rather rare affection and one which has attracted considerable interest. The writer reports in detail three cases and reviews what is at present known in regard to the condition. The calculi are of varying sizes and all consist of carbonate and phosphate of lime with traces of magnesia. As to their mode of origin, they are usually calcareous concretions formed in tuberculous or bronchiectatic cavities, a piece of hardened secretion, blood-clot, or foreign body serving as a nucleus. They are also formed by the calcification of glands, lung tissue, or bronchial wall, which afterwards ulcerate through into the bronchi. The commonest primary factor is tuberculosis.

The symptoms vary as greatly as do those of calculi in other organs. They may be altogether latent, or by mechanical obstruction, irritation, or infection may cause severe symptoms. The commonest symptom is repeated hoptysis, caused by laceration of the bronchial mucosa or of the lung tissue. In certain cases this symptom, combined with the effects of secondary infection, causes a great resemblance to pulmonary tuberculosis, the so-called Pseudophthisis calculosa.

So far the diagnosis has only been made in cases where the calculi have been expectorated. Possibly, in the future, the X-rays may enable us to arrive at a diagnosis earlier. In such cases surgical interference would be the only indication.

On the Etiology of Fibrinous Bronchitis, by W. T. RITCHIE, M.D.
The Edinburgh Medical Journal, February, 1904.

The writer reports the results of a very complete examination of three large casts from a case of chronic fibrinous bronchitis. He finds the casts to consist of concentric laminæ, which are themselves composed of fibrils giving the reactions of fibrin. There was no reaction for mucin present. Between the laminæ were many leucocytes, mostly mononuclear forms, with a few polynuclears, and eosinophiles. The terminal branches were markedly spiral in arrangement. Careful bacteriological examination showed the constant presence of pneumococci both within and on the surface of the casts. In other similar cases, other micro-organisms have been found, and there is nothing to show that the disease is induced by a specific virus.

The writer inclines to the theory of Fränkel to explain these cases, viz., that, owing to a permanent denudation of a portion of the bronchial mucous membrane of its epithelium, there is a copious pouring out into the bronchi of coagulable fluid, which afterwards coagulates and forms a fibrinous cast.

On the Mechanism of Exophthalmos, by W. G. MACCALLUM and W. B. CORNELL. *Medical News*, October 15th, 1904.

The above paper is the report of a series of experiments carried out with the object of ascertaining the exact mechanism of the exophthalmos which is produced in animals by circulatory disturbance or by stimulation of the cervical sympathetic. The exophthalmos was recorded by means of a lever one end of which was attached to the cornea of the animal, while the other rested on a revolving drum.

In brief, the writers have established the following conclusions:— Any obstruction to the outflow of blood from the veins of the orbit produces at once exophthalmos, relieved by the establishment of a collateral circulation. This is completed so slowly that in the meantime

the orbital tissues become very cedematous thus adding to the exophthalmos.

Entirely independent of any circulatory changes is the exophthalmos produced directly by the stimulation of the cervical sympathetic nerve. This protrusion is due to the peristaltic contraction of the orbital muscle of Müller. This exophthalmos can be kept up for at least 8 or 10 hours by slightly increasing the stimulus.

To quote the writers, "from these experiments we can draw no certain conclusions as to the mechanism of the exophthalmos in Grave's disease; but the possibilities are perhaps more closely defined."

H. B. C.

SINNHUBER. "The Relation of the Thymus to Metabolism." *Zeitschrift für klinische Medicin*, Vol. 54, Nos. 1 and 2.

Sinnhuber has conducted a series of investigations on this subject, and comes to the following conclusions:—The thymus is not an organ important to life in the post-embryonal period. The extirpation of the gland is without influence on the excretion of lime, and the thymus has no causal connexion with rachitis in so far as this is concerned with the question of the intake and output of lime. When the gland is atrophied or hypertrophied in this disease neither the rachitis nor the thyroid lesion is either primary or secondary; both are the result of an underlying etiological process. The nature of this underlying process is associated with the lymphatic diathesis, and this is usually the result of an interference with intestinal activity caused by insufficient or unsuitable nourishment. In feeding experiments the consumption of thymus gland is without appreciable effect on the excretion of lime, but the nitrogen output is increased. Large doses of thyroïdin markedly increase the excretion of lime as well as the nitrogen output, which is even in excess of the intake.

H. M. KING. "On the Healing of Tuberculosis." *Medical Record*, January 7, 1905.

H. M. King says that the first onset of tuberculous infection, in many cases, if not usually, antedates the appearance of clinical symptoms by months or even years. Careful search into the previous history of such patients reveals slight illnesses of various sorts, such, for example, as malaria or grip, which the results of autopsy work make it appear are probably evidences of systematic reaction to tuberculous infection. Two cases of this type are described, and the author states the following general propositions:—(1) It is probable that the initial lesion follow-

ing a tuberculous infection is often obscure in its clinical manifestations, and frequently escapes identification. (2) There is nearly always a prompt and very often successful tendency on the part of the organism to a more or less complete repair followed by an interval of apparent health. (3) Following this interval, which may extend into a period of years, there is a strong tendency to relapse. (4) What is in reality a recrudescence of an arrested lesion is very frequently mistaken for an initial onset. (5) Whatever may be the facts in an individual case, the safest and most practical policy lies in regarding every apparent recovery from tuberculosis as merely an arrest of the disease, brought about by an acquired immunity which suitable conditions are very prone to destroy. The author has found that the generally accepted prognostic significance of a diazo-reaction in tuberculosis has application chiefly, if not solely, to the last stages of the disease, and it may be temporarily present even in early acute manifestations without necessarily indicating an unfavourable termination. A slight leucocytosis is present much earlier in the disease than is usually believed.

R. L. SUTTON. "The Diseases of the Isthmian Canal Zone." *Medical Record*, January 14, 1905.

R. L. Sutton gives a résumé of the most prominent features of the various tropical and other diseases commonly encountered in the canal region. The list includes malaria, dengue, beriberi, infection with intestinal parasites of numerous species, lesions due to the bites of various insects, heat exhaustion and sunstroke, acute and chronic rheumatism, dysentery, leprosy, smallpox, and yellow fever. The latter is not epidemic at present in this region, and sporadic cases are rarely seen. Malaria is more widespread than any other affection, and the esivo-autumnal form is the commonest variety. Quartan infections are not observed. Dengue is the disease which most frequently attacks the newcomer, and the local form is peculiar to the unreliability of the primary and terminal eruptions, which do not possess the diagnostic value usually accorded to them, as they are absent in the majority of cases. Blood counts show an early leucopenia with a normal differential count, which is later followed by eosinophilia after the second rise and lymphocytosis as convalescence begins. Beriberi assumes both the tropical and paraplegic forms, and especially affects the Chinese contingent, although the natives do not entirely escape. Uncinariasis is the most important and dangerous of the intestinal infections, and may cause extreme degrees of anæmia with hemoglobin as low as 20 per cent. Eosinophilia is very high, seldom being below 20 per cent., and in one instance being over 65 per cent. Castor oil, followed by three

20 gr. doses of thymol, at two hours intervals, cures most cases. Dysentery, both of the bacillary and amebic type, is much in evidence among the natives, but the troops suffer little from it, owing to the careful guarding of the water supplies. Hepatic abscess is seldom encountered.

IRA S. WILE, M.D. "Preliminary Notice of a New and Simplified Double Stain for Bacillus Tuberculosis." *N.Y. M.d. Journ.* and *Phila. Med. Journal*, January 28, 1905.

Instead of using Gabbet's solution or decolourizing with acid alcohol and counterstaining with Bismarck brown, the smear is drained of excess of carbol fuchsin stain, washed in distilled water, and then plunged repeatedly into sodium hypochlorite until the slide presents a uniform brown appearance. The slide is washed in distilled water, dried between blotting paper, and examined. The bacilli tuberculosis appear as red rods upon a brown field. Other bacterial forms, with the possible exception of *B. smegmæ* and *B. lepræ*, are brown in colour.

OPHTHALMOLOGY.

UNDER THE CHARGE OF FRANK BULLER

REBER. "Relation of Diseases of the Eye to those of the Teeth." *Ophthalmology*, October, 1904.

There is rather a close connection between the eye and the teeth. The mucous membrane of the mouth is continuous with the conjunctiva through the nasal duct. The periosteum of the orbit extends to the dental edge of the upper jaw. Pus in the antrum or from carious teeth may burrow into the orbit. The angular artery and certain veins run almost directly from one region to the other. The nervous supply is the same, viz., the fifth and the sympathetic.

Reber divides the ocular lesions associated with dental trouble into:—

1st.—Purely functional. No organic change.

2nd.—Functiono-inflammatory, in which there is true inflammation of the ocular structures arising from dental irritation.

3rd.—There may be true inflammatory changes arising by direct extension of the process from one region to the other by direct continuity or by metastasis.

4th.—Dental neuralgia can, on the other hand, be secondary to ocular disease.

In the first group many examples are reported; from transient mydriasis to complete blindness without any visible change. The association of amaurosis or amblyopia with alveolar abscesses or carious

teeth is common, as is also paralysis of accommodation. Reber mentions a rare case of his own, due to traumatic hysteria, secondary to the extraction of a tooth where the eye symptoms changed from time to time. Paralysis of the extra ocular muscles, monocular diplopia, micropsia and spasm are also reported.

In the second group there is no direct continuity, but it would appear as if there were a reflex inflammation set up in the eye. Glaucoma is frequently reported in this connexion, and the authorities agree that the irritation of a dental branch of the fifth nerve can produce or superinduce glaucoma. Other lesions reported in this category are neuro-paralytic keratitis, corneal ulcers, irido-choroiditis and zonular cataract, but these are insufficiently verified.

The members of the third group are the best witnesses for the interdependence of the eyes and teeth; they are demonstrable on purely anatomical grounds. Oedema and cellulitis of the cheek and of the lids is quite common in alveolar periostitis and pyorrhea. Alveolar inflammation not infrequently involves by extension the antrum of Highmore, the periosteum of the lower orbital margin and the orbit itself. Exophthalmus and degeneration of the optic nerve and purulent destruction of the eye are reported by Hirsch. The inflammation spreads by the veins setting up thrombo-phlebitis, exophthalmus and finally abscess of the orbit. After the removal of a carious tooth, the orbital abscess developed, which later set up a fatal meningitis. Fatal septic thrombosis of cavernous sinus following the extraction of one of the black molars has been reported. The patient presented all the symptoms of metastatic orbital abscess, along with general septicæmia, of which he died three weeks after the extraction. In not a few cases orbital abscess is developed after a gum boil, which later runs on to meningitis and death. There is a close relation between lachrymal and alveolar fistula.

Parinaud reports cases in which the pus cavity opened just above the lower end of the lachrymal sac, and led to a mistaken diagnosis of fistula of the sac. Caries of the lower orbital margin may be simulated by an alveolar fistula at the outer half of the lower edge of the orbit. The ocular symptoms sometimes would appear out of all proportion to the apparent insignificance of the dental trouble.

Lastly, in the fourth group dental neuralgia may be secondary to ocular disease, the pain extending from the eye to the teeth, as in iridocyclitis and sometimes glaucoma. Neuschuler reports cases where the straining of accommodation in errors of refraction occasioned intense dental neuralgia. Reber notes a case where a two-degree prism overcame a muscular defect, and effected a cure of severe dental neuralgia, and he suggests that it is well to examine closely the teeth in all cases

of inexplicable paralysis of accommodation. Another point is that from two to ten days is the time wherein infection from the alveolar wound is most likely to take place. The hysterical infection may occur at almost any time within six months.

A diseased tooth may express itself in almost any part of the body, while, on the other hand, disease in any part of the body may express itself in discomfort associated with the teeth.

GUNN. "Retro-Ocular Neuritis." *British Medical Journal*, November 12th, 1904.

This is the report of an extensive discussion which occurred at the last meeting of the British Medical Association, at which Mr. Gunn read the preliminary paper. Mr. Gunn in his paper gave the synopsis of the characteristic symptoms of this disease. It may be monocular or binocular. There is a rapid loss of vision coming on in from one to three days, sometimes a little longer; there is a central scotoma, and but rarely other contraction of the field; the pupil is sluggish; there is an absence of fundal changes early in the onset, but later slight papillitis or optic atrophy may develop, the light sense is defective, and the distinguishing feature is rapid failure of vision in contrast to the length of time true papillitis would exist without this failure; on the other hand, the failure is not so sudden as in embolism or thrombosis. There is generally recovery of vision in six weeks, but this sometimes fails to occur. In many cases pain at the back of the eye is complained of, and when deep seated the prognosis is less favourable, as it may indicate gross changes at the optic canal. Pain is often caused by pressing the globe backwards.

The inflammation may extend from the neighbouring structures, e.g., orbital cellulitis, periostitis, exposure to cold seems to favour it, and in many cases gouty or rheumatic scleritis extends to the nerve at the point where it joins the sclera. Syphilitic or tuberculous deposits in the optic nerve are the cause of rapid changes in the nerve. In this latter group may be included the so-called primary cases, e.g., those in insular sclerosis and those ascribed to influenza and gout; in the former recurrences are very likely to occur, and women are more frequently affected in primary cases than men.

Mr. Berry insisted on the importance of defective light sense as a diagnostic feature.

Dr. Uthoff considers the changes in the optic nerve can result from an interstitial process, which can attack the optic nerve trunk in a circumscribed portion of its course, and be followed by an ascending or descending degeneration. He also considers it doubtful if the ganglion

cells of the central portion of the retina are the seats of the primary disease with the secondary degeneration of the nerves and fibres in the trunk.

As to the cause, lues is accountable for the greater number, hereditary tendency, multiple sclerosis, anomalies of menstruation, cold, loss of blood, disorders of neighbouring cavities, periostitis of the orbit, influenza, typhoid, malaria, are also factors.

Dr. Oliver mentioned two family trees, one extending over more than 250 years and including more than 150 cases.

Dr. Hill Griffith considers that the cause in some cases is inflammation of the sclerotic around the entrance of the optic nerve in rheumatic individuals.

Finally, one or two cases are reported where the attack had followed sudden change from heat to cold, and might be due to the shock.

HINSHELWOOD. "Word-Blindness." *British Medical Journal*,
November 12th, 1904.

Dr. Hinshelwood's article deals with the history of two very interesting cases of word blindness. In the second one it was associated with homonymous hemianopsia, and the post-mortem examination is appended. The first case was that of a boy, and the treatment which Hinshelwood advised was short reading lessons every day, in this manner gradually training the right side of the brain. The child in question had been considered very stupid in his reading in school, although remarkably smart in his mathematics, etc. The difficulty was really that of storing up and retaining the visual memories of words. The patient retained the memory for letters, and could read a word if allowed either to spell it out aloud letter by letter, or to move the lips silently or to trace the form of the letters with the hand.

The second case was that of a French teacher, 58 years of age, in whom the onset of the blindness was very sudden, and lasted until his death, nine years later. There was also right homonymous hemianopsia. The post-mortem examination revealed a large cyst, limited as follows:—Superiorly by the calcarine fissure extending forward to the depression over the posterior part of the hippocampal gyrus over which the strand of shrunken membrane stretched in the direction of the crura. Posterior limit just short of the occipital pole, being cut off from it by a somewhat deep chiasmic fissure, corresponding to the posterior limit of the calcarine fissure. Externally and inferiorly the margin of the lesion corresponded with the posterior part of the third temporal sulcus. Anteriorly and inferiorly the margin ran obliquely towards the hippocampal gyrus. The cortex was shrunken and the pia

closely adherent to the altered surfaces. "Brocas" convolution and the angular gyrus were intact, but the latter was notably simpler in form than the right gyrus. The lesion would point to acute softening of the brain consequent upon thrombosis of a branch of the posterior cerebral artery, there being marked general vascular degeneration. The cavity was continuous with the posterior horn of the lateral ventricle, and the visual centre in this case lay distinctly below the level of the calcarine fissure, the cuneus being intact except at the calcarine fissure. The left angular gyrus is the area in which is deposited the visual memory of words and letters, and the destruction of this cortex in such a position as to divide the fibres which pass to the left angular gyrus from the calcarine fissure in both occipital lobes must involve the radiation of Gratiolet, causing right homonymous hemianopsia.

ONODI. "Amblyopia and Amaurosis of Nasal Origin induced by Disease of the Posterior Accessory Sinuses." *British Medical Journal*, November 5th, 1904.

This extremely interesting article on a comparatively obscure subject deals largely with the anatomical relations of the nasal and ocular cavities. As to the anatomical relations, Onodi states:—

1st. The optic canal can be formed on both sides by the sphenoid cavities.

2nd. The optic canal may be connected on both sides with the posterior ethmoid cells only.

3rd. The optic canal may form on one side the sphenoid cavity, on the other the posterior ethmoid itself.

4th. The optic canal on the one side may be related either with the sphenoid cavity or with the posterior ethmoid cell.

5th. The optic canal may be related on one side both with the sphenoid and with the posterior ethmoid cell.

6th. The optic canal may be related either with the sphenoid or with the posterior ethmoid cavity.

Optic neuritis is rarely seen in inflammation of the frontal sinus, more often in inflammation of the ethmoid or maxillary, but it is produced, if at all, by inflammation of the sphenoid sinus, and it is characterized by being unilateral. The numerous minute blood vessels perforating the bone form the real means of communicating inflammation by thrombosis through the sphenoid or ethmoid; at the same time it is remarkable how many cases of pure inflammation of the sphenoid and ethmoid, with necrosis of the same, have occurred without setting up optic neuritis, although the lesion may be in absolute contact with the nerve.

The chiasma is often also affected, as it immediately overlays these

cavities. The removal of adenoids and hypertrophies of the turbinated bodies of the nose has relieved and sometimes cured neuritis. Bitemporal hemianopsia has been reported. Of course, tumours and traumata (fractures) can by their presence cause neuritis or atrophy.

The lymph vessels and veins are the most important methods of communication, and which would conduct inflammation or thrombosis, either into the cells, and which would conduct inflammation or thrombosis, either into the anterior frontal cavity or to the roof of the orbit or the ethmoid bone. The anterior ethmoid artery, with its vein and nerve, runs in this canal, therefore the connexion of the ethmoidal veins with the dural venous plexus and with the ophthalmic plexus can conduct by virtue of thrombosis, inflammation in these two directions and also into the orbit and into the cavernous sinus. There may also be defects in the walls of the sphenoid, which would allow of the direct spread of inflammation.

J. W. STIRLING.

Society Proceedings.

LA SOCIETE MEDICALE DE MONTREAL.

Meeting of January 10th, 1905.

Dr. O. F. MERCIER, President.

The first meeting of the year 1905 was attended by an unusually large number of members. After the reading of the last meeting's proceedings and their adoption, Dr. O. F. Mercier presented a living case, a female patient, aged 47, suffering from an arterio-venous aneurysm of the wrist, which appeared spontaneously without any apparent traumatism.

The next item was the report of a case of cerebral cedema, with dropsy of the lateral ventricles, by Dr. A. LeSage. Syphilis was suspected and treated, but treatment did not give the expected results. The patient was seen by Dr. A. A. Foucher, who diagnosed cedema of the optic nerve, and upon consultation, lumbar puncture (Quincke's) was resorted to with almost immediate results; 12 c.c. of bright cerebro-spinal fluid were removed. The ocular symptoms rapidly disappeared, and a week after the puncture the patient was dismissed cured.

Dr. Foucher carefully discussed the case, and insisted upon the great aid to be derived from an ophthalmoscopic examination in cerebral affections.

The third item was the report of a case of repeated intestinal obstruction caused by invagination. Operation: recovery. The patient was

a girl of 18, of rather unhealthy appearance, who entered the Notre Dame Hospital, May, 1904, presenting symptoms of intestinal obstruction. This diagnosis seemed rather doubtful, similar attacks being recorded in the patient's previous history. Medical treatment sufficed in a few days to bring about subsidence of the worst symptoms; tympanites having disappeared, a mass was detected in the right iliac fossa, and surgical interference was proposed. Upon operation this mass proved to be an old-standing invagination. The bowel involved was resected, and the patient made an uninterrupted recovery, leaving the hospital four weeks after the operation cured, and having gained several pounds in weight.

The meeting closed by the reading of a letter from the Medical Society of the District of Ottawa inviting a delegate from La Société Médicale de Montréal" to attend its meeting in Buckingham. After discussion, it was decided to send two delegates, their choice being left with the council of the Association.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The seventh regular meeting of the Society was held January 6th, Dr. J. A. MacDonald, President, in the Chair.

F. R. ENGLAND, M. D., exhibited a living case of fracture of the skull with the following notes on the case:

The patient is a young man, 19 years of age, who was admitted to the Western General Hospital, November 24th. While at work a brick fell a distance of 50 feet on the top of the patient's head; he was knocked down but did not lose consciousness and was perfectly conscious on admission to the hospital. There was slight hæmorrhage from the scalp wound which was easily controlled by pressure; the right arm and leg were completely paralyzed; the pupils were equal and normal in size reacting to light though somewhat sluggishly. There was no vomiting, no collapse. The patient arrived at the hospital at 12 noon and was operated on that night. Before the operation he regained power in his right arm but the leg remained absolutely paralyzed. The impact was at a point about mid-way between the occipital protuberance and the nasal-spine a little to the left of the middle line and locating pretty well the upper part of the left fissure of Rolando, explaining the paralysis in the right leg. The wound in the scalp was stellate and at the operation was enlarged freely to expose the skull, which had a somewhat remarkable appearance in that a round piece of bone about an inch in diameter had been depressed sufficiently to expose the diploe.

The disk of bone was elevated with a chisel and removed, the opening in the skull was considerably enlarged with Rongeur forceps and all loose spicules of bone from the inner table removed.

Pulsation of the brain appeared immediately and apparently no hæmorrhage had occurred into the brain substance; the meninges, therefore, were not opened. After thoroughly cleansing the parts the scalp wound was closed, a small coil of rubber tissue was introduced at the lower angle of the wound for drainage and a dry dressing applied. At the end of the operation, when the last sutures were being put into the scalp, the patient's condition suddenly became very poor, he looked pale, the pulse was weak and rapid, respiration shallow and irregular. A hypodermic of strychnine, however, revived him. Convalescence was uninterrupted. The day following the operation there was slight return of movement in the muscles of the thigh. Two days later the patient complained of involuntary extension of the foot. The drain was removed 43 hours after the operation and the stitches on Nov. 31st, six days after operation, when the wound was found perfectly healed, the patient could move his thigh freely but could not move his ankle or toes to any extent. On December 14th he was allowed up and since then has been gradually gaining power in the leg and can now walk very well though the toes and ankle are still weak. The pulsation now seen in the head appeared immediately after removal of the piece of bone.

Dr. England also showed two diagrams illustrating how the point of impact corresponded to the leg centre.

Dr. RICHARDSON showed a specimen of sarcoma of the omentum taken from a woman 40 years of age. Dr. England gave the following account of the case. The patient had been 14 years married and had no children. About two years previous to coming under observation she began to have sudden severe attacks of pain in the epigastrium, so severe as to oblige her to remain in bed for a day or two. The pain would gradually wear off but there was usually vomiting all next day. It was also noticed that the pain would come on before the menstrual period, though there were attacks of vomiting independent of this. During one of these attacks, about two years ago, the patient noted a small lump in the abdomen to the right of the middle line and she thinks it has grown since then. On entering hospital she was found to be a well nourished woman, good colour, good appetite, and no pain on admission. There was no history of loss of flesh. Physical examination of the abdomen showed that it was prominent, with thick fatty walls. On palpation a firm, smooth, globular mass about the size of a foetal head could be felt in the right hypochondrium; only slightly sensitive, freely movable and could be pushed into the epigastrium and into the left hypochondrium but not down into the pelvis. Vaginal examination was negative. The tumour could be grasped by placing one hand in the right loin and the other on the abdomen, Percussion note tympanitic over whole abdomen, but less marked over tumour region. This peculiar movable tumour giving a history of

two years with gastric symptoms led me to consider the case as probably one of enlarged movable kidney. I could exclude any condition of the ovary for the mass could not be pushed into the pelvis, neither did it seem to be connected with the gall bladder and as it could be so readily pushed into the loin, I favoured an enlarged movable kidney as offering the most likely explanation. The diagnosis, however, was not at all certain; examination of the urine was negative, though the patient stated that she had had bladder symptoms and on one occasion had passed blood in her urine. Not wishing to open the abdominal cavity unnecessarily, I decided to begin the operation by exploring the right kidney, through the usual oblique lumbar incision; a normal kidney in its normal position was found; the wound was immediately closed. Coeliotomy was then performed, median incision, which, in order to effect delivery of the tumour, it was necessary to prolong above the umbilicus. The tumour was smooth, globular, somewhat larger than an orange and found imbedded between the layers of the gastro-colic omentum. It was firmly attached to the greater curvature of the stomach, surrounded and covered with numerous large ill-developed veins which bled freely on the slightest provocation. The vessels were ligated and the growth removed without special difficulty. The most interesting features of this case, are, the situation of the tumour, the long duration and obscure symptoms and the differential diagnosis.

I asked Dr. Adami to see the specimen a few hours after its removal and he said that it certainly looked like kidney tissue. Microscopically it was found to be a cellular growth which was said to be sarcoma. This patient made an uninterrupted recovery and left the hospital in three weeks after operation.

Dr. RICHARDSON showed the specimen and said that Dr. Klotz had made sections of this tumour and reported it to be a mixed-cell sarcoma.

Dr. W. F. HAMILTON: I would like to ask Dr. England concerning the position of the stomach in this case, whether it was dilated by the weight of the tumour and in what proximity the tumour was attached to it.

Dr. SMITH: I would like to ask Dr. England if he has not found it easier to remove tumours of the kidney through the abdomen rather than through the back. I have come to that conclusion after having had some experience of the two methods; in one case a large tumour like an ovarian cyst was exceedingly easily removed in this way.

Dr. ENGLAND: I would like to ask Dr. Klotz if he has any views with regard to the fatty substance in this growth, whether it might not have begun as a fatty tumour and later taken on a malignant condition. In answer to Dr. Hamilton, regarding dilatation of the stomach, I did not discover this either previous to or at operation, the attachment of the growth to the stomach was very intimate but it did not arise from the

stomach. It was enclosed in the folds of the great omentum and looked like a cyst which I really thought it was until it was removed and cut into. In answer to Dr. Smith with regard to the method of attacking the kidney, I felt from the history of the case that this was probably an enlarged movable kidney and my intention was not to remove it but to anchor it. If the kidney is septic I think it is probably safer to attack it retroperitoneally.

Dr. E. W. ARCHIBALD: After seeing this tumour, the surface presents to me two appearances, one of whitish, fatty and the other of meatlike appearance which looks a great deal like kidney. I would like to know whether the sections shown were taken from the white area or the pinkish area and whether, if from both, if they show any difference microscopically.

Dr. O. KLOTZ: When first seen uncut the tumour had two characters, first a distinct encapsulation of the tumour. In the second place it was very soft in parts and others more meaty. One section is from the meaty portion and is very dense, the other is from the softer area; I do not think a section of the white part was made. There is no distinction between the more dense and the softer areas other than that the tissue seemed looser in the soft portion. The whitish areas showed spindle cells and in between the cells was a great deal of hyaline material which appears fatty on microscopical appearance but no fat was found whatever. The tumour is very vascular but neither the spindle cells nor the tumour cells show any arrangements of the blood vessels and in fact the tumour does not give any idea of the tissue from which it originated. It may be a growth from the endothelial cells of the peritoneum?

Dr. RIDLEY MACKENZIE reported a case of septico-pyæmia, the specific organism being the staphylococcus. The report of this case appears at page 117.

Dr. F. G. FINLEY: It seems to me in the first place it must be a very unusual occurrence for a malignant endocarditis to start as a primary focus in the tube, then again the absence of murmur is a very remarkable fact. It is a well recognized fact that murmurs do not occur in certain cases of malignant endocarditis and I can recall one or two in which they were absent. One case of a woman recovering from pneumonia began to have an elevated temperature and rigor. The condition was carefully watched and till the day of her death murmurs did not develop. As far as the resemblance of this septic case to typhoid is concerned it is extremely close. Only quite recently a young lad was sent in to the hospital from the country as a typhoid case; the only suspicious circumstance was a little swelling in one shoulder where a little pus pocket developed and it turned out to be a case of pyæmia. In these sus-

picious cases the Widal test should be relied upon to clear up the diagnosis.

Dr. W. F. HAMILTON: With regard to the absence of the murmur it has been shown that even in marked endocarditis of a chronic type it is often obliterated when the heart reaches 120 or 140; this heart reached 160 and therefore with great weakness of the cardiac muscle it might not have been manifest, or there was no time for it to occur. A living case of staphylococcus infection which I presented here some 18 months ago was a young man who came into the hospital with probably typhoid fever. He developed pleurisy of both sides and had also ascites. With the aid of Dr. Bruère we made cultures in which the staphylococcus was found in rich abundance. He made a very good recovery and was able to work. Another question suggested here is in respect to the gall bladder. While Dr. Gillies' report is most correct, I failed to notice any remarks with regard to the gall bladder. It has been noticed that such an infection is often connected with conditions in the gall bladder.

Dr. MACKENZIE: I have not looked up the connexion between pus tubes and endocarditis and I do not think a blood count was made. I think with Dr. Hamilton that the rapid action of the heart would account for the absence of the murmurs.

Dr. GILLIES: I did not mention the liver or gall bladder because they were perfectly normal.

Dr. A. LAPHORN SMITH reported a case of Dermoid Cyst with Ascities: Ever since Professor Osler's short article appeared in the *Philadelphia Medical Journal*, 24th. May 1902, on this subject, I have been interested in it, for I had almost come to the conclusion that the presence of free fluid in the abdominal cavity was an indication that the tumour accompanying and causing it was malignant. In thinking over my own experience of ascities with tumours I can remember about twenty in which some growth was found which proved to be malignant or on the border line of malignancy. The majority of them were papillomas of the ovary which I looked upon as very frequently malignant, although the fact that many of the women recovered and remained well for many years after operation is somewhat, but not conclusively, against the claim that they were malignant. One case impressed me greatly, a woman to whom I was called in great haste, whom I found sitting up in a chair and gasping for breath. She was already cyanosed, so a very small trochar was at once introduced, and nearly two pails of fluid were removed. This not only gave her great relief but also enabled me to discover two large solid tumours, each much larger than a cocoa nut. A few days later I removed these large solid tumours of the ovary by abdominal incision. But when I tried to draw down the omentum before closing the incision, I found it difficult to locate it and quite impossible to draw it down. In fact it

was represented by a mere fringe like a piece of burnt leather, about an inch and a half wide. The pathological examination proved that it was a carcinoma of the ovary and, I have no doubt that the liver was also affected by the same disease, for the woman, after making a speedy recovery from the operation, died three months later without a return of the ascites. Then again in operating for papilloma of the ovary I have found in some cases, ascites, and very often an inoperable condition, the cases being malignant and the patients dying a few months afterwards, while in others there was no shrinking of the omentum and no ascites, and those patients are still alive after many years. When we come to seek for an explanation of the presence of the fluid it is quite difficult to come to any conclusion. Is the ascites due to mechanical obstruction of the large veins such as we get in enlargement of the liver, or is it due to irritation of the peritoneum by the excretions of the ovary? Why do we get ascites from solid tumours of the ovary and rarely in liquid tumours of the same size? I think we may have ascites caused by an abdominal tumour in one or both of two ways; first, the tumour may be solid enough and free enough to rest upon the inferior vena cava and cause obstruction or back pressure sufficient to cause serum to exude through the walls of the veins, or if the tumour is malignant, it quickly affects the liver by metastasis and blocks the portal circulation, as well as the inferior vena cava passing behind it, and causes back pressure and exudation of serum from both the veins of the stomach and intestines, as well as from the inferior vena cava and its branches. This is the explanation of the ascites in the case mentioned by Dr. Osler, in which there was a solid ovarian tumour with twisted pedicle allowing blood to be pumped into it, but impeding the outflow so that the serum was forced through the walls of the veins.

The other explanation is that there is some irritant poison given off by a diseased ovary which either increases the secretion of the peritoneal surfaces, or closes the mouths of the absorbents, which, under normal conditions, are able to carry off large quantities of serum in a few hours; for instance two gallons of normal salt solution which are left in the abdomen after the removal of a large tumour or the sudden disappearance of a large thin-walled parovarian cyst by rupture, the liquid in both cases being quickly absorbed and excreted by the kidneys. As many of these cases have albumin in their urine, their physician is misled into thinking that the dropsy is of renal origin and are therefore opposed to operative measures. But I have seen the albumin disappear in so many of these after the removal of the tumour, that I never allow the presence of albumin in the urine to prevent me from removing a tumour from the abdomen. The preliminary tapping two days before the operation had

the double advantage of revealing solid bodies which could not otherwise be discovered, and it also prevents collapse during the operation, due to hæmorrhage into the azygos and other veins caused by the sudden withdrawal of their accustomed support.

The Dermoid cyst of the ovary which I present this evening was removed on the 26th November, from Mrs. J. H., 48 years of age, a native of Newfoundland. Her previous history was good, menstruation having commenced at 14, normal in character and stopping at 38. She had had 8 children and two miscarriages. There was no albumin in the urine. She had first noticed the tumour about seven years ago when it was about the size of an egg, since which time it had gradually increased until it was as large as an adult head. By palpation the whole abdomen was found to be full of fluid, but on deep pressure the hand came upon a solid tumour which was freely movable, occupying the middle of the abdomen. On opening the abdomen about a gallon of straw coloured serum escaped or was sponged away, and then the tumour could be seen to be a tensely filled cyst with the omentum adherent to it for a distance of four or five inches. This was ligatured in segments, and the cyst partly emptied with a trochar after which it was easily removed and the large pedicle tied in several places. On the back of the tumour, opposite the part where it would be lying on the promontory of the sacrum, there were four or five white nodules which I had never seen before on a dermoid cyst and I thought that these might have been the beginning of malignant degeneration to which dermoid cysts are liable, but both Dr. Richardson and Dr. Gurd, who made microscopical examination of these nodules, pronounced them to consist of fibrous tissue containing ill-defined cells, but not apparently malignant. The patient made a good recovery and went home in four weeks.

Dr. C. A. Richardson exhibited the pathological specimen from this case and reported that on section through the capsule of the tumour nothing but fibrous tissue was noted.

Dr. W. F. HAMILTON, read a paper upon Lead-Poisoning with summary of 30 cases.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The sixth regular meeting of the Society was held December 16th, Dr. J. A. Macdonald, President, in the chair. The programme for the evening was a discussion on Actinomyces, which was opened by Dr. James Bell. Drs. A. G. Nichols and C. B. Keenan discussed the bacteriology, Dr. W. W. Chipman some clinical aspects of the condition in gynaecology, Dr. J. G. Adams the nomenclature and classification, and Dr. W. F. Hamilton the condition from a medical point of view. This discussion is reported fully at page 81 *et seq.*