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THE
MONTREAL MEDICAL JOURNAL.

VOL. XXI.

MAY, 1893.

No. 11.

Original Communications.

ON THE INTER-COMMUNICABILITY OF TUBERCULOSIS FROM ANIMALS TO MAN AND FROM MAN TO ANIMALS.

D. McEACHRAN, F.R.C.V.S., V.S. EDIN., D.V.S.

Mr. Chairman and Gentlemen:

Having been asked to assist to-night in bringing this most important subject before you, I accepted the invitation with much pleasure; not only on account of the importance of the subject as a study of comparative medicine having a vast bearing on the public health, but on account of the fuller knowledge which we now possess, as compared with what was known of the causation and means of diagnosis when I first brought it before your Society in 1870, twenty-three years ago.

SECTION I.—Shortly after coming to Montreal I was consulted about a disease which was decimating a herd of dairy cattle in the neighbourhood of the city. This disease I found to be tuberculosis. The history of the outbreak pointed very clearly to the introduction of a cow from a herd at some distance. This cow coughed and did not thrive well and finally died of general tuberculosis. Others of the herd contracted the disease, and the herd was practically decimated.

Another farmer three miles from the city introduced the disease in the same way and from the same herd and lost his cattle.

* Read before the Medico-Chirurgical Society of Montreal, March 17, 1893.

Still another case of infection of a herd from the same source came under my notice. These well evidenced cases attracted my attention to its infectious character, and I lost no opportunity of tracing each subsequent outbreak to a source of infection.

In reading up the subject I became much interested in the reports of observations similar to my own published in the veterinary journals, particularly of the experiments conducted by Prof. Villemin, of Paris, Chauveau, the able Director of the Lyons Veterinary School; Harms and Gunther, of the Hanover Veterinary School; Lessering of the Dresden Veterinary School; Gerlack, of the Berlin Veterinary School; Zurn, of the Jena Veterinary School, and Bollinger, of the Zurich Veterinary School. The former confined his researches mainly to ascertain the communicability of human consumption to animals, and of bovine tuberculosis to the guinea pig, sheep, dog and cat. His results proved that bovine phthisis is identical with that of man. Chauveau proved its communicability by injection of tubercular matter in bovines and was the first to call attention to the relation of bovine tuberculosis to public health. Chauveau concludes his valuable report with the following resumé of his experiments. (*Veterinarian*, 1875.)

“ 1. They prove that bovine animals contract tuberculosis by digestive ingestion. 2. They place beyond doubt the fact as to the virulence and contagious property of tuberculosis, and show that the labours of Villemin have not been recognized as they deserved. 3. That the digestive canal constitutes in the bovine species, as in man, a channel of contagion readily disposed to the propagation of tuberculosis. The experiments of the others named supported in every particular Chauveau's conclusions, and added new and important facts, showing that tuberculosis could be produced by co-habitation, both by inhalation and by digestion of the infecting principle, dried sputum, milk, flesh and other fluids being the active infecting agents.”

The researches of Klebs proved conclusively that the disease was readily produced in dogs fed on milk from tuberculous cows.

Deeply interested as I became in this subject I naturally

sought to awaken an interest in the matter among the members of this Association, in hope of being able through them to rouse public interest in a subject so seriously menacing public health, on account of there being no municipal or provincial regulations to prevent the sale of milk or flesh of animals affected by a disease which, if not identical with consumption, certainly was communicable and produced that disease in various forms in the human family.

For this reason I brought these facts before them in the form of a paper, with what result you can infer from the fact that to-day the same condition of things continues to exist in Montreal. No provision is made to prevent the sale of tuberculous milk, and scarcely any to prevent the sale of tuberculous meat. True, occasionally a carcass is seized at the abattoirs, when the tuberculosis is general and in an advanced stage, but I have known of instances in which the tubercles have been cut off by the inspector, (some years ago) and the carcass stamped with the corporation stamp as sound meat.

Tuberculosis in cattle to-day in this province, and the whole Dominion in fact, is more prevalent than ever before, and, if I am rightly informed, consumption in the human family is increasing in like ratio.

I wish to cast no reflections on the members of the noble profession of medical science in this relation. The facts adduced by the investigations of the above named scientists were too new and the deductions too startling for a profession, too long remarkable for conservatism, to accept without doubt such disturbing ideas as consumption being contagious, or having anything whatever to do with bovine consumption, and, as was the case with Jenner's innovation, when he proposed to prevent small-pox by substituting for it the milder cow-pox (vaccine). "A great ferment instantly arose, and the subject was hotly discussed both in professional circles and general society. Many of the sanguine and a few of the profound were at once convinced of the truth of Villemin's and Chauveau's opinions; but the cautious suspended their judgment, while the superficial and self-sufficient pronounced at once that the whole was an absurdity."

Professor Adami will bring before your notice the pathology of the disease. I must therefore confine my remarks to a few general facts on the prevalence of the disease, its peculiar features as observed in animals, and the relation of animal to human phthisis, and these remarks must necessarily be concise and confined to a statement of authentic facts gleaned from the work of others, supported by my own practical observations. Here let me remark in passing that I feel humiliated that we can offer no results of original work of our own; time and again I have urged and done all in my power to get established in or near Montreal in connection with our great seat of learning, McGill, a station for pathological investigation, wherein this and kindred subjects could be investigated from Canadian stand-points and under conditions purely Canadian, hitherto without success. Can this longer continue? Surely not. I claim that such a station is absolutely essential to put us on a right footing in relation to the prevention of disease and the eradication of disease in both men and animals, and gentlemen, members of this Society, it rests with you to demand that not only shall the city have its pathologist and pathological laboratory as part of its sanitary department, but similar provisions for investigating and preventing disease in men and animals shall form part of the Provincial Board of Health. Surely if the City Council, the Provincial Board of Health, or the Dominion Government fail in their duty in providing such laboratories, some large-hearted, science-loving and benevolent wealthy citizen will emulate Mount Stephen, Smith, McDonald or Molson, by conferring a lasting benefit on mankind, and our fellow-citizens in particular, by donating a sum sufficient to enable McGill or other university to establish such a pathological station as will enable the medical practitioner or the veterinarian to act always under the bright light of science and scientific guidance.

SEC. II.—For the reasons given above, I must ask you to accept the following statements as facts regarding this disease:

- (a) Tuberculosis is an infectious, fatal and incurable disease.
- (b) It is communicable from man to animals, and has been communicated by inoculation, by ingestion and by inhalation in

the dried form of the sputum of consumptive persons, as well as from the tubercular matter itself, to cattle, sheep, goats, swine, dogs, cats, rabbits, guinea-pigs, rodents, poultry, pigeons and, I may add, to man himself.

An interesting series of experiments (*Veterinarian*, 1875) were being conducted over twenty years ago by Demet, Paraskeva and Zallonis, in Syra, Greece, on rabbits by inoculation with the sputum and blood of a consumptive man. The opportunity occurring they ventured on the unprecedented experiment of inoculating a human patient whose history gave no indication of tuberculous taint, and whose lungs were perfectly healthy so far as physical examination could discover, but who was suffering from gangrene of the big toe of the left foot, due to obliteration of the femoral artery. Amputation of the limb was proposed by the surgeon, but would not be submitted to, and a fatal termination was inevitable. A quantity of sputum from a man who had abscesses on his lungs was inoculated in the upper part of the left thigh. About three weeks afterward auscultation revealed very slightly increased respiratory murmur at the summit of the right lung and somewhat prolonged respiration in the subclavicular region. In thirty-eight days after inoculation the man died from gangrene, and on examination of the body it was found that the upper lobe of the right lung had seventeen tubercles in the first stage of development; two similar tubercles existed at the apex of the left lung. At the centre of the convex surface of the liver were two tubercles, one as large as a shelled pea, the other smaller, both being very hard and of a yellow colour. From this unusual experiment it is evident that tubercle is inoculable in man himself.

(c) Tuberculosis in man is identical with tuberculosis in the bovine and other domestic animals, is due to a slender rod-shaped bacillus, which gaining entrance to the circulation by means of milk, flesh, sputum moist or dry, work their destructive operations in various tissues of the body, not in the lungs only, as is often supposed, but in the serous membranes, pleura, peritoneum, thoracic and abdominal glands, or superficial glands of the body, especially the udder, testicles, thyroid, parotid and other glands,

and not unfrequently in the subcutaneous tissues in various parts of the body, in the meninges of the brain and spinal cord, and in the human subject frequently in the intestinal tract, and in many cases in animals it affects the articulations. The following statistics taken from the Report of the Bureau of Animal Industries, 1892, is interesting as showing the relative frequency of invasion of the different organs in cattle :

Bavaria—Tuberculosis of the lungs and serous membranes, 41 per cent.; tuberculosis of the lungs alone, 33 per cent.; tuberculosis of the serous membranes alone, pearl disease, 17 per cent.; tuberculosis of the other organs, 8 per cent.

Baden—Tuberculosis of lungs alone, 21 per cent.; tuberculosis of serous membranes alone, 28 per cent.; tuberculosis of both combined, 39 per cent.; generalized tuberculosis, 9 per cent.; tubercle of sexual organs alone, 3 per cent.

SEC. III.—*Tuberculosis in Cattle.*—I know of no country where cattle are domesticated in which tuberculosis does not exist. Statistics go clearly to show that it is on the increase.

In Germany, from October, 1888, to October, 1889, out of 1,270,604 animals killed for beef in public abattoirs, 26,352 were tuberculous, about 2 per cent.; in France 5 animals in every 1,000.

In the various cities in France figures obtained from inspection of abattoirs vary from 1.43 to 14.5 per 1,000. In Belgium, 4 per cent.; in Holland, 4 to 19.6 per 1,000; in England, 1 to 26 per cent. according to locality. In Copenhagen during 1888 it was 6 per cent., for cows alone it rose to 16 per cent. In the Argentine Republic it attacked imported stock 10 to 15 per cent. In the United States $2\frac{1}{2}$ to $3\frac{1}{2}$ per cent. In Massachusetts this disease has long been prevalent. In 1888 Dr. J. F. Winchester made a report, his investigations covering 34 suspected farms, whereon were 886 cattle; of these 243 or 28 per cent. were killed, and 189, or over 28 per cent. of the remainder suspected. On 15 other farms, with 244 animals, he found 28, or over 11 per cent., tuberculous and 24 suspicious. Of the 213 suspicious in the latter class some were doubtless affected and were sold into other herds where the disease may not have existed before

to act as new foci of infection. Later reports show exactly the same condition of affairs.

In Canada no statistics are obtained on the subject, yet while the disease is much less prevalent than in older and more populous countries, there is no denying that bovine tuberculosis is alarmingly prevalent. I say alarmingly, because considering the fact of our absolute immunity from such cattle plagues as pleuro-pneumonia, foot and mouth disease and Rinderpest, and knowing that we have the healthiest cattle in the world, the existence of any contagious disease is subject for alarm. I have known of herds being decimated from Cape Breton to the Peace River by the introduction of a single diseased animal.

How It Spreads Among Cattle—A tuberculous animal, bull or cow, is introduced to the herd, the bacillæ are coughed up, provided the lungs be the seat of the tubercular formations. The sputum may mix with the food in the trough in front of the adjoining animal and thus be swallowed; it may dry on the hay, feed-box or boards to be inhaled; in the former case it may develop mesenteric tuberculosis, in the latter pneumonic or thoracic. It may be, if a cow, that other calves besides her own are fed on her milk, which containing the tubercular bacillæ, they become infected. If a bull, he may in the act of coition transfer the bacilli to the cow. No more frequent source of extensive spreading of the disease exists than tuberculous bulls. The calf is sometimes born tuberculous. I have seen cases where the placental membranes were studded by grape-like tubercles.

It is generally said to be hereditary—it is, but more frequently the calf contracts the disease from its tuberculous mother's milk or coughed up bacillæ. It is generally supposed that the milk will not communicate the disease to the calf if the udder is not tuberculous. This is an erroneous and a dangerous doctrine, and in connection with the communication of the disease by means of milk to mankind should be strongly rejected.

We have seen that it has been proved by experiment that this disease is readily communicated from consumptives to other animals, why not to cattle?

Symptoms—The insidious character of the disease, the absence of any definite symptoms in the early stages, the variability of the symptoms owing to the variability of its localization, render it often difficult of detection, till its invasion of the respiratory or other system of essential organs produces symptoms of structural or functional alterations in these organs. The breathing will be impaired much or little according to the extent of tuberculation. Cough of a chronic character will be observed when the bronchi and bronchial glands are invaded.

There is usually an offensive odour from the respired air in advanced lung tubercle. There is usually no fever. Percussion will give dull sounds in spots if large tubercular masses press against the ribs, with increased resonance surrounding.

Auscultation illicits dull respiratory sounds over the large tubercular masses, increased in uninvaded portions of lung. The milk secretion is gradually diminished. In advanced stages emaciation is pronounced, particularly in dairy cattle, although I have seen animals die from tuberculosis comparatively fat, particularly short-horn cattle.

Often no symptoms exist by which the positive existence or non-existence of the disease by clinical examination could be determined. It is this fact that has caused governments to hesitate and professional men advise caution in attempting to deal with tuberculosis as a contagious disease.

In this respect I may say that while Britain and France did not officially include tuberculosis in the list of contagious diseases till 1888, you will find that it is so included in the Canadian "Act respecting infectious or contagious diseases affecting animals," July, 1885.

The use of tuberculine as an aid to diagnosis promises to be of great value. Should it prove to be reliable its value cannot be over-estimated, for if correct direct diagnosis can be assured by the increased temperature following injections of tuberculine when the disease is present in the masked form, with our knowledge of its causation, we are now in the satisfactory position of knowing that we can by proper measures get rid of it entirely, in this country at least, where the disease exists to a limited ex-

tent only. Even without such aid or knowledge of the disease such as we now possess I have in several instances eradicated it from herds in this country and in the United States.

In one instance where short-horn cattle were sold for fortunes I was present and heard offered \$5,000 for a young bull in an advanced stage of tuberculosis, which offer on my advice was refused, and I had him killed and made a post-mortem examination the following morning. In another instance I was sent for to a neighbouring State to give my opinion on a bull calf. I found him tuberculous and recommended slaughter, which was carried out then, the diagnosis confirmed, and before leaving the gentleman owner showed me an offer by telegraph of \$11,000 for him. I mention these cases just to show how convinced these men were of its contagiousness and the danger to their herds if kept and the ruin to their reputations if sold.

How Tuberculosis is Communicated from Animals to Man—

The contagious character of consumption is not now a debatable question. It is beyond doubt that it was considered communicable even in the days of Hippocrates, and if his own writings do not say so those of his contemporary, Isocrates, certainly do. Medical writers in all ages warned their readers of the danger of women contracting it from their husbands and men from their wives.

It is a well known fact that phthisis is often seen to affect people known to be free from any family history of tuberculosis. It is also well known that among savage tribes who are not milk consumers this disease is unknown, except by infection by other strange people, whereas wherever cows' milk is in free use as an article of diet tuberculosis prevails. Dr. Edward Playter, M.D., Ottawa, in an excellent pamphlet on tuberculosis recently published, quotes from Dr. Brush, of Washington, the following pithy sentence as to the close association of the human race with the cow:

"We are veritable parasites on this animal. We milk her as long as she will give milk, and we drink it, then we kill her and eat her flesh, blood and most of her viscera. We skin her and clothe ourselves with her skin, we comb our hair with her horns,

we fertilize our fields with her dung, while her calf furnishes us with vaccine virus for the prevention of smallpox. The cow has tuberculosis and we have tuberculosis. If we regard her as a possible common centre of the affection we have a reasonable and full explanation of the commonness of consumption."

Time does not permit me to relate the numerous evidences of tuberculosis in children produced by milk from tuberculous cows. At one time it was supposed that the milk was harmless if the udder was free from tubercle. This is now known to be erroneous, and milk from a tuberculous cow, whether thoracic, abdominal or external, is capable of producing the disease if swallowed.

Curiously enough, long after the infectious qualities of tuberculous milk were known, few believed that the flesh was dangerous, yet it is now known that the bacillæ are found in the flesh, and that they have been found alive even after ordinary cooking. Fortunately the vitality of the bodies is usually destroyed in cooking; were it not so the disease would be more common than it is, for let me assure you that such is the imperfection of the system of inspection, where even a show of inspection was made, that tuberculous meat is frequently sold in the markets to the poorer portions of the communities in nearly every city in Canada.

Until a proper system of inspection of animals before being killed and when killed, so that the whole of the viscera may be examined, on a simple subsequent inspection of the carcass without microscopic examination by a bacteriologist no inspector could, after the tubercles have been removed, detect the disease in the flesh.

Bollinger considered that the mixing of milk in dairies lessened the danger of infection by diluting the virus.

The danger is not confined to cattle, since it has been determined by experiment that ingestion of the sputum by sheep, goats and poultry, from the lungs of a consumptive person, does produce tuberculosis in them, and they in turn may reproduce it in persons who consume their flesh. Reported instances of this disease having been carried to healthy families by poultry, in-

fectured by swallowing the sputum from consumptive persons who had charge of them, are numerous.

Much remains to be said on this important subject, and as two more speakers have to follow me I must conclude by expressing a hope that in a matter of such immense public importance full publicity will be given to the views of this Society. Desperate cases require desperate remedies, and I feel that we will but be doing our duty in giving the public our views in the hope that our civic and provincial sanitarians will be induced to follow the example of New York, where a bill was recently passed for the suppression of tuberculosis in milch cows, and Philadelphia, where a Society for the Prevention of Tuberculosis has been formed.

“There has been organized in Philadelphia a Society for the Prevention of Tuberculosis. Investigation showed that families moving into tenements where the former occupants had been the victims of this disease exhibited symptoms within a short period, and unless removed succumbed. Dr. Flick in his report says:

‘Fully one-half of the cases of consumption in the Fifth Ward are believed to be due to living in infected houses. A family unsuspectingly moves into one of the houses which, on the map, are marked with black dots. This house has just been vacated by a family in which death from consumption has occurred. The weakest member of the incoming family succumbs to the disease, the infection spreads to new victims, and death reaps a greater harvest.’

The new Society will do most of its work among the poor, teaching how infection can be avoided. All cases of consumption will be reported to the health board and registered. Consumption is a most fatal disease among the poor, and much can be done by education and by law, if it is enforced, to prevent it.”

How many sad bereavments have visited our most happy families through this preventable disease, communicated through milk or flesh? It may be the father, the tender, loving mother; but more frequently the victim is the darling little one who, fed under medical direction, it may be, by the affectionate mother on milk—milk containing the deadly bacillus of tubercle—dies

a lingering death, and the burial certificate read Cholera Infantum, or Cerebral Meningitis, whereas, if the truth were known, it should read Intestinal Tuberculosis, or Tubercular Meningitis. This is the history of many a case of tuberculosis in young men and women, cut down in the flower of their youth by disease contracted by consuming as food the milk of tuberculous cows.

Time and again this subject has been urged on the attention of the governments and public action has been delayed, first on account of the expense which would necessarily be incurred in stamping the bovine disease out, and also from the difficulty of diagnosis in cases in the initial stages.

Happily advancing science has given us a method by which it can be discovered in the earliest stages. It is verily believed that the injections of tuberculine, causing in affected animals a rapid rise in temperature, and no effects in non-infected animals, can be relied upon. If it proves to be so, then there is no excuse for longer tolerating the existence of this preventable disease, which must be credited with a large percentage of the infection of human beings by consumption.

ON THE COMMUNICABILITY OF TUBERCULOSIS FROM MAN TO MAN.

BY J. G. ADAMI, M. A., M. D.

Professor of Pathology, McGill University.

I had this evening intended to take up especially the relationship of tuberculosis in the domestic animals to tuberculosis in man, but after Dr. McEachran's masterly paper I think that you, Mr. President, and all here present, will agree that such would be a work of supererogation, for in so doing I could but follow along similar lines, employ similar illustrations, and arrive at like conclusions to his. And when it is remembered that Dr. McEachran has made this subject particularly his own, that he was one of the pioneers in calling attention to the infectious nature of bovine tuberculosis, having published very conclusive evidence to this end so long ago as 1870, and that through his representations the Dominion led the civilized world by two years in scheduling tubercular cattle, I think that after his paper any disquisition from me upon this aspect of tuberculosis is unnecessary, although there are one or two details upon which later I should like to dwell for a moment.

I will therefore take up another and important aspect, namely, the infectiousness of tuberculosis as between man and man. Of this, after long years of discussion, there can now be no discussion; but it is well worth our while to call to mind the main researches upon which our knowledge of this infectiousness is based. From the fact that in the adult the most common seat of the tubercular infection is the lung tissue (indeed, as Dr. Harris, of Manchester, and others have pointed out, careful examination shows the presence of active or obsolescent tuberculosis in the lungs of from 30 to over 50 per cent. of all bodies examined in the post-mortem room of the hospitals of large cities), it is evident that the disease in the adult is most easily acquired through the respiratory tract. How, then, do the bacilli come into the inhaled air? Are they ubiquitous, do they multiply outside the body, or are they always acquired from animals or human beings suffering from the disease? Certainly they are not ubiquitous; the experiments of Cornet, to which I shall refer more fully in a few minutes, prove conclu-

sively that from the dust of rooms that have not been inhabited by phthisical patients no bacilli can be obtained—that is to say, guinea-pigs inoculated with this dust never succumbed to tuberculosis. Again, the bacilli can only grow at the blood temperature; evidently, therefore, they cannot multiply under ordinary conditions outside the body. But on the other hand they are endowed with great vitality. They withstand maceration and putrefaction for several days, as demonstrated by Galtier, and, as shown by Baumgarten, Ransome and others, dried phthisical sputum can be kept for half a year or more without the contained bacilli losing their virulence. The presence of the bacilli in the dust deposited from the air in rooms occupied by phthisical patients was determined so long ago as 1883 by Dr. Theodore Williams at the Brompton Hospital. Dr. Cornet, while confirming these last results throws doubt upon them. However, Cornet's own observations were so admirable and so extensive that even if forestalled by Dr. Williams he is worthy of all credit as having established most fully the point in question. In place of filtration or collection directly from the air, he removed the dust that had deposited upon the wall immediately above the head of the phthisical patient's bed, and inoculating this dust, suspended in broth into the abdominal cavities of three guinea-pigs, in each case he obtained very remarkable results. Many of the animals died rapidly, as might be expected, of septic peritonitis, but he obtained a large number of cases in which one or more of the guinea-pigs succumbed to tuberculosis. Thus 38 separate examinations in 7 different hospitals led in 15 cases to positive results, while the dust collected from the neighbourhood of 62 private tubercular patients induced tuberculosis 21 times in one or more of the inoculated animals. When it is taken in into account that everything points to the fact that several bacilli must be inoculated in order to induce the disease, solitary bacilli being destroyed by the organism, then these results become most significant.

But Cornet did more than this. If, as these results demonstrate, the immediate neighbourhood of phthisical patients is rich in tubercle bacilli, then that neighbourhood must be especially infectious. Can this be proved to be the case? Very many

individual cases have been adduced in which the husband of the tubercular wife has become tubercular, and *vice versa*; but statistics are still wanting of the extent to which this obtains, and those statistics are difficult to obtain. There is another class that can be held peculiarly liable, namely, sick nurses—not so much those attending individual cases as those attending upon the sick in hospital wards, where necessarily, owing to the large proportion that phthisical cases bear to all other cases, each nurse must be brought into intimate contact with a series of tubercular patients. The vital statistics of this class of the community can be more easily collected and studied. It was to this study that Cornet applied himself and this is what he found:—

In Germany the sick in hospital are largely attended by religious sisterhoods and confraternities. Taking thirty-eight of these nursing corporations he found that, during the last 25 years, of their total mortality 62.8 per cent., or almost two-thirds, was recorded as being from tuberculosis, while of those members of the corporations dying between the ages of twenty-five and thirty-five no less than 73 per cent. had succumbed to this disease, in place of a little over 49 per cent. in the general population. Or, to put the matter in another light, a German nurse, member of one of these sisterhoods, *has at twenty-five the same expectation of life as a woman at fifty-eight in the general population.* This is a terrible revelation. Little wonder that now-a-days in Germany the lesson thus given as to the infectious nature of tuberculosis has been taken well to heart and that every precaution, even down to the disinfection of railway carriages, is being carried out by the government and by civic bodies.

If, as Ransome has proved, the breath of a phthisical patient contains the bacilli, *a fortiori* are the bacilli present in large quantities in the sputum, and it is this sputum that must be rigorously disinfected. Not only must this be collected in special utensils and then disinfected and the utensils rendered sterile by boiling daily (or, as some advise, be made of such materials that they can only be employed one day and then be

cast into the fire), but the handkerchiefs and bed linen must be washed apart and well disinfected, the habit of promiscuous expectoration must be stopped sternly, and when a patient has died or has left a room then the walls and floor of that room must undergo thorough disinfection.

All these precautions are absolutely necessary, and it is our duty to publish them widely abroad, if the spread of tuberculosis is to be averted. This, of course, is but one side of the question; there is still the undoubted spread of the disease through the intermediation of animals that Dr. McEachran has so well placed before us, through food, that is, where the bacilli gain their entry through the alimentary tract.

Intestinal and abdominal tuberculosis is most common, as we all know, in the young, and the prevalence of milk diet indicates what Bang in Denmark, Bollinger in Germany, Nocard in France, and Woodhead and MacFadyean in England have conclusively proved to be the case, that this intestinal tuberculosis is very largely brought about by the milk of tubercular cows. The milk, in fact, is far more infectious than the flesh of these animals. It is only in advanced tubercular disease that the bacilli are to be found in the musculature, the flesh of animals. On this account one might be inclined to say that in this country, where the habit of eating raw flesh is scarce, if at all practised, the flesh of animals exhibiting the lesser degrees of tuberculosis might safely be permitted to be sold in public market. Nevertheless, half measures are here no measures—if the disease is to be stamped out we must be drastic, and for this reason I would urge that all animals discovered to be tubercular be condemned *in toto*. We are here dealing with humanity's most terrible scourge, with the disease to which is ascribable nearly a quarter of all the deaths from all causes at all periods of life, far more deaths than from any other single cause. It is our duty, gentlemen, to use our every endeavour in spreading abroad a knowledge of the danger of tubercular infection and in inculcating sound means of prevention. It is our duty to give our individual and united support to every measure which tends to lessen its spread, whether in man or in the domestic animals.

MASKED TUBERCULOSIS.

BY WILLIAM S. MORROW, M. D.

You have heard of the old man Proteus, of Grecian fable, whose sport it was to assume a multitude of strange disguises in order to elude the search of those who would fain question him about the future. You have smiled as you have thought of the credulity of the ancients who could believe in such a thing; and yet to-night I wish to discuss with you an entity—if I may call it such—a morbid process, if you prefer the term, which, for endless variety of disguises, puts the old man to shame, and in some of its less customary garbs deceives, not superstitious Greeks, but members of our own learned profession.

I refer to tuberculosis and invite your attention while I try to set before you a few cases, which seemed to me from one cause or another to present special difficulties of diagnosis.

From the fact, however, that certain general laws apply more or less to all diseases, and that while we are making our diagnosis we are necessarily in doubt as to the nature of the case, it follows that the propositions I try to illustrate regarding the diagnosis of tuberculosis may be extended to apply to many other morbid processes, and you will no doubt recall cases of other diseases which have presented to you the same difficulties of diagnosis as I have met with in tuberculosis.

The first point I would like to make is: that we sometimes find certain symptoms, not closely connected with tubercle and to us not characteristic of it, so prominent as to draw us away on a wrong scent and lead us to seek the cause in a wrong direction.

Thus in February, 1892, D. R. was admitted into the general hospital. He complained of frequent emissions sometimes occurring more than once a night, of pain over the sacrum, of weakness, of sweating at night, of slight cough, and scanty thick expectoration. Family history, tainted with tuberculosis; personal history of dissipation.

On examination of his lungs no physical signs of disease were

* Read before the Montreal Medico-Chirurgical Society.

observed. The cough of which he complained was only a slight hawking, such as is characteristic of pharyngeal catarrh. The sweating was never found to amount to much by the nurse. His temperature was normal; disposition nervous and cranky. A diagnosis was made of neurasthenia and functional spermatorrhœa, and yet I believe the man was already suffering from tubercular orchitis as the sequel proved.

After he had been in hospital a little while, I noticed his left testicle slightly larger than his right, but, as there was no tenderness and both were small, I supposed the right was atrophied. His temperature soon after became irregular and he developed signs of phthisis. My term being up I left the hospital but heard afterwards that he died of miliary tuberculosis. At the post mortem the apparent origin of the tuberculosis was found in the left epididymus, which was caseous and apparently showed the changes of longest standing.

This case shows how insidious tubercle may be in the testicle, causing in this case very little enlargement at first, no pain or tenderness, in fact scarcely any sign of localising value except the spermatorrhœa, which is itself often, if not most often, a symptom of psychic disturbance.

However, this man's history is a warning to us to examine carefully the genital organs of patients with persistent spermatorrhœa.

There was another case admitted about the same time which likewise shows how one may be misled by the prominence of symptoms not usually connected with tubercle.

P. M. was admitted into the hospital February 3rd, 1892, complaining of pain about the right shoulder and loss of power in the muscles moving that joint. A fortnight before admission he was suddenly seized with pain and weakness in the right arm and shoulder while cutting wood. This got steadily worse.

When seen he was unable to bend his right elbow or shoulder without help from the other hand, and then not without pain. All the muscles acting on the shoulder joint were much wasted. Their reaction to Faradism was diminished.

A diagnosis was made of neuritis perhaps associated with a

polio-myelitis. When the man had been under observation for about a month an abscess formed on the outer side of the arm at the junction of the upper and middle thirds. It was opened and after this some increase in power was observed, and he went home ten days later with the abscess apparently nearly closed and the condition of the muscles improving.

Five months afterwards he came back. That abscess had never closed. The patient was dying of phthisis and succumbed three days after admission. At the post mortem, besides the tuberculosis in the lungs, the right shoulder joint was found to be the seat of caries, which was doubtless tubercular. The sinus at the seat of the old abscess cavity connected with the joint.

In this case the excessive wasting of the shoulder muscles, the change in Faradic irritability, the pain, and the history of sudden onset directed attention to the nerves.

When the abscess appeared, the evidence of neuritis seemed so strong, and the abscess pointed so far from the joint, that I was led to explain it by trophic changes acting along with a poor state of general health and a possible slight injury, whereas there is little doubt but that the disease started as a tubercular arthritis of the shoulder, and if there were changes in the nerves they were secondary.

We may very easily be misled by the history of a case into ascribing to traumatic or other causes symptoms really due to tubercle.

Thus Fagge relates the case of a man who received a severe crushing injury to his chest, after which he spat up a little blood. A few days later he had a considerable hæmoptysis. Although physical signs were soon after found suggesting a tuberculosis, they seemed explainable by traumatism, and thus the diagnosis was delayed. A few months later the man died of tubercular phthisis.

Sometimes, again, although the appearance of the patient and the history of the case suggest tuberculosis, we are unable to satisfy ourselves of the nature of the case from lack of physical signs. The following is a remarkable case of advanced

tubercular disease without any physical signs which I could discover.

D. McD. came to the general hospital on November 18th, 1891, complaining of weakness, loss of flesh, and most obstinate constipation. His family history was both neurotic and tubercular. His back was injured six years before admission, and had never been strong since. For a year he had been losing strength and flesh rapidly. There was no history of cough or night sweats. He was tall and gaunt; greatly emaciated; muscles limp and weak; deep reflexes absent; bowels never moved without assistance; temperature sub-normal, pulse 52; no physical signs of disease found in thoracic or abdominal viscera. A week after admission he developed a moderate cough, but still no physical signs of disease could be found in his lungs. Four days later the sputum looked so purulent that it was examined and found teeming with bacilli. This was a week from the onset of cough. The only physical sign which could be found even then was a slight lack of resonance in the left interscapular region. No change in the character of the breathing could be made out, and no rales were heard. Five days later the patient died quietly at night without anything unusual being noticed about him except increased weakness.

Unfortunately the friends objected to a post mortem, so that it is not possible to unravel the mystery surrounding this case. The only explanation I can suggest of the sudden onset of cough accompanied by tuberculous sputum is the rupture of some tuberculous focus, such as a caseous gland, into one of his bronchial tubes; and I think the character of the sputum, so creamy in appearance, and the position of what physical signs there were in the interscapular region, went to support this view. Besides, this course of events is, I believe, not without precedent, especially in children, who have been known to cough up not only caseous products of broken down glands, but the glands themselves.

What caused the emaciation? What caused the obstinate constipation? I have never been able to answer either of these questions to my own satisfaction.

But passing on:—We may be deceived by the presence of other diseases along with the tuberculosis.

In November, 1891, a young woman named Annie L—— was brought to the hospital in an early stage of miliary tuberculosis, but at the time she was also suffering from tonsillitis, which seemed to be sufficient explanation for most of her symptoms and, I think, delayed the diagnosis of the tuberculosis.

We are doubtless all agreed that some cases of tuberculosis are difficult to recognise. The question now presents itself: What steps are we to take if we are to unmask and diagnose the greatest possible proportion of obscure tubercular cases? By observation, thought, and especially by attention to details, we may do much.

We may learn to recognise more quickly and surely the two great types of tuberculosis and scrofula, as laid down by Jenner in his classical description. On the one hand, the precocious development, slim figure, delicate skin, clear complexion, bright eyes and silky hair. On the other hand, the phlegmatic disposition, dull pasty complexion, thick lips and enlarged glands. We must not, however, expect all our tubercular cases to bear their constitution written on their faces thus clearly.

Fagge attaches importance to straight, lanky whiskers and beard. He says: "A bright eye, and a flushed cheek, associated with a wasted frame and lanky hair, at once suggest tubercular mischief."

In his chapter on constitutional diseases, Paget mentions among other signs of scrofula which sometimes assist us: "Granular pharynx, soft enlarged tonsils, swollen catarrhal nasal passages, chronic periosteal swellings, slowness of healing, capricious appetite, and excessive growth of dark hair on trunk and limbs."

He makes the remark: "Many small facts may be as significant as a few large ones; the accumulative evidence of probabilities of low degree may amount to proof."

The important diagnostic value of physical signs, and family and personal history, I can only mention.

Koch's lymph has come, and has it gone? It seems to me,

from indications I occasionally see in the journals, that it may yet have a recognised place in diagnosis if not in treatment.

There is one more aid to diagnosis I should like to mention, and that is the cherry red colour given by Ehrlich's diazzo solution with certain specimens of urine. I have found this reaction in the urine of miliary tuberculosis, pulmonary phthisis, tubercular cystitis, and tubercular peritonitis. I believe it is usually present where absorption of tuberculous products is going on to any extent; and although the diseases in which it may be found are not yet completely worked out, there are certainly not many in which it is so typical as in tuberculosis and typhoid; and I believe we may often get valuable information by the employment of the test in these diseases.

I should like to bring to your notice, in closing, a few points mentioned by Sir William Savory at a recent meeting of the North London Medical and Chirurgical Society. He observed: "That each of the symptoms which presented themselves in any given case, was to be observed not so much in its absolute value as in its relative significance. The true meaning of any physical sign was to be reached, not by considering it alone, but by viewing it in relation to the rest; and by thus placing each in its proper relative proportion, and by taking measure of the proportion of each, to form a mental picture of the actual state of things."

He also insisted on the importance of observing all symptoms: "Signs neither usual nor prominent might materially modify, or altogether change the view taken." Again, "an enquiry might be full and complete, and yet the result confused or obscure from an absence of all proportion."

He mentioned the dangers of "a too exclusive devotion of attention to a particular part or subject."

What the rules of perspective are to the artist, this sound judgment of the relative proportion of symptoms is in diagnosis.

A CASE OF ACUTE CIRCUMSCRIBED HEMIGLOSSITIS, WITH SUPPURATION.

BY F. H. WETMORE, M. D., HAMPTON, N. B.

Cases of acute inflammation involving the parenchyma of the tongue are, I think, sufficiently rare at the present day to justify one's placing on record any observation of this nature.

Besides those cases owning a traumatic or toxæmic cause, there is a class of cases which arise spontaneously, or in which exposure to cold and moisture precedes the onset of symptoms. The case reported below belongs to this class.

Ziemssen's description of partial glossitis (vol. vi, pp. 749-750) does not apply to my case; nor can it be classed as an abscess of the tongue as usually described, for these are of slow growth (see Erichsen's case in Holmes' Sys. of Surgery, 1870, vol. iv, p. 220) and in danger of being mistaken for malignant tumours of the tongue, whereas the evident acuteness of the affection in the following case pointed pretty conclusively to its nature. The case, then, appears to present some unusual features.

On October 15th last, I was asked to see a youth of 18 years, who complained of a sore throat and difficulty in swallowing. He talked like one with the quinsy. His mother said she could not see much the matter with his throat, but that he winced when she attempted to depress the tongue. He felt a sharp pain in the back of his throat, like a needle sticking in, at times shooting up towards the left ear. The tonsils were normal, and the fauces but slightly congested. The experienced eye could detect a slight elevation or fulness of the posterior left half of the tongue, but nothing else could be seen. The finger readily outlined a well defined, rounded tumour or induration, rather larger than a robin's egg, situated deeply at the back part of the organ. The whole anterior portion of the tongue, for over an inch from its tip, and the entire right half, were not involved in the induration, but were normal in character. The swelling extended well down to the root of the tongue and into the left

sub-maxillary region. It was very tender to the touch. The tongue was covered with a thick white fur. Pulse 96; temperature 99° under the tongue. He said the symptoms commenced the morning after a hard day's work in the cold at a threshing machine. They had subsided at first, but on his continuing to go out of doors they had returned, and had steadily increased till the time of my visit two or three days subsequently. Besides internal remedies, medicated steam inhalations were ordered. When I saw him two days later (Oct. 17th), all the local symptoms were greatly intensified, and there was considerable general reaction. By the pain, and the want of rest and nourishment, he had been much reduced. The tumour was somewhat larger, and could be readily grasped by placing one finger on the dorsum of the tongue, and the other outside, just below the external angle of the jaw (left side), where pressure was very painful. The tongue was held well forward and two deep incisions made over the tumour, to the left of the median raphé, downwards and backwards to the depth of one or two inches. There was little or no bleeding, and no pus to be seen at the time, but the patient tasted and smelled fetid matter at once, and in a few hours the discharge was quite free, giving marked relief to the patient. A couple of days later offensive pus was still oozing from one of the incisions, the other having closed. The thick coating of the tongue had commenced to peel off. By October 25th there was very little induration to be felt, and the incision had nearly healed.

ADDRESS

DELIVERED TO THE GRADUATES IN MEDICINE AT THE SIXTIETH ANNUAL CONVOCATION OF THE MEDICAL FACULTY OF MCGILL UNIVERSITY, APRIL 4TH, 1893.

By A. D. BLACKADER, B.A., M.D.

Professor of Materia Medica, McGill University.

GRADUATES IN MEDICINE.—The Faculty has delegated to me the honourable duty of bidding you all godspeed as you now leave the portals of your Alma Mater and enter the ranks of the noblest of professions. The goal which four years ago you set before yourselves your college declares you to have honourably reached. Long, heavily-burdened years must they have appeared to you as you looked forward through them to the consummation of to-day. For the training involved in a medical degree is no light matter to be entered upon without due consideration. The curriculum is long. The work required of you stretches far into the hours of night, and makes heavy demands upon both mental and physical powers. More, I think, than is demanded in a degree from many of our sister faculties. And no man seriously handicapped either with poor health, want of energy, or defective previous mental training, should enter the lists as a student in medicine.

However genial and pleasant your professors may desire to be in the laboratory or lecture room, or at the bed-side in the hospital, at the examination board they must be inexorable. This College demands the attainment of a high standard at its examinations, after regular attendance at all its lectures. Small wonder, therefore, that some fall by the way, that some find the ordeal too severe, and that a few seek easier portals elsewhere, through which they may be allowed to enter the ranks of our profession. To such we extend our pity. Let those who bear the name of McGill ever rank among the highest.

On your behalf, gentlemen, we desire to say to-day to the world that you have fulfilled all our requirements, that you have honourably obtained your full complement of marks, and that as a Faculty we consider you well instructed in all that constitutes the art and science of healing. As graduates in medicine, gentlemen, accept your professors' congratulations.

Custom, however, with hand unyielding as our winter frost, compels me to detain you while I say a few words before parting.

You are entering upon a career which demands all your activities, and which, if it is to be successful, must be laborious. Just in so far as you permit slovenliness either in your habits of thinking or acting, in that measure will you fall short of true success.

That your spirits may be sustained in your work in spite of difficulties and temptations, see to it that you take your pleasure in your work, and in all its details. As Ruskin says: "Let your amusement grow out of your work, as the colour petals out of the fruitful flower." "Strive to do the duty that lies nearest you," and do it thoroughly. Then shall you surely "find pleasure by the way."

Of especial value to you as a means of attaining professional success, I would emphasize to-day the diligent use of your faculties of observation. A few years ago Dr. Bland Sutton gave a lecture on "Intellectual Blindness," which I remember reading at the time with a great deal of pleasure. In it he gave many interesting illustrations of the fact that all of us perceive, as a rule, only the things of which we have previous cognizance, and that very often the best of us fail to see things under our very eyes, or fail to discriminate accurately between what we observe and what we infer from our observations.

One of the reasons, he thinks, for this lack in the faculty of observing correctly, is the habit of placing too much reliance on book knowledge. While it is true that the more accurate and extensive our knowledge is, the less liability there will be to error, yet I trust you will ever labour to cultivate the habit of patient, thoughtful, correct observation for yourself.

Such a habit early acquired will be of immense value to you, inspiring you with the truest form of self confidence. It will be of great value to your patients, as ensuring a careful, judicious treatment of their case, and the daily record of such cases, carefully kept and afterwards collated, will be of value to the profession at large.

Beware of being an *automatic doctor*. Shall I read you an advertisement of a possibility?

A Dutch apothecary has just taken out a patent for a novel automatic machine in the shape of a wooden figure formed like a man. The figure is to be covered with compartments labelled with the names of various ailments. The sufferer has only to place a piece of money in the compartment upon which the name of his illness is inscribed, and forthwith will appear a sugar-coated pill or a confection suited to his case. The machine is constructed upon the same principle as the ordinary chocolate and bon-bon penny-in-the-slot machine. You slip in the money and you get the medicine. A Dutch paper predicts a brilliant future for this machine.

The true physician knows that the diseases of our poor humanity in their ever varying aspects are not thus to be formulated. He knows that what he has got to treat, and to cure if he can, is not the disease as labelled by the Royal College of Physicians, but the patient afflicted by the disease—the whole man and not a part of him, all his disordered functions, and not only the particular part where he feels, or thinks he feels, the fault.

The automatic method is easy to learn and easy to apply. It may bring in for a time a certain amount of money and a certain amount of success with the public, but it will blast your growth in all that is true and noble in your career as a physician. If you adopt it, you cease to be true to yourself and to your profession. Such a system ignores all that the carefully disciplined physician thinks important, such as the enquiry into the deeper causes, a knowledge of the pathology of the processes involved, the regulation of the hygiene, and a treatment founded and dependent upon these.

In this connection I have another word to say to you. One of the slovenly methods of doing work, which is unfortunately widely prevalent at present, is the habit of prescribing ready-made prescriptions. On every hand medical literature teems with the advertisements of compounds for one ailment, and elixirs for another, pills of one doctor's formula, or of this or that recipe, and wonderful stories are told of the miraculous success attending their use, so that the very elect are deceived and fall into the snare.

Gentlemen of the graduating class, prescribe your own formulæ to suit the individual case, after you have thoroughly studied it out. Don't lay hold of one or two leading symptoms, label it a disease, and then make a shot at this with the first recipe you can find in a book of formulæ, or with some famous compound, of which you know naught but the name, even although it be prepared by a reputable manufacturing chemist and come to us "highly recommended."

Be careful, gentlemen, of the beginnings of slovenly thought and slovenly observation. From the very start go in for thorough, conscientious work. There is no room for drones among us. Such are ever liable to drift into disgrace and accept practices alike dishonouring to the profession and to themselves.

Strive—endeavour! it profits more
To fight and fail, than on Time's dull shore
To remain an idler ever.
For to him who bares his arm to the strife,
Firm at his post in the battle of life,
The victory faileth never.

While success in our profession is in great measure dependent upon industry, it is also more or less dependent, at least at its commencement, upon *tact*.

While you thoughtfully interpret the many physical symptoms which you may meet with, it is very necessary that you duly recognize the many peculiarities and idiosyncrasies which go to make up the individual you are dealing with. We are all creatures of fads and fancies, and when we get sick these fads and fancies take a very prominent place. They are not part of the disease, they are part of the individual, and you will show your good judgment and discrimination by treating them very gently.

Another habit of mind which I would urge you as physicians to strive to cultivate is imperturbability. Its value was emphasized in a brilliant address given a few years ago by Dr. Osler, formerly of this University. "Of all qualities," he says, "in the physician or surgeon, no one takes rank with imperturbability. It means coolness and presence of mind under all circumstances,

calmness amid the storm, clearness of judgment in moments of grave peril, immobility, impassiveness or, to use an old English and most expressive word, *phlegm*. It is the quality of all others appreciated by the laity, though often misunderstood by them. The physician who betrays indecision, who shows that he is flustered and flurried in emergencies will most surely lose the confidence of his patients. Educate, therefore, your nerve centres that not the slightest dilator or contractor influence shall pass to the vessels of your face under any professional trial." But more than this, imperturbability in its perfect and true form is indissolubly associated with knowledge and experience. Of the latter, if you have used your hospital facilities well, you have already a fair share, and as your practice increases, with diligent observation experience will grow rapidly.

But exact knowledge is sometimes elusive. Our memories require frequent re-furbishing. It is well, therefore, in your leisure moments to think over and question, each one himself, what ought I to do in such and such an emergency? Only by so doing can you have the calm confidence which comes from knowledge and which in more ways than one will contribute to your success.

While speaking of this let me emphasize to you the importance of occasionally reviewing your old work. As time passes you will find your knowledge in certain of the branches vanishing, or at least becoming very defective. Notably may this be the case in physiology and anatomy. Even during the earlier years of your practice I would strongly urge you to spend your leisure moments in reviewing your studies in all the more important departments. It is only by a well laid out and steadily persevered in plan of regular reading that you will be able to keep yourselves in touch with the advancing lines of medical science. In any plan of reading which you may form it will be necessary in this age of rapid thought to include journals and magazines as well as books. We hope you will all subscribe to our own MONTREAL MEDICAL JOURNAL, which, especially under its present management, is a good representation of Canadian thought in medicine. As shortly as possible a good American

weekly, and afterwards one of the London journals should be added. Provided that you read them regularly, money spent in this way is one of the best investments you can make.

As years roll on allow nothing to interfere with your taking prolonged intervals of relaxation from the monotony of daily practice. You will become conscious of renewed youth and thought stimulated afresh when once more you enrol yourself as a student, even if it be only for a few weeks or months, at one of the large centres of medical thought.

During your professional career you will find that much of your happiness depends upon your cordial relations with your *confrères*. Therefore in all your dealings with them be more than just—be generous. Avoid the very appearance of dealing unfairly with them. Be very slow to impute too grasping actions, or even unkind statements, to a neighbour. As you grow older you will find that many explanations may be made of actions which at the first sight might seem to be unkind or unprofessional. You will find that many patients, to excuse or screen their own conduct, will thoughtlessly twist and distort the statements of a *confrère* so as to give them a totally different meaning to what was intended. In such cases the dignity of the profession is at stake. If you allow a brother practitioner to be misrepresented or slandered, you lower the dignity of your own calling.

Read and study carefully the little pamphlet on ethics published by the Canadian Medical Association. It will show you your duties, and a keen appreciation of them will go a long way to smooth any difficulties that may arise between yourself and your neighbours.

And finally, gentlemen, permit me to say a few words explanatory of the oath of allegiance you have just taken to your Alma Mater.

As professors and as graduates we are indissolubly connected together. As professors we shall rejoice in your success, as a college we shall share in your glory. But if dishonour befall you, we shall grieve and shall have to share a certain part of your shame. It is similarly with yourselves. The advancing success

of your college will be a source of pride and honour to you.

Be assured, gentlemen, the motto of your Alma Mater will be ever *Excelsior*.

Thanks to the munificent gift of one who has already done liberal things for our University, our students of next year will find greatly improved lecture and class rooms. Our buildings will then rank among the best. But the glory of a college does not consist in its buildings, let them be never so replete with the means of instruction and investigation. Like the Roman matron when asked of her jewels, our College looks for her glory to her graduates, and to the good work which they may accomplish in the world. It is to you that we look to bear aloft the banner of old McGill in the various quarters of our great Dominion. It is to you that we look for assistance in our efforts to secure a higher and more practical education, and to obtain a wider and more extended sphere of usefulness.

The time will soon come when the anomalous position of our profession in the Dominion, split up as it is into petty provincial colleges, must be done away with, and when a general Dominion Board will be able to grant you a license, either on the strength of the diploma given in these halls, or, it may be, after an examination under which all will pass, and this one license, so granted, shall convey to all our graduates the privilege of practising in any portion of the British Empire.

Such a consummation can only be attained by our graduates supporting the efforts of our University, both by their votes and their personal influence.

Once more, gentlemen, we speak in sadness. It seems but yesterday that as a College we had to mourn the loss of Howard and Macdonnell. To-day we are again bereft. Your College group contains the face of one who is no longer with us. Before the present session was half completed Dr. George Ross passed away.

May he remain in your memory as he does in mine, an ideal teacher, clear and incisive in all his statements, a most able diagnostician, a courteous and generous *confrère*, and to a few

a trusted friend. We all have our ideals in life. As a physician, he was one of mine.

Surely of him may it be said that he has gone

“to join the choir invisible

Of those immortal dead who live again;

In minds made better by their presence; live

In pulses stirred to generosity,

In deeds of daring rectitude, in scorn

For miserable aims that end in self,

In thoughts sublime, that pierce the night like stars

And with their mild persistence urge man's search to vaster issues.”

To but few students' lot does it fall to have more perfect exemplars than you have had in Richard Lea Macdonnell and George Ross.

Gentlemen of the graduating class, again godspeed. To each I say

Act well thy part, there all the honour lies.

FAREWELL!

LAZINESS.—The *Maryland Med. Jour.*, in an editorial on this subject, after detailing several cases, says:—“Our private opinion, deducted from the above observations, is that if a man loses inclination for work, who is not dissipated or morally depraved, has no hernia, does not wear a rectal plug, is not a physician, and does not draw a pension, he is probably suffering from some obscure disease and should receive careful medical examination and treatment.”

—Seiger (*Med. News*, Jan. 21, '93) gives, as the cause of baldness in men, the wearing of heavy and impermeable hats, which prevent evaporation of perspiration and secretions, and to a certain extent macerate the parts. The pressure of the rigid hat band, by interfering with the circulation, is another factor in the causation of this disease.

—Sir Joseph Lister says that sponges should be boiled to render them sterile for use during operations. They should be placed in boiling water in a closed vessel for fifteen minutes. They are reduced in dimensions by this treatment but still fit for use.

Reviews and Notices of Books.

A System of Genito-Urinary Diseases, Syphilology and Dermatology. By various authors. Edited by Prince A. Morrow, A. M., M. D., Clinical Professor of genito-urinary diseases, formerly lecturer on dermatology in the University of the City of New York, Surgeon to Charity Hospital, etc. With illustrations. In three volumes. Vol. I. Genito-Urinary Diseases. New York, 1893: D. Appleton & Co.

This book is the first of a work which is to be completed in three volumes. Genito-urinary diseases make up the contents of the first volume, the second will be taken up with Syphilology and the third with Dermatology.

These subjects have become so important of late years that it was felt that one man could not be expected to write a book covering the whole ground; hence the editor has enlisted thirty-two contributors in the preparation of this volume, all well known as workers in the field of genito-urinary surgery. Each subject is assigned to a writer especially selected for his fitness, and some subjects are divided among two or more writers. Thus S. Lustgarten writes on the etiology of urethritis, G. E. Brewer on acute and Wm. K. Otis on chronic gonorrhœa, and Andrew F. Currier on gonorrhœa in the female. Diseases of the testicle are taken up by James Bell, Ed. C. Burnett and John P. Bryson, in three separate articles. The other contributors are:—Geo. Woolsey, Ramon Guiteras, F. Silden Brown, Hermann G. Klotz, Joseph J. Andrews, Frank Hartley, James P. Tuttle, J. Wm. White, W. T. Bel- field, Jos. D. Bryant, Eugene Fuller, J. A. Fordyce, Willy Meyer, Sam'l Alexander, Geo. Ryerson Fowler, Alex. W. Stein, Francis Sedgwick Watson, Arthur T. Cabot, Lewis A. Stimson, Chas. W. Allan, John A. Wyeth, W. W. Van Arsdale, Ed. L. Keyes, Paul Thorndyke and Prince A. Morrow. The work embodies the results of the latest researches in this department of surgery, and contains much that is not to be found in an ordinary text book. The text is illustrated by numerous diagrams, halftone pictures, and chromo lithographs,

and the publishers have carried out their part of the work in a most complete and thorough manner, quite worthy of the articles which make up the book.

Diseases of the Skin; their Pathology, Diagnosis and Treatment. By H. Radcliffe Crocker, M. D. (Lond.) F. R. C. P., etc. Second edition, with 92 illustrations. London: H. K. Lewis, 1893.

The first edition of this most excellent work has been out of print for some time, so we heartily welcome a second edition. We consider that Dr. Crocker's book is the best work in the English language on diseases of the skin that has been written during later years. It is written in a very pleasing style, and although thoroughly scientific and up to date, the descriptions of disease are clearly and simply put, and the treatment is always the result of experience. American authors are frequently referred to and their work fully recognized. In this edition many new articles have been included, such as those on Erythema Induratum, Pityriasis rubra pilaris, Morvan's Disease, Darier's Disease, Seborrhœic Dermatitis, Actinomyces, Adenoma Sebaceum, Multiple Gangrene, &c. Dr. Crocker first gives the definition of the disease, then the symptoms and cause, diagnosis, etiology, pathological anatomy and treatment. The description of the pathological anatomy is always clearly expressed and very readable. The illustrations are chiefly connected with this department and are very good. At the end is a good formulary for the treatment of skin diseases, and there is also a very complete index. We can conscientiously recommend this work to all students and practitioners who want to get a thorough knowledge of skin diseases, as we consider it the very best of the larger works on dermatology.

An Introduction to the Study of Diseases of the Skin. By P. H. Pye-Smith, M. D., F. R. S. Philadelphia: Lea Bros. & Co.

This hand-book is a reprint of Dr. Pye-Smith's chapters on Diseases of the Skin, written for *Fagge's Practice of Medicine*.

The descriptions of the various diseases are short and to the point, and written with the ability Dr. Pye-Smith has dis-

played in other departments of medicine. A number of diagrammatic cuts are introduced, chiefly to illustrate the local distribution of skin diseases, a point which has never, according to the author, received proper recognition from a pathological or a diagnostic standpoint. The references are chiefly to English authors, and especially to articles in Guy's Hospital Reports, so that the work reflects English, and especially London, views on present questions in dermatology. It is a work written by an eminent general physician, who, in some degree, regards the subject from a broader standpoint than is generally the case with mere specialists. We can heartily recommend the book to all those who take an interest in dermatology.

The Hygiene of the Sick Room.—A book for nurses and others, being a brief consideration of asepsis, anti-sepsis, disinfection, bacteriology, immunity, heating and ventilation, and kindred subjects, for the use of nurses and other intelligent women. By William Buckingham Canfield, A.M., M.D., Lecturer on Clinical Medicine and Chief of Chest Clinic, University of Maryland; Visiting Physician to Bay View Hospital, etc., Baltimore. Philadelphia: P. Blackiston, Son & Co.

This book, the author states, is the outcome of a course of lectures delivered to the nurses in the University of Maryland Training School. It is a plain statement of the relationship between disease and bacteriology put in language that can easily be understood by any intelligent person. It contains much useful information regarding contagion, and the causation and spread of the infectious diseases. The infectiousness of tuberculosis is clearly shown and some excellent rules given for preventing the spread of this terrible disease. A chapter is devoted to the consideration of ophthalmia neonatorum, and the importance of immediate treatment insisted on. The diffusion of information regarding this disease is urged as a means of lessening the number of cases of blindness. Cr de's method of prevention by dropping a two per cent. solution of nitrate of silver into the eyes of every infant born in the institutions of which he had charge is strongly recommended. Much good advice to mid-wives and nurses is

given regarding the care of the eyes of new-born infants.

All the infectious diseases are treated of in the same way—from a popular standpoint, and we feel sure that much benefit will be obtained by all who carefully peruse this little work.

The Johns Hopkins Hospital Reports. Report in Pathology, II.—The report in pathology upon "Papillomatous Tumours of the Ovary" and "Tuberculosis of the Female Generative Organs," by Dr. Whiteridge Williams, is quite up to the usual standard of excellence which the reports of the work done at this hospital usually reach.

In beginning the first part of the report, Dr. Williams says that it has been his endeavour to supply the missing link in the chain of our knowledge of this subject. This he has succeeded in doing. The work is especially interesting to the gynæcologist and pathologist, but even a general practitioner cannot fail to be benefitted by his perusal of the volume. He divides papillary tumours of the ovary into two classes: (1) Papillary Cystoma, and (2) Superficial Papilloma. After giving the various theories of the origin of the cystic form, Dr. Williams shows that they may develop from the Wolffian body, the Germinal Epithelium and the Graafian follicle, citing cases which show their origin from each. The plates, two in number, are well got up and are very clear.

The second part of the report deals with "Tuberculosis of the Female Genitals," and is quite as good as the above. Some original work is introduced, and the modes of infection, diagnosis, treatment and prognosis are fully entered into.

—Baillon, the botanist, was one day promenading with a school teacher and her female pupils in a botanical garden and came to a bed of sensitive plants. The old botanist said to the class, when a woman or young girl has lost her virginity the plant shrinks when touched. "Well," said the school mistress, "I am married and have no need to touch the plant." But one of the pretty pupils, a true daughter of Eve in curiosity, concluded to try the experiment, and the sensitive plant promptly wilted, whereupon she exclaimed, "How does it know!" and fled with the rest of her companions.—(Ex.)

Bibliography.

Bloodless Amputation at the Hip Joint, by a New Method. By NICHOLAS SENN, M.D., Ph.D., Professor of Practice of Surgery and Clinical Surgery, Rush Medical College, etc.

Reprint from *Chicago Clinical Review*, February, 1893.

Annual Report of the Governors, Principal and Fellows of McGill University, Montreal, for the year 1892.

The Clinical Examination of Breast Milk. By E. EMMETT HOLT, M.D.

Reprint from the *Archives of Pediatrics*, March, 1893.

Ununited Fractures in Children. By D'ARCY POWER, M.A., M.B., Oxon, F.R.C.S., Demonstrator of Surgery at St. Bartholomew's Hospital, etc.

Reprint from the *International Journal of the Medical Sciences*, Vol. 103, 1892.

An Analysis of Seventy-two Cases of Ununited Fractures Occurring in the Long Bones of Children. By D'ARCY POWER.

Reprint from Vol. LXXV of the *Medico-Chirurgical Transactions* published by the Royal Med. and Chir. Soc. of London.

—Ischerning, of Copenhagen (*Annals of Surg.*, April, '93) recommends massage of the muscles of the forearm as well as of the wrist and fingers in fractures of the radius eight days after the receipt of the injury.

—The *Twentieth Century* decides that we are becoming more fearful of death than our fathers. "The world is, as it were, hypnotised by medical and sanitarian terrorists and alarmists, until men are afraid to breathe the air of heaven, save through sanitary respirators; and one need not be surprised if after a generation or two a man will not venture forth from his home without a panoply of devices for protecting his precious life against germs, till, like the fully equipped knight of mediæval time or the last development of the war ship, he is made absolutely impregnable at the expense of his power of locomotion."

Society Proceedings.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, December 23rd, 1892.

JAMES STEWART, M.D., PRESIDENT, IN THE CHAIR.

A Second Series of Cases of Transplantation of Skin after Thiersch's Method.—DR. BELL read a paper on this subject, and exhibited several cases to illustrate his remarks, which will appear in our next issue.

DISCUSSION.

DR. D. J. EVANS spoke of several cases he had observed in Prof. Thiersch's Clinic at Leipsic, and the treatment was always successful.

DR. FOLEY suggested that this method of skin grafting might be used with advantage in treating leucoderma and tattoo marks, by removing the affected skin and supplying new skin.

DR. SMITH asked how deep the skin had to be cut and if hair grew on the new skin.

The PRESIDENT—If tactile sensation was present.

DR. BELL, in reply, said that the skin is removed down to the true skin, not into it, for the fibrous tissue will interfere with union. The hair follicles are thus not taken, and often the only means of distinguishing the transplanted skin from the normal is by the absence of hair. The sensation is as good as in healthy skin.

Carcinoma of the Peritoneum.—DR. ADAMI exhibited specimens from a case of carcinoma affecting the peritoneum. The patient, a Polish Jew aged 25, was attacked by sharp epigastric pains about August, 1892. These were unremitting and were increased by ingestion of food. The abdomen was noticed to be enlarging in the first week of October, and the patient entered the General Hospital upon October 22nd, under Dr. Stewart. Upon entry the whole lower half of the abdomen was very painful, so much so that the patient was frequently forced to cry out. After admission the abdomen rapidly increased in size and the patient showed increasing emaciation.

of the rest of the body. There was constipation but no vomiting. The patient was tapped upon October 25th, and 120 oz. of a milky, turbid fluid were removed. The fluid was rapidly replaced, so that between this time and the death of the patient, upon December 12, the operation was repeated five times, from 115 to 170 oz. of fluid of the same milky nature being removed at each tapping. Nodular growths could be felt, after tapping; running in various directions; a prominent band ran across the abdomen about one-half inch above the umbilicus, and in the left iliac fossa a great aggregation of nodules could be distinguished. The post-mortem was performed by Dr. Martin, who forwarded the matted intestines *en bloc* to the Pathological Laboratory. The prominent band referred to above was evidently the thickened and much contracted great omentum, infiltrated with cancerous growths. The mesenteries also were greatly thickened and contracted. Numerous lenticular translucent growths, from 0.5 cm. upwards in diameter, were scattered over the peritoneal surface of both large and small intestines. These latter were matted together by soft recent inflammatory lymph. Apart from the infiltrated mesenteries and omentum which were fairly firm, the soft, almost gelatinous growth upon the intestinal wall was most marked around the splenic flexure of the colon and again at the beginning of the sigmoid flexure. At the splenic flexure all the walls of the viscus were involved and there was marked stenosis. Here probably was the origin of the carcinoma. The mucous membrane of the sigmoid flexure and of the rectum was unaffected.

Upon stripping off the muscular coats of the intestines the lymphatic plexus was found to be injected with fatty matter and the main lymph trunks could thus easily be traced to cheesy glands lying completely involved in the mesenteric new growth. A portion of this naturally injected submucosa was exhibited. Previously Dr. Adami had examined the milky-looking ascitic fluid and had found it to be almost wholly deficient in fat, though containing a large amount of proteid, noticeably of globulin.

It would seem, therefore, that in the condition of the lymphatic system is to be found an explanation of the pseudo chyloous ascites here described—a form of ascites that not un-

frequently has been noted in connection with carcinoma of the peritoneum. The mesenteric lymphatic glands become surrounded by new growth, the vessels passing off from them become occluded, hence from the distended lymphatics of the intestinal wall there occurs extravasation of the fluid of the lymph, the fatty globules, as shown in this case, being left behind, and forming an inspissated mass injecting the lymphatics. Did any of the distended lymphatics undergo rupture, then a condition of true chyloous ascites would be induced, such as has been found by Reichenbach in a case of lymphadenoid disease affecting the mesenteric glands.

Microscopic examination of various regions proved that the new growth, although resembling colloid cancer in general appearance, was not of this nature—the alveoli were greatly distended and filled with mucoid rather than colloid material. In some the cells could still be seen, in others the cellular elements had almost wholly degenerated and given place to mucoid material. This form is by some spoken of as carcinoma myxomatodes, but inasmuch as that term is applied more frequently to cases where stroma, and not the alveolar contents undergo mucoid change, it is better to describe it as a myxo-carcinoma.

Cyst of the Right Ventricle.—DR. ADAMI exhibited a brain presenting this condition. At the autopsy the dura mater was found to be generally thicker than normal, and adherent to both calvarium and pia mater. Upon removal of the brain a cyst was ruptured and from this poured a clear, colourless fluid. The cyst was nearly two inches across in its largest diameter (the antero-posterior), and about one and a half inches in breadth, extending from under the angular gyrus and second occipital convolution forwards to a point one-half inch behind the ascending parietal convolution in the mid-parietal region.

Dr. Adami pointed out the facts that militated against this being considered a cyst formed by the breaking down of a glioma; that it was not a hydatid cyst, and that the appearance of the walls was strongly against its being an embryonic cyst. There was left the possibility of its being the sequel of an old hæmorrhage—yet the absence of any signs of pigmentation of the walls was against this supposition. It would be

necessary to harden the brain and examine microscopically before any sure statement could be made.

DR. STEWART said that the patient was a man aged 40, and who had suffered for the greater part of his life from headaches, which came on every week or every two weeks. Three weeks before death he was seized with a much more severe headache than usual; he began to lose control over his movements; he noticed that he stumbled against various objects; vomiting came on and he became soporose from which he passed into deep coma and death. There was no disturbance of vision and the eyes, on examination proved to be normal; there were no localizing symptoms.

Hernia of an Ovary through the Inguinal Canal, in an Infant.

—DR. JAMES BELL related the case of a female child, twelve months old, upon whom he had been called to operate for inguinal hernia which had appeared during the course of whooping cough. Frequent attempts to reduce it had failed; it was hard and seemed like omentum. On cutting down the sac was found closely covering the tumour, and on removing the sac the hernia was found to be covered with peritoneum. On manipulation there was an obscurely hollow feeling. He (Dr. Bell) thought that it might be a volvulus and ligatured the pedicle and cut it off. After removal he was no wiser than before as to what the structure was, unless it was an ovary.

DR. ADAMI said that he had examined the specimen and found that it was the ovary and fallopian tube of a young child. Towards the pedicle there were found undoubted tubercles. Here was an ovary in a false position and its weakened condition rendered it an easy prey, and Dr. Bell had done well to remove the tubercular focus.

DR. SMITH said that this was the second time he had seen this condition. Seventeen years ago he saw Mr. Golding Bird remove an ovary from the inguinal canal.

A Case of Poisoning by Chlorate of Potassium.—DR. WYATT JOHNSTON gave the following history:—

The patient, a boy aged 10, on December 14th on getting up in the morning had a sore throat and did not feel well. He went to work, but during the day he felt so ill he returned home and his mother, thinking that he had quinzy, gave him a solution of chlorate of potassium to

drink. The amount taken during the day was nearly two tumblersful of a saturated solution, equal to about six drachms, of the salt. In the evening Dr. J. A. Macdonald was called and found the boy in a dying condition, with intense cyanosis of the face and extremities. The autopsy was performed at the order of the Coroner. All the conditions indicated that death had been caused by the Potass: Chlorat: This salt destroys life by decomposing hæmaglobin into met-hæmaglobin. There were two ecchymotic spots, one on the inner surface of the left fore-arm and the other on the anterior surface of the right leg. On incision they were found to be due to extravasated blood of a dark coffee-brown colour and sticky consistency, and which did not change colour on exposure to air. The blood removed from the heart showed the characteristic appearances of met-hæmaglobin; it was thicker than normal, of a peculiar chocolate-brown colour. The kidneys, spleen, lungs, bone marrow, and brain, showed the characteristic brown colouration; urine contained a large amount of albumen but no blood or met-hæmaglobin. Spectroscopic examination of diluted blood gave deep absorption bands at C. and F. in addition to two paler bands at D. and E. which is characteristic of met-hæmaglobin.

The appearances might be mistaken for those found in acute infectious fevers, or poisoning by other substances which produce met-hæmaglobin, but here chemical analysis showed a large quantity of Potass: Chlorat:

DISCUSSION.

DR. BULLER thought that the susceptibility to the action of this drug was very great in some individuals. He had met with two persons, mother and son, who could not take it at all, five grains three times a day would make them quite ill.

DR. BELL asked if there is any hope of prolonging life when met-hæmaglobin has been formed—if there is any chance of it being eliminated?

DR. LAFLEUR wanted to know whether the salt was changed in the stomach, or whether it was absorbed unchanged and circulated as such in the blood? He referred to a case he had reported—a case of poisoning by potass: bichromat:—where the symptoms and conditions found were the same as in this case. One marked feature was the intensity of the

rigor mortis and the length of time it lasted, for in seventy-two hours it had not disappeared. The blood was in the same condition and the lungs contained an abnormal form of gas of some kind.

DR. FOLEY said that a dermatitis associated with this condition is very rare; only one case is recorded. Two cases of an erythematous rash have been reported.

DR. STEWART said that potass: chlorat: may cause death by rapidly inhibiting the action of the heart or by the rapid degeneration of the heart muscle, without affecting the blood in any way.

DR. JOHNSTON, in reply, said that very little is definitely known of the changes in the blood. The production of met-hæmaglobin is involved in obscurity, and it is now considered to be a mixture of several compounds. He could not say what changes the salt undergoes in the stomach, but it appeared as such in the urine. As to treatment, bleeding and transfusion seem to be indicated, but he cannot find if this has been practiced. It has been stated that if the blood is strongly alkaline the change takes two or three times as long to be accomplished, so he suggested making blood alkaline, but such treatment is not supported by any clinical evidence. Intense engorgement of the brain with the altered blood seems to be the most likely cause of the rapid death.

Stated Meeting, January 6th, 1893.

JAMES STEWART, M.D., PRESIDENT, IN THE CHAIR.

Simple Chronic Salpingitis.—DR. ADAMI exhibited two very typical specimens of this condition, which he owed to Dr. Alloway. There was no evidence of tuberculosis. Both showed marked atresia towards the uterine end of the tubes, with considerable dilatation above this, and fibroid thickening of the walls. The tubes contained sanious pus.

Papillary Cysts—Adenoma of the Ovary.—DR. ADAMI also exhibited a specimen of this condition sent to him by Dr. Alloway. There were extensive papillary growths into the cysts, which contained thin mucinous fluid.

Papillary Growths in the Lower Bowel.—DR. SMITH gave the following history: The patient, a tailoress by occupation, under my care for the last 10 or 12 years, complained of severe dysmenorrhœa, necessitating leaving off her occupation several days monthly. She also suffered from mitral regurgitation. In addition to dysmenorrhœa she complained of a pain in her left side, which persisted throughout the intermenstrual period. At last I decided on abdominal section. This was done two years ago; she made a good recovery, and the case was reported at the time. The pain, however, has not been altogether cured. Dysmenorrhœa, of course, ceased, with the exception of the first period after the operation; she has had no period since. The pain in the side and back still persisted. Soon after the operation she began to complain of passing small quantities of blood per rectum, which, at the time, I supposed was a sort of vicarious menstruation, this hemorrhage generally occurring at the menstrual period. After a time, however, she brought me some small pieces of flesh about the size of a split pea, one or several of which she noticed herself passing each time she had a hemorrhage of bright red blood. I at first thought them little polypi or warts. On examining the rectum I could find no growth there. On making a vaginal examination, however, I thought I could discover some thickening of the left vault,—some indication of an irregular shaped mass in the left iliac region, which, owing to the extreme corpulency of the patient, was difficult to outline. Hemorrhage increased steadily; last time there was a teacupful of bright red blood. She brought me several of the pieces referred to above, and which I handed to Dr. Adami for microscopic examination. It is important to ascertain whether these are parts of a simple or malignant growth.

DR. ADAMI described the small growths in question. He pointed out that they were evidently hypertrophic growths of the mucous membrane. From their structure he considered that they had developed in the lower portion of the colon, and this opinion gained support from the bright, red, unaltered blood which passed out along with them. As to the question whether they were of malignant nature or no, he was inclined to consider them non-malignant; they contained compara-

tively few blood vessels—their glandular structure was typical, not atypical.

DR. ADAMI exhibited a specimen of ulcerative colitis from the museum of McGill College, presenting very similar papillary growths. He pointed out the frequent relationship between the production of such papillary adenomata and chronic inflammatory disturbance. The increased nutrition in the hyperæmic zone around old ulcers, for example, may originate such overgrowth of the mucous membrane in these positions. Other cases of these papillomatous growths are, however, accompanied by no definite history of chronic inflammation.

DR. SMITH expressed his satisfaction with Dr. Adami's clear description of the condition present. His observations of the patient confirm Dr. Adami's remarks. She does not resemble a patient suffering from malignant disease. When her bowels are moved she suffers pain; and if the motion is hard its passage is followed by bleeding and pieces of tissue. In one of these pieces a little blood vessel was noticed.

DR. STEWART—Was there much hemorrhage?

DR. REED—And how often did it occur?

DR. SMITH—A teacupful at the last occasion. As to frequency, it was generally at the time of her periods that the hemorrhage occurred; in the intermenstrual period it occurred very seldom and very slightly. The hemorrhage did not always amount to a teacupful.

DR. ENGLAND—Was there hemorrhage before the appendages were removed?

DR. SMITH—No. In removing the ovaries I noticed a sub-peritoneal fibroid on the back of the uterus, which I did not disturb, not wishing to complicate the operation. The appendages were very much inflamed and thickened, the ovaries also.

DR. A. LAPHORN SMITH read a paper on Tubercular Peritonitis, with report of a case treated by operation.

It is now three years since Dr. William Gardner read a most interesting paper before this society on abdominal section for tubercle of the peritoneum and uterine appendages, reporting at the same time five cases with two deaths. We have had no discussion, as far as I am aware, on this most im-

portant topic since then, and as I had a case of the same kind to report, I wrote my paper so as to give an opportunity for a discussion on tubercular peritonitis in general, and the operative treatment of it in particular. Having seen a good many patients die from this disease, under treatment with medicines, some of which cases were diagnosed and some were not, and having made post-mortem abdominal sections of a good many children who died from this disease at the East London Children's Hospital during my term of residence there, I have always taken a great deal of interest in the progress which our knowledge of this obscure disease has been making during the last ten years, and especially in the wonderful results of abdominal section as a means of cure. How is the disease contracted? How may it be prevented? How may it be diagnosed? And what is the best treatment? These are all questions of great practical importance.

I shall only attempt to throw out a few suggestions in reply to these questions, trusting that the professors of pathology, medicine, hygiene and abdominal surgery, who may be present, may give us from the abundance of their knowledge. In order to clear the ground for action I would like to begin by expressing my utter disbelief in the heredity of this disease, no matter where situated, whether in the respiratory organs or in the digestive organs, or even in the joints. That a great many children are infected by their tubercular parents after birth is easy enough to understand, but that a child born of tubercular parents, but never exposed to infection, either by bacilli-laden air or bacilli-laden milk, could acquire tuberculosis, is a thing of which I have never seen or heard the slightest proof. Any evidence which has so far been brought forward on this point would prove much more easily that measles was a hereditary disease. This question of infectiousness is much more important than one might at first sight suppose. For until the profession can be freed from the superstition of heredity there is little hope of tubercular diseases being stamped out, as they only can be by rigorous precautions against infection by the air or by the food.

If tubercular peritonitis then is not hereditary, as I hope no one here believes, by what means does the peritoneum become infected? Through the blood vessels? Or through the

lymphatics? There would seem to be little doubt in the mind of pathologists that the lymphatics are the channels by which the bacilli gain admittance to the great lymph sac. The fact that the pleura and pericardium are connected with each other by lymphatics, and the frequency with which tubercular pleurisy and pericarditis exist as complications of tubercular peritonitis without the lungs being affected, together with the absence of bacilli in the blood, would place this contention almost beyond a doubt.

If this be the case the bacilli must be introduced by the digestive or genital tract. Let us take first the digestive tract. Although theoretically a few bacilli might be swallowed with air, practically this would be a very rare cause of the disease. The large number of tubercular cattle which are killed on the farms or in small towns and even in private slaughter houses in large cities, so as to escape inspection, and the quantities of milk from tubercular cattle supplied to young children and others would furnish a bountiful supply of bacilli for the purpose of infection. Another method which might be termed auto-infection is that in which a patient with tubercular disease of the nose or mouth or larynx, or still more often of the lungs, swallows the discharge from these ulcerating surfaces laden with bacilli. They then pass through the absorbents and are at once grafted on to the peritoneal surface. Before long they are surrounded by phagocytes and are walled off by inflammatory exudation, so that they appear as little colonies or miliary tubercles. This process, however, at the same time causes adhesions of neighbouring coils of intestine, producing more or less pain, abdominal distension and interference with the processes of digestion. Strange to say this does not always cause fever; on the contrary, the temperature is often below normal.

In a large number of cases, 40 or 50 per cent. of the females at least, the disease has been found to co-exist in the tubes. At first one might think that the disease in these cases had spread from the peritoneum down the fimbriated extremity of the fallopian tubes, were it not for the fact that in a large number of cases women have been known to suffer from tuberculosis of the vulva, vagina, uterus and tubes, without the peritoneum being at all infected. So that it is much more likely that the

genital tract infects the peritoneum than that the peritoneum infects the genital tract.

The prevention of the disease depends most upon the detection and slaughter, at the expense of the country, of all the tubercular animals which might be used either for food or for giving milk, and the destruction of infected sputa from the respiratory tract of human beings. Only one step farther, though rather a long one, would lead us to the state undertaking the stamping out of the disease in human beings by the gathering together in a national sanitarium of all those who are at present acting as widespread centres of infection.

How to diagnose it is a more difficult question than any; so difficult, indeed, that it is rarely diagnosed at all. Dr. Gardner frankly stated in his paper that in only one of his five cases was the real nature of the disease suspected prior to the operation. The symptoms are very variable. There may be fever in some cases, while in others the temperature may be sub-normal. There may be very great or very little pain or tenderness. There may be diarrhoea or obstinate constipation. There may be effusion or there may be no effusion. There may be sweating, but this also may be absent. There may be tympanitis or the abdomen may be flat. There is generally nausea and anorexia, but occasionally the patient has a good appetite. There may be tumour-like formations due to adhesions of omentum and intestine, to the occurrence of which we are indebted for much of the increase in our knowledge of this subject, for it was in operating for supposed ovarian tumors, which they so much resembled, that the operative treatment of tubercular peritonitis was stumbled upon, rather than invented. Pozzi mentions that out of 96 laparotomies in which this disease was found, in 37 of them ovarian or other tumors had been diagnosed. There are only two symptoms which seem to be constant, namely, rapid emaciation and great weakness.

Where so many diagnosticians have been deceived, the only sure means of making a diagnosis in all obscure diseases of the abdomen is to make a harmless exploratory incision which will at once make the nature of the disease clear, in the majority of cases.

Exploratory incision becomes a still more valuable means of

diagnosis when we come to consider that at the same time, should the disease prove to be tubercular peritonitis, it is also the treatment which so far has given the best results.

The prognosis of tubercular peritonitis depends very much upon the treatment carried out. If treated by opium as first advised by Stokes, of Dublin, in 1821, and afterwards by Graves, it was almost hopeless. Loomis, one of Clarke's disciples, says: "After weeks and months of anemia and exhaustion, tubercular peritonitis terminates in death." Davis says: "All cases of peritonitis arising from tuberculosis are incurable. Temporary relief may be obtained by removal of the accumulated fluid, by aspiration or tapping, but the diseases which have given rise to the peritoneal trouble, being themselves incurable, there is an inevitable tendency to a fatal termination." In Ziemmsen's encyclopedia, and Pepper's system of medicine, the prognosis is regarded as absolutely fatal.

But under the treatment by surgical operation, not too long delayed, the prognosis is already favourable and bids fair to become much more so when abdominal section is resorted to earlier.

Does the operative treatment of tubercular peritonitis ever cure? This is a question which, during the last few years especially, has been a burning one. In the light of our present experience there can no longer be the slightest hesitation in answering it in the affirmative. In the words of Dr. Osler the operative treatment of tubercular peritonitis is the most recent triumph of surgery. Koenig, of Gottingen, gives an opinion founded on 131 cases, that by laparotomy 95 per cent. are much benefited, and 25 per cent. completely cured. Mancoffe gives 68 cases, of whom 13 died soon after operation, 15 disappeared, 14 remained alive at the end of six months and 26 at the end of twelve months. Homans records two cases with recovery. Goodell has operated on four cases, of whom three recovered and one died six months after the operation. Munde has operated on three cases with one death and two recoveries. Kelly gives four cases with four recoveries. Grieg Smith has operated on two cases with one death. Plus reports three cases with three recoveries. Inlach reports five cases with four recoveries. These make a total of

222 cases treated by laparotomy with 84 recoveries, or 38 per cent. Judging from our experience in other departments of surgery, the result in the operative treatment of tubercular peritonitis will become much more favourable when the disease is recognised earlier, or when, in case of doubtful diagnosis, an exploratory incision is made, and no time is lost with unavailing treatment with medicine. The surgical treatment of obscure intra-peritoneal disease is yet in its infancy. So far, as a rule, we have only been allowed to operate when all hope has been abandoned and the patients are *in extremis* with an enormously distended abdomen, thready pulse, and cold extremities. There is a cause for every case of peritonitis, and if we know what that cause is we should operate to remove it, and if we don't know what the cause is we should operate to find out. As J. W. Ross says, guessing at the cause from without the abdominal wall will not help us. We know that it is an operable disease, that an early operation is of greatest value, while even in advanced cases it will frequently prolong life and possibly cure.

In one of Dr. Gardner's cases the abdomen was opened, inspected through an one and one-half inch incision, but nothing whatever was done; and yet the patient was decidedly improved if not cured by the operation. How can we explain a phenomenon which appears so inexplicable. The life history of bacteria, which is gradually being worked out by the devoted labours of the pathologists, appears to me to throw some light upon the mystery. The lower forms of fungi shun the light and air. Some of them may even be so delicate in this respect that sunlight and ventilation alone suffices to kill them. Not only in tubercular peritonitis, but in other forms of disease with effusion, the simple opening and drainage of the cavity has been noticed over and over again to have a very favourable influence on the disease. Lawson Tait says that he has seen tumours disappear, after laparotomy, in cases of disease of the liver, spleen and head of the pancreas. This has happened so often that it is impossible that it is a mere coincidence. He believes that the mere opening of the peritoneum has a direct influence in setting up the process of absorption. He thinks that some emphatic physiological change is at once set up by opening the peritoneal cavity, because there is a uni-

form onset of a most distressing thirst which lasts for days, and is not seen so markedly after other surgical operations. "Let the incision in the abdominal wall," he says, "be made down to the peritoneum, but let the serous cavity remain unopened, and this thirst is not marked; but let the peritoneum be opened but a finger's breadth and the result is marked." That a therapeutic change is effected in the peritoneum itself by the mere opening of the cavity is now universally recognized in the treatment of what we call tubercular peritonitis by abdominal section. This, however, is a question which I prefer to leave for fuller discussion to our pathologists.

I will now briefly relate my case, for in the words of Crofton, of Memphis, "The honest report of a single case will outweigh all the theory and speculation imaginable."

On the 22nd August, 1892, I was consulted at the Montreal Dispensary for the first time by Mrs. S., aged 32, mother of three children, last child three years old. My clinical assistant, Mr. Harry, obtained the following history. Her family history was good and free from any trace of consumption, as far as she knew. She had always had fairly good health until two years ago when she was troubled with a soreness in her larynx or windpipe, which also prevented her from swallowing any solids, and for which she consulted Dr. Birkett. He treated her for several weeks with great benefit, since which she remained what she considered well until a few months before coming to the dispensary, when she noticed that she was rapidly getting thin and her complexion was getting very dark, which she attributed to her liver being out of order. Occasionally the abdomen was sore and distended, and coitus and locomotion generally caused her pain. Menstruation had been scanty last two periods and had not come on this time. During the last few weeks she had diarrhoea and frequently felt hot and cold. She had no cough nor soreness of the throat, and her voice was very clear and strong. Her tongue was very coated, and her pulse 120, weak and almost dicrotic.

It is one of the rules at my clinic to take the temperature of every new patient, by which means acute febrile diseases are frequently recognized, which in the hurry of out-patient work might often escape detection. On this being done in this case the thermometer registered 103 under the tongue.

The patient presented a very emaciated appearance. On vaginal examination the cervix uteri was found to be lacerated on the left side and low down in the pelvis, while the left vaginal vault was fuller than normal and somewhat hard.

At the time she looked so like a typhoid case that I ordered her to go home and go to bed, to take a hot water vaginal douche once a day, and to take no other food but milk. On calling at her home next day the temperature was the same. A careful examination of the abdomen revealed the presence of three rose-colored spots which disappeared on pressure. She still had diarrhoea, which was so profuse and painful that I was obliged to give her opium and camphor and even that hardly stopped it. She was troubled with frequent micturition. There was also some abdominal distension, but there was no tumour to be felt, percussion giving, however, only a tympanitic note everywhere, for which I ordered turpentine stupes with considerable benefit. There was no dullness of the lungs on percussion, and auscultation showed that breathing was rather shallow and respiration a little prolonged.

During the next two weeks there was very little change in her condition, and I contented myself with treating the symptoms as they arose. If she had had pain in the right inguinal region instead of on the left I would have had no hesitation in coming to the conclusion that I was dealing with a case of typhoid fever, which at that time was rather prevalent in the city. Her temperature in the morning was nearly always a degree lower than at night.

After about two weeks, on making a morning visit, I found the temperature normal, and the skin which had been hot and dry was now bathed in perspiration. Although weak she felt better in every way and continued to improve for several days, so that I allowed her light farinaceous food in addition to the milk. As her temperature remained normal I yielded to her request that I should allow her to sit up. I did not see her for several days, owing to absence from the city. On my return I found her back in bed with a high temperature and rapid pulse and her abdomen distended and very painful on the left side. She also had a dry cough. She still had diarrhoea, for which I gave her bismuth, pepsine and a little morphine. There was only slight pain but no gurgling on

the right side, but on making a little deeper pressure on the left side, I found the abdomen very painful and hard, and on making a bimanual vaginal examination to my surprise I discovered the left vaginal fornix as hard as a board, into which hardness the uterus and left tube and ovary were firmly imbedded.

Notwithstanding the presence of so many of the symptoms of typhoid, I now felt convinced that the case was one of tubercular salpingitis, which indeed it probably had been all along, and I therefore urged immediate operation for its removal. To this, however, the patient would not consent. She was now placed on quinine and codliver oil, alcohol and a generous diet, but her appetite remained poor until the oil was replaced with cream, after which she ate well. As she was under the impression that she would choke if she were to attempt to swallow any solid food, everything was cut very fine and, as far as possible, was first passed through a ricing machine.

Owing to her emaciated condition it was difficult to prevent bed-sores from forming in spite of every precaution. At last she found herself failing so much that she consented to the operation, which was performed on 24th October at her home, in which I was assisted by Dr. Ritchie and Mr. Smiley. The usual aseptic precautions were taken as far as her condition and the surroundings would permit, and she was easily anaesthetized with the A. C. E. mixture. Her abdominal wall was so thin that I cut through it layer by layer on the director, and it was fortunate that I did so, for the perietes and the omentum and intestines were all so intimately glued together that had I made an artistic single incision I should inevitably have cut through the bowels in several places, as indeed I once saw Olshausen himself do in a similar case. Even with this precaution I had difficulty in deciding when I had reached the peritoneal cavity. There was quite a thick layer of this organized lymph between the parietes and the omentum, but it was separated without much difficulty, when it became evident that the case was not localized in the appendages. In the right inguinal region there was a space the size of the palm of the hand where the omentum was not adherent, and the intestine could be seen to be covered with miliary tubercle. On the left side the omentum was very adherent to the

abdominal wall right down to the inguinal region, but it was carefully peeled off until I was able to introduce two fingers down to the left tube as it came off the uterus. On attempting to lift the left appendages out in order to remove them I found that they were in a broken-down and cheesy condition, the tube breaking off about three-quarters of an inch from the cornu. A few handfuls of caseous matter were then fished out; but the patient in her exhausted condition was too weak to bear any further prolonged manipulations without great danger, so the abdomen was carefully washed out with several gallons of sterilized hot water, a thin drainage tube was inserted, and the incision was sewed up with silk worm gut. A single hypodermic of morphia was administered, but after that she had little or no pain, not even the pain in the left inguinal region which she had had for some time before. The temperature also came down from 103 to normal and remained there for the two days the tube remained in but gradually rose again after its removal. A few ounces of blood were removed with a sucker during the next forty-eight hours, when the discharge becoming serous the tube was removed. During the next week she had frequently gushes of clear, water-like lymph from the vagina. She made such a nice recovery after the operation that I began to hope that she might eventually be restored to health, but two weeks and a half later she suddenly had a hemorrhage from the bowels amounting to at least a pint of blood. From that time she rapidly failed, dying a week later and three and a half weeks after the abdominal section. A post-mortem was asked for but refused.

Although the result was ultimately unsuccessful there is a good deal to be learned from the consideration of a case of this kind. First there was the insidious onset of the disease. The patient had been in fairly good health ever since her treatment by Dr. Birkett for some affection of the larynx until a few months before consulting me, and even then she only had the usual symptoms presented in women suffering from lacerated cervix. In fact, had I not taken her temperature I would have had good reason to suppose that that was the cause of her abdominal pain, disturbance of digestion, etc. On the other hand all the symptoms, the temperature included, pointed to typhoid in the second week. There was only one

symptom partially missing, and that was the absence of pain and gurgling in the right inguinal region. There *was* pain there, but not so marked as on the left side. Then again, after a period of defervescence during which the temperature remained several days normal and even below normal, the temperature arose as in a typhoid relapse, while the profuse hemorrhage from the bowels coming on three weeks later would have rendered this opinion more probable, had I not had the diagnosis of tubercular peritonitis made positive by the abdominal exploratory incision. Judging from the thickness and toughness of the adhesions the disease must have been progressing for many months while the patient was going around and doing her work. Then again, this point emphasizes the value of an exploratory incision as an aid to diagnosis in doubtful cases. Many cases of tubercular peritonitis are diagnosed and treated as typhoid. I regret very much that a large piece of caseous material which represented the left tube and which I laid aside for microscopical section and examination for tubercle bacilli was thrown away by the nurse. However, that might have been negative in its result, for it does not always follow that the bacilli will be found. In fact, it is the exception to find them in undoubted cases of tubercular salpingitis. They are probably destroyed by the phagocytes, leaving nothing but the caseous debris of dead cells and bacilli. Another interesting question is this: Did the disease originate, or to be more definite, was the infection introduced by the *genital* tract and carried up the vagina, uterus and tube to the peritoneum? or were the bacilli introduced from the *digestive* tract into the peritoneum and thence into the tube? Numerous cases of both these methods of infection have been recorded. Some maintain even that the spermatozoa from a tubercular husband may contain the bacilli, but the husband in this case was very healthy, and it seems unnecessary to fall back upon this hypothesis when there are so many easier ways for a woman to become infected. This may occur either with tuberculous sputa from her own or her husband's or her neighbours' lungs by means of her, his or their fingers or soiled handkerchiefs. In view of the fact that so many are so biassed by the doctrine of the heredity of consumption that they cannot recognize its terrible infectiousness, it is rare that precautions against infection are taken.

There are but few out of the thousands of tuberculous husbands, I fancy, who take the precaution of disinfecting their hands and penis before having sexual intercourse. According to Winkle 50 per cent. of the cases of tubercular peritonitis are infected by a tubercular salpingitis and the early removal of the diseased tube would have prevented it. The rest of the cases of tubercular peritonitis are infected by means of the digestive tract, the tubercle bacilli passing directly from the stomach and intestine into the peritoneal cavity. The bacilli may have been swallowed with infected meat or milk, which is probably the commonest method of all when the lungs are not affected, but more often still when the respiratory tract is primarily attacked the bacilli are swallowed with the sputum in large numbers. This was undoubtedly the source of infection in my case. Dr. Birkett probably treated her for tubercular laryngitis and cured her, but the cicatrix led to some distortion of the epiglottis which caused her difficulty in swallowing. At the time she swallowed enough bacilli to infect the peritoneum and the disease slowly progressed ever since without the symptoms being at any time sufficiently marked to call urgent attention to them.

Whence came the hemorrhage from the bowels? Doubtless from the ulceration of a tubercular focus eating through a large vein or artery in the wall of the intestine just as the same thing happens in tubercular disease of the lungs, and just as occurs in the ulceration of Peyer's patches in typhoid fever. That perforation of the bowels was *not* followed by faecal extravasation, as generally happens in the perforation of typhoid, can be easily explained by the presence of a vast amount of dense adhesions in tubercular disease contrary to what is the case in typhoid, by which means the area about to be perforated by the tubercular ulceration is walled off from the rest of the peritoneal cavity.

If my brief resume of our present knowledge of tubercular peritonitis should draw forth some remarks from those here who are more able to instruct you than I, and if the report of my case will lead you all to come to a more speedy diagnosis and to adopt earlier what I believe is the only proper treatment, my very imperfect paper will have fulfilled the purpose for which it was so hastily written.

DR. ADAMI held that in this case probably all would agree

that infection had occurred through the intestinal tract—the most usual cause of tubercular peritonitis. While infection could, and did, without doubt, originate through the genital passages in the female, he feared that obstetricians were wont to attach too much importance to this channel. Tubercular peritonitis is most frequent in children, and here there can scarce be a question of infection per vaginam.

With regard to operative treatment as a means of diagnosis he agreed with Lawson Tait, "When in doubt perform a laparotomy." It must, however, be remembered that in a very large proportion of cases, tubercular peritonitis tends to be very chronic, nay more, not unfrequently it tends to spontaneous cure or, rather, arrest. The explanation of its frequent slow course, especially in children, is to be found in its connection with the milk diet of those affected. As Bollinger, Bang, Woodhead and others have proved, there is an intimate association between tuberculosis in the cow and the tubercular peritonitis in children.

Dr. Adami dwelt to some length upon the nature of this tubercular disease in the cow, and pointed out the frequent difficulty in diagnosing the same. He indicated that by centrifugalising the milk the bacilli could be determined with comparative ease, while diagnosis might be aided by the employment of Koch's tuberculin. It has of late been fairly satisfactorily proved that tubercle bacilli from different animals possess different degrees of virulence; there are, in fact, varieties of the bacillus in question, and cultures obtained from the cow are of less virulence than those obtained from cases of acute tuberculosis in man. In this way, he considered, might be explained the milder nature of many cases of tubercular peritonitis, especially in children. It is not uncommon, in conducting autopsies upon children of twelve years of age and over, to find that the peritoneal cavities are perfectly sound, yet certain of the mesenteric glands are cheesy, indicating a condition of tuberculosis that has passed off, leaving but these traces.

With regard to Dr. Smith's explanation of the fact that opening the abdominal cavity may lead to cure, Dr. Adami could not agree with him that simple ventilation of the cavity was the cause. He was of opinion that a far more likely

cause was to be found in the irritation induced by the operation, and washing out—the inflammation set up in excess of what obtained previously. With this might be compared the increased inflammation and increased absorption that accompanied the injection of tuberculin, etc.

DR. REED expressed his pleasure at listening to Dr. Adami's remarks. He noticed that in the *British Medical Journal*, of this week, one or two points mentioned were in a line with the opinions of Doctors Smith and Adami. Several eminent men, Robson and others, said cases with a good deal of dropsy were most likely to do well, and that those cases which were most likely to do well after laparotomy were most likely to do well without it. Supposing, of course, that a patient has tuberculosis of the larynx, it is more than simple peritoneal tuberculosis, and the prognosis would be worse.

DR. STEWART: I would like to ask if there was any record of the length of time which elapsed after operation, before these cases were reported. The majority of those cases were given as cured, but the date of the report after operation is not given. Surgeons are apt to report cases too quickly after operation; the results are called cures; but six months or three years afterwards they would not be cures.

DR. SMITH: Twenty-three out of ninety were well twelve months afterwards; twenty-seven were well six months afterwards. The time was not given for the whole number, but one reporter states as above. Dr. Gardner's cases were reported here three years ago, and two out of the five were well one year afterwards.

I have listened with a great deal of profit and pleasure to Dr. Adami, but there are still a few things I would like to ask him. During the discussion on Dr. Gardner's cases, the general opinion was, that the cheesy material in the tubes was the cause; they were the nidus. At the time, I thought the cheesy material was the result of the bacilli. Was I correct in supposing the cheesy deposits in the tubes the result of the destruction of tissue by bacilli?

I can appreciate the statement that irritation of the peritoneum, and increased supply of blood, may serve to carry off some of this inflammatory deposit; it seems both plausible and reasonable. Leucomatous deposits on the cornea are thus

cured by the irritation of calomel powder. But as to washing out the abdomen accounting for the irritation in every case, in one of my cases there was no water put in, and yet the case was well one year afterwards.

Dr. Adami's statement concerning the difference in virulence of the bacilli in cattle explains very well indeed what I could not understand before—how tuberculosis of the peritoneum was so much slower in its progress than tuberculosis acquired otherwise. One more question: When one examines the miliary tubercles in the peritoneum, are the bacilli found there? or, are they destroyed by phagocytes? or, is the little tubercle composed of fibrous tissue without cells? and, in cases of cure, how does the peritoneum be after the cure? are the adhesions still devoid of a history? have the bacilli a certain life history? do they die of old age? or are they killed by phagocytes?

DR. ADAMI pointed out the absence of any certain demonstration that the tubercle bacilli form spores. There can, however, be little or no doubt that these microbes have a resistant form very tenacious of life. Old tubercular foci may be examined with the greatest care, and no bacilli be discovered, but the same material injected into the guinea pig will cause definite and generalised tubercular lesions. As to the action of phagocytes upon tubercle bacilli, much depends upon the virulence of the latter. Often the bacilli can be seen within the giant cells, presenting changes in appearance which are only explicable on the assumption that they are being destroyed: but along with these one sees others that stain well and show no departure from the normal. These we may look upon as being alive and active—although this need not necessarily be the case, for, as Prudden has demonstrated, recently killed bacilli may take up the stain with readiness.

MONTREAL CLINICAL SOCIETY.

Stated Meeting, April 8th, 1893.

J. A. SPRINGLE, M. D., IN THE CHAIR.

Dr. HACKETT read the report of a case of "Cystic Degeneration of the Chorion," and showed the specimen. The patient was about three months pregnant and suffered from irregular uterine hemorrhage. She also had passed some reddish water per vaginam. As rest in bed did no good, the vagina was plugged, with the result that pains were set up and a mass of cysts were expelled from the uterine cavity. No remains of a fetus were found, but there were some traces of a placenta. The mother made a good recovery. In reply to Dr. Reddy, Dr. Hackett stated that he could obtain no history of syphilis. Dr. Bruère had pronounced the specimen to be one of cystic chorion.

Dr. SPRINGLE then read the report of a case of "Post-partum Syncope." The labour was the patient's fourth and was quite easy, very little chloroform being required. There was no hemorrhage, but the patient gradually became very weak and blanched. Respiration was sighing and the pulse very rapid and weak. Abdominal pressure by means of a pad, and inversion brought about very speedy recovery. The immediate cause was probably flow of blood into the large abdominal venous trunks from the intra-abdominal pressure being greatly diminished by the emptying of the uterus.

Dr. GORDON CAMPBELL considered the explanation to be a good one, as the condition was analogous to the collapse occasionally seen on suddenly emptying the abdomen of fluid. He cited a case of the latter. Atropine had been administered just before the operation, which lessened the probability of the cause being nervous.

Dr. REDDY considered chloroform as a cause. In cases which he had observed, lowering the head and pressure on the abdomen had relieved the condition.

Dr. HALDIMAND had attended one woman in three labours, in each of which there was syncope, probably due to her being weakened by too rapidly succeeding pregnancies. She recovered each time without treatment.

Dr. ORR saw a patient whose perineum was ruptured during labour. There was no collapse until he inserted the needle to mend the tear. This pointed to a nervous origin.

Dr. GUNN agreed with Dr. Orr. Nerve storm, caused by fright and pain of labour, passes off, leaving the patient collapsed. Blood vessels hardly could dilate and contract in so short a time as was occupied by some of these attacks. All cases should be carefully treated and watched afterwards, so as to guard against œdema of lung, etc. Myxomatous degeneration of the heart is said to follow this condition. If simply due to reduced abdominal pressure, you would expect collapse just after the waters have come away, and not after the child is born.

Dr. ELSDALE MOLSON thought that we should not throw too little stress upon the intra-abdominal pressure and venous theory. In Dr. Gordon Campbell's case, the intra-abdominal pressure was very high. It was suddenly reduced by drawing off the fluid rapidly, and syncope was thus produced by the blood pressure being insufficient to stimulate the heart to act.

Dr. LOCKHART said that cases of post-partum syncope should be divided into two classes. (1) syncope immediately after delivery, and (2) that occurring after 24 or 36 hours; or else into cases following hæmorrhage and those where no hæmorrhage had occurred. He had lately seen a case where it had occurred nine days after an easy delivery, the puerperium being normal until then. Digitalis relieved the condition. The patient had had a similar attack after her two previous labours, but in those cases it had come on just after delivery. Her temperament is decidedly neurotic. The nervous system plays a great part in the majority of cases of post-partum syncope, as well as that which occurs after operations on the perineum or uterus. The latter organ receives its chief nervous supply from the sympathetic, which communicates with the ganglia of the vagi. These in turn send fibres to the heart, which are cardio-inhibitory in function, so that it is seen how easily the heart may be affected reflexly from the uterus. As atropine paralyses the peripheral terminations of those cardio-inhibitory fibres, Dr. Bruère suggests its administration as a routine practice in all cases of severe labour. The case cited by Dr. Campbell probably was due, as he

suggested, to the suddenly reduced intra-abdominal pressure, so one would not expect atropine to have any effect.

Dr. H. D. HAMILTON then read the paper of the evening on "Malignant Sore Throat."

In the remarks which followed, Dr. GUNN said that the case and specimen offered peculiarities rarely seen, and that one should be very careful about diagnosis in such cases. He did not know of any case of gland cancer of the soft palate previously recorded. The clinical evidence of tumours was often more significant than the pathological. In answer to Dr. Gordon Campbell, Dr. Gunn said the discrepancies in the theories of parasitic cancer occurring in different sites was explained by a tumour tending to resemble the tissue in which it grew. Inoculation cannot produce cancer in the human subject, but it can in the rat. A similar organism exists in the liver of rabbits, which is non-toxic to the adult, while very deadly to the young animal.

Dr. SPRINGLE dwelt upon the importance of clinical symptoms in diagnosing any growth. He said that the scirrhous form of cancer had been more worked out than any other. The nature of the coccidia is undecided.

After Dr. HAMILTON had replied, and the disposal of some private business, the meeting adjourned.

—Nash (*Lancet*, Feb. 6, '93) reports a case of fracture of a rib, just beneath the angle of the scapula, during a severe fit of coughing.

SPOTTED FEVER.—A press despatch of the 21st February stated that spotted fever was epidemic in Marshall County, Kentucky. Fifty deaths were reported.—*Texas Sanitarian*, February, 1893.

INSURANCE AGAINST TWINS OR TRIPLETS.—According to the *N. Y. Med. Examiner* the Provident Bounty Association of London has started a new form of insurance, that is against too rapid increase in a family. When an addition is expected in a family the father deposits £5 and so becomes a policy holder. Should his wife present him with twins he gets £50, and for triplets £75. The company has a large capital and the directors are well-known and influential business men.

Selections.

A Method of Treating Compound Fractures.—The present paper deals with a method for treating compound fractures and with the results of that treatment as illustrated by the cases admitted into the author's wards at the London hospital during the last six years.

The method aims at being simple, and in the following account it may be considered as applied to the commonest of compound fractures, viz., those of the leg :

On admission, the limb is covered with lint soaked in carbolic lotion and is subsequently cleaned with the greatest care ; protruding bone is replaced, loose or damaged bone is removed, and the broken ends are adjusted by means of splints with as little delay as possible.

1. Ordinary well-padded wooden splints are employed, but under no circumstances is the limb secured to the splint by means of strapping. Strapping may be used to form a stirrup whereby extension may be applied in fractures of the femur or humerus, but no form of plaster appears to be other than objectionable when the question of fixing the limb is concerned. If the strapping be adjusted with sufficient firmness, it will often be found that within twenty-four hours the limb has swollen and the strips of plaster are cutting into the soft parts and are impeding the circulation. The strapping then has to be cut or reapplied, and a second adjustment of the limb is rendered necessary. On the other hand, in process of time, the band of strapping is found to have come loose from shrinking of the limb, and a further readjustment of the fractured parts is called for. In the place of plaster, straps of fine webbing and buckles are made use of to secure the limb to the splint. These vary in length, and are applicable to all parts. If found to be too tight or too loose they can be altered as often as necessary in the day without the least disturbance of the limb. In this way the limb can be secured with a proper degree of firmness. Where the webbing crosses the shin or the dorsum of the foot a small shield made of gutta-percha, and lined with lint, is interposed. When side splints are employed these also are held in place by straps and buckles.

No bandages are ever applied. They are quite unnecessary. They cannot be readily tightened or loosened, and they cover up to an undesirable extent the damaged parts.

2. In the second place the limb is kept throughout in the open air. This would happen by necessity, more or less, in the case of the upper limb, but it is insisted upon also in all fractures of the lower limb in which there is a wound. If the principles of aseptic surgery be well founded, a worse atmosphere with which to surround a wound could scarcely be found than that which exists under the bedclothes. This atmosphere is confined, is hot and moist, and when flatus is passed or the bed-pan is used must of necessity become especially offensive. In all compound fractures of the leg or thigh the limb is kept throughout entirely uncovered as well by night as by day and in the winter as in the summer. In cold weather the nurse makes a cotton wool cap for the foot, but during the six years in which this rule of uncovering the limb has been observed there have been no complaints of chill or evils arising from exposure. It might be mentioned that in the author's wards in all cases of wound of the lower limb, including amputation wounds, and in all cases of ulcer, the part is kept throughout the whole period of treatment uncovered save by the necessary dressings, and that since this plan has been adopted the results have been infinitely improved.

3. The third element in the treatment concerns the care of the wound. In cases of compound fracture there is usually a not inconsiderable amount of bleeding and an oozing from the wound which will often be continued for many days. It is very desirable that this fluid should not be pent up in the limb, and that it should be allowed the freest possible means of escape. The plan of sealing the wound with collodion may be spoken of in general terms as bad. It can in no way control the oozing, which may long continue from the damaged parts, and merely confines within the recesses of the limb a fluid which is admirably adapted for the development of bacteria.

While a free exit should be given for all discharges of blood and serum such a barrier must, at the same time, be erected as will prevent the entrance of pus-producing bacteria. A dressing of antiseptic gauze wool may possibly meet these condi-

tions, but in a large proportion of cases such a dressing needs to be very frequently changed, and such a change cannot always be effected without disturbing the position of the broken bones and putting the patient to no little inconvenience.

In the present collection of cases the wounds have been simply covered by a heap of dry antiseptic powder, which has been applied without stint. This covering of powder may be considered to seal the wound so far as the possible entrance of bacteria is concerned, while at the same time it in no way impedes the free escape of blood and serum from the damaged parts.

The discharge finding its way into the protecting powder forms with it a harmless scab or crust. As the powder becomes saturated, more and more of it is applied, but the crust produced is not disturbed. In certain cases the oozing continues for many days, and in one or two instances the crust produced has exceeded the size of the adult fist. The powder employed has been iodoform or creolin. The latter has been found to be the more convenient. For the first few days the powder may need to be dusted on every few hours, and as the limb is kept always uncovered the saturation of the crust can be at once noticed. When no more blood is found to be escaping the powder is discontinued, and some seven days after this period the artificial scab is removed and the wound beneath may be expected to be healed or to be healing.

When the laceration occurs upon the upper surface of the limb there is no difficulty in covering it with powder. When it is placed upon the sides of the extremity a platform of cotton wool must be so fixed in place that the powder when dusted upon it will bury the wound. The cotton wool may be kept in position by fixing it against the side splints, or by attaching it to the skin by gum.

The following advantages may be claimed for this method. It is simple and requires but the simplest appliances. The fracture when once adjusted need not be again disturbed. The damaged part is kept exposed to view, and the position of the ends of the bone can be ascertained at any moment.—Frederick Treves, F.R.C.S., in *Annals of Surgery*, Feb., 1893.

THE

Montreal Medical Journal.

VOL. XXI.

MAY, 1893.

No. 11.

MUNIFICENT GIFTS TO THE MEDICAL FACULTY OF MCGILL UNIVERSITY.

The generous friends of McGill University have remembered its Medical Faculty in a way which has gladdened the hearts of its many well-wishers. We have first to chronicle the bequest of \$10,000 made by Mrs. Dow to the general fund of the Faculty. Mr. J. H. R. Molson, one of McGill's most generous benefactors, recognizing the great work done in the past by the Medical Faculty, has nobly come forward with a gift of \$60,000 to enable the Faculty to continue and further extend its great sphere of usefulness. This sum is to be devoted to additions to the present buildings. It will be mainly expended in providing for three laboratories, viz., for chemistry, pathology and hygiene. The Faculty, through these means, will be placed in a position equal to that of the most advanced European schools. The teaching of hygiene in future will be mainly conducted in special laboratories, thus giving students a practical insight into the great problems of Preventive Medicine. In the past such knowledge could only be imperfectly acquired through didactic teaching.

A third gift the Faculty owe to the princely generosity of the University's Chancellor, Sir Donald A. Smith. This is a sum of \$100,000, to be devoted to the endowment of the chairs of pathology and hygiene. The Medical Faculty have great cause for thankfulness for Sir Donald Smith's generosity. He was the first to recognize the claims of medicine in a tangible and

never to be forgotten way. In 1882, while the Faculty were celebrating the semi-centenary of its existence, the late Dr. Palmer Howard read a letter from Sir Donald Smith promising the Faculty the sum of \$50,000, provided an equal amount were raised within a definite period. Through the exertions mainly of the late and the present Dean this latter amount was secured, and at once Sir Donald Smith paid over the sum of \$50,000, the Faculty thus being placed in the possession of a sum which amounted to upwards of \$100,000. The same generous benefactor again comes forward with a sum which places the Faculty in a position to have pathology and hygiene taught by men who are not compelled to practice in order to earn their daily bread. The Faculty have already secured the services of an eminent pathologist, Dr. Adami, late of Cambridge University. He has proved himself to be a teacher and observer of a high order.

The impulse that these donations will give to scientific medicine will be felt, not only locally, but generally throughout the country, and not the least beneficial effect will be that they may act as a stimulus to the wealthy citizens of other Canadian and American cities to do likewise.

ASIATIC CHOLERA.

With the departure of winter the danger of the importation into our midst of cholera returns. Soon our port will be filled with vessels from various parts of the world, and with the hot weather the danger begins. The disease is still epidemic in Russia, and cases have been recently reported in Italy and France, so the danger to us is far from being imaginary.

But by taking precautions the danger can be lessened if not entirely abolished. A correspondent of the *British Medical Journal*, writing from Asiatic Turkey, says:—"The infection is powerless among people who are careful to cook all water and food. . . . In a native house near us, where sanitary rules were strictly obeyed, one of the women in bravado drank three cups of unboiled water, saying to the rest, 'Let's see what it

will do.' She died in just twenty-four hours." This points out the key-note of the preventive treatment of cholera. As the American physician said, "Boil your ice!" Do not rely on filters, for most of them form very suitable places for the multiplication of bacteria of all sorts, and the water, while apparently purer, may in reality come from the filter containing more germs than before. If you wish to avoid cholera eat only well cooked food and drink only boiled water, and clean up the back yard.

SIXTIETH CONVOCATION OF THE MEDICAL FACULTY OF MCGILL UNIVERSITY.

The annual convocation for conferring degrees in medicine at McGill University was held in the William Molson Hall on Tuesday afternoon, April 4th. Mr. S. Finley presided, supported by the members of the University. The graduating class occupied seats directly in front of the platform, and the hall was filled with friends and relatives, come to offer good wishes and congratulations.

Rev. Dr. Cornish opened the proceedings by offering up prayer, after which Dean Craik read the report on examinations.

The medals and prizes were then awarded, the recipients being loudly cheered as they stepped forward to receive the reward of hard study, after which the graduating class came forward to receive their degrees, the oath being administered by Dr. Ruttan, and the "capping" performed by Prof. Johnson. Dr. Blackader addressed the class. (See page 825.)

Dean Craik then addressed the gathering, speaking as follows:—In reviewing and summing up the work and events of the past year, according to our usual custom on Convocation day, I shall have occasion to refer very briefly to circumstances of a somewhat varied character. Some of them have been sources of grief and sorrow to us; some, while causing us more or less anxiety, have, upon the whole, given us cause for satisfaction and hopefulness, while others of a more recent character have carried away our doubts and fears in a full tide of gratitude and rejoicing.

For the first time in many a year our medical convocation

is held to-day without the presence and assistance of our much loved principal, Sir William Dawson, to whose wise counsels, great talents and unselfish devotion every department of this University owes so much. It will be good news to Sir William's host of friends to be told that his health has been greatly restored by his winter's residence in the South, and that there is a probability of his being present at, and taking some part in, the proceedings of the approaching Convocation of the Faculty of Arts.

Following closely after Sir William's illness came the illness and death of Dr. George Ross, Professor of Theory and Practice of Medicine and Vice-Dean of this Faculty.

Dr. Ross's failing health for some years had made the end not altogether unexpected, but the death of such a man as Dr. Ross is always a calamity to those with whom he has been associated, and by his death the Faculty finds itself with a blank which it will be difficult adequately to fill. As a professor and teacher Dr. Ross was a man of whom any University might be proud. His professional insight was clear and accurate, and he had in an uncommon degree the faculty of imparting his knowledge in a clear and impressive way. He was not given to much speaking, nor could he be said to carry his heart upon his sleeve, but his word was ever as good as his bond, and his actions were always better than either. In him the students have lost a valued preceptor and guide, and the University a talented and trusted officer.

The very considerable increase in the number of our students this year, and the increased numbers from outlying provinces and countries have been matters for sincere congratulation. While the provinces of Quebec and Ontario still continue to furnish the largest number—122 from Quebec and 102 from Ontario—the Maritime Provinces furnish this year no fewer than 63 students; the United States send 13; the Western Provinces and Territories 9, and the West Indies 3; making a grand total of 312, the largest number by 21 in the whole history of the Faculty. These figures are interesting, not only as indicating numerical growth, but as showing that the University is outgrowing its provincial limits, and may now fairly begin to claim to be representative of the whole Dominion, and, indeed, to be to an appreciable extent cosmopolitan in its character.

Such considerations as these are interesting, not only in a sentimental sense, but as conveying an important lesson and involving a distinct and serious responsibility. If we are to attract students from an ever-widening area, and to send them away again as graduates to work in every part of the world, we must see to it that their equipment is equal to their needs, and that their training is the best that we can possibly provide for them. As an abstract proposition it would seem impossible that the limited English-speaking population of Montreal, in the French Province of Quebec, should be able to furnish such an equipment and such a training; but, thanks to the enlightened enterprise and the great liberality of some of the citizens of Montreal, what seems impossible in the abstract is being accomplished in the concrete. Hospitals and laboratories and scientific workshops are springing up around us on every side like castles in a fairy tale, and the end is not yet, for the only apparent limit to the generosity of our benefactors is the limit of our real needs.

Our Faculty has watched with much anxiety for several years the gradual overcrowding of its lecture rooms and laboratories, until the present session saw them overflowing to a serious extent, and students lounging in the lobbies unable to gain admission to the crowded rooms. Such a state of things could not, of course, be allowed to continue, and the Faculty determined to borrow the necessary funds to enlarge its buildings, trusting to be able to meet the interest on the outlay by increased economy in other directions. To carry out our views, however, it was necessary to lay the matter before the Board of Governors, and to ask them to acquire for our use the necessary land on which to erect the proposed new buildings. The land was estimated to cost twenty-five thousand dollars, and the proposed buildings thirty thousand more, making a total of fifty-five thousand dollars required to provide the increased accommodation.

Scarcely had we made known our need and our wishes before Mr. John H. R. Molson, one of our senior governors, expressed his desire to come to our relief, and to save the remnant of our endowment fund, from which we had proposed to borrow, by placing at our disposal the sum of sixty thousand dollars, a sum greater by five thousand dollars than the estimated cost of the whole proposed extension.

It is difficult to find words to express our appreciation of such spontaneous and princely generosity, for it not only relieves the Faculty from all anxiety about accommodation for the increasing number of its students, but it leaves unimpaired the bulk of the Leancoil and Campbell memorial funds, the interest from which forms so important a part of the ordinary revenues of the Faculty. This act adds another to the many obligations under which the University has been placed by Mr. Molson, by his amiable and much respected wife, and by other members of his family.

Other timely and valuable gifts and bequests have also been made to us during the year. The late Mrs. Dow bequeathed to us the sum of ten thousand dollars, of which, however, one-tenth has been taken by the Provincial Government. Mrs. McDougall, of Dorchester street, has given us five hundred dollars to be added to our permanent fund and promises us five hundred more; and a gentleman who withholds his name has contributed five hundred dollars towards the expenses of pathology during the current year. These generous gifts have given us the means of adding greatly to our facilities for teaching, and they have furnished us with incentives to increased earnestness and energy in endeavouring to prove ourselves worthy of such generosity. We fully realize this responsibility, and it shall be our care to show our appreciation of it, not only by unceasing efforts on the part of every one of us to do his full duty to the best of his ability, but when a vacancy occurs we must unselfishly endeavor to fill it with the best available talent, wherever it is to be found.

Acting already upon this principle, we have brought from the ancient University of Cambridge, England, our new Professor of Pathology, Dr. Adami, with a reputation as a teacher and as a scientific investigator already well established both in Europe and on this continent. Professor Adami has already won golden opinions among us and his advent has very appreciably added to our working strength.

A renewed attempt has been made during the present year to damage the prestige of the Faculty, and through it, of the University, by hostile and vexatious legislation. An attempt has for the third time been made to impose upon our graduates seeking a license to practice in this Province, an addi-

tional examination before a so-called Central Examining Board, consisting chiefly of practitioners from the country districts, unskilled in the methods of modern examination, and without the necessary appliances of laboratories, anatomical rooms or hospitals. To subject the graduates of a respectable University to such an examination would be a step backwards, would be unfair to graduates educated and trained in modern methods, and would be a degradation to the University.

As there seemed to be at least a possibility of the measure becoming a law, unless it were strongly resisted, it was resolved to oppose the measure by every constitutional means, and to that end a strong deputation, consisting of governors, deans and other representatives of faculties, as well as representatives from other Universities, waited upon the Government at Quebec, and was heard before the Committees of both Houses, to whom the measure had been referred, and the University had the satisfaction of seeing the measure defeated in the lower House by a decisive majority. It is to be hoped that the attempt to pass such a law will be abandoned, but the attempt itself will have borne good fruit, if the resistance to it shall have tended to bind together more closely the different faculties and governing bodies of the University, as well as to bring the other Universities of the Province into more harmonious action.

But, in conclusion, ladies and gentlemen, much as we have to be grateful for, and, believe me, we are grateful, I feel that I may without offence say that we have not yet all we need. Pathology, in a way, has been provided for, though the chair has no endowment, but following closely upon the heels of pathology comes hygiene, carrying with it the whole domain of Public Health and the Prevention of Disease. These matters are too important to be ignored, or to be omitted from any scheme of medical education that claims to be fairly complete, and the Faculty, therefore, cannot rest until they have been provided for. That they will be provided for, I cannot for a moment allow myself to doubt; but in what manner such provision is to be brought about I cannot, of course foretell; but when it has been brought about the Medical Faculty of McGill University will occupy a position far in advance of any

medical school in Canada, and not to be over-shadowed by the very best and strongest on this continent.

The Dean then read a letter from Sir William Dawson, dated from Oakland Heights, N.C., in which he spoke of his improved state of health and expressed the hope of once more being in Montreal this month.

He also read the following letter from Sir Donald A. Smith, which he had received during the progress of the meeting:—

1157 DORCHESTER STREET, 4th April.

DEAR DEAN CRAIK—In the conversation I had with you some little time back regarding the present position and prospects of the Medical Faculty of McGill, I was much pleased to learn that the recent liberal donation by Mr. John H. R. Molson of \$500,000 would enable you amply to provide for the necessary additions to your medical buildings.

You, however, pointed out a present want which, when properly met, would, in your opinion, place McGill fully on a par with any medical school on this continent or in Europe. In this you referred to the necessity for providing adequate salaries for professors of pathology and hygiene, who, without having to resort to the ordinary practice of their profession, ought to be in a position enabling them to give their time and attention exclusively to their professional duties. In this view I entirely concur, and to aid in forwarding it, it gives me much pleasure to hand you herewith my cheque, No. 9492, of this date, on the Bank of Montreal, to your order for \$100,000, which, will you kindly dispose of accordingly!

Regretting that being confined to the house from the effects of a cold, I am unable to be with you at to-day's convocation.

Believe me, dear Dean Craik,

Very sincerely yours,

DONALD A. SMITH.

The announcement was received with cheers and prolonged applause.

Prof. Johnson, on behalf of the entire University, congratulated the Medical Faculty on the gifts it had received. Sir Donald's liberality was well known, and the example he had now given was worthy of commemoration in some way. He supposed that later on something would be done in that way by the Medical Faculty. He pointed out that among the prize-winners were a number of graduates in arts, and spoke of the advantage it was to a student to take a course in that faculty before entering the medical or other faculties.

Rev. Dr. Cornish pronounced the benediction, and the proceedings terminated.

REPORT OF THE MEDICAL FACULTY OF MCGILL
FOR THE SESSION 1892-93.

The total number of students enregistered in the Medical Faculty during the past session was 312, of whom there were from :—

Quebec	122	Prince Edward Island...	11
Ontario	102	North-West Territories...	4
New Brunswick	30	Manitoba.....	3
Nova Scotia	22	West Indies.....	3
United States	13	British Columbia.....	2

The following gentlemen have passed their PRIMARY EXAMINATIONS, which comprise the following subjects: Anatomy, Practical Anatomy; Chemistry, Practical Chemistry, Physiology Practical Physiology, Histology, and Botany:

Anderson, D. P.....	New Liverpool, Que.
Anthony, X. L.....	Berwick, N. S.
Bailey, J. W., B.A.....	Northfield, Minn.
Basken, J. T.....	Dunravin, Ont.
Beatty, E. D.....	Nepean, Ont.
Bishop, C. W.....	Montreal, Que.
Blow, T. H.....	South Mountain, Ont.
Boucher, R. B.....	Peterboro, Ont.
Bouck, C. W.....	Inkerman, Ont.
Carron, F. B.....	Brockville, Ont.
Chapman, H.....	Port Elgin, Ont.
Colvin, A. R.....	Lethbridge, N.W.T
Cooper, M. A.....	Ormstown, Que.
Commins, E.....	St Stephen, N. B.
Cowie, W., B. A.....	Montreal, Que.
Cruikshank, A.....	Inverness, Que.
Day, J. L.....	Montreal, Que.
Davis, R. E.....	Fallowfield, Ont.
Feader, W. A.....	Iroquois, Ont.
Fox, C. H.....	Oxley, Ont.
Gleason, J. H.....	Cowansville, Que.
Grant, J. P.....	Pictou, N. S.
Gun, Arthur.....	Durham, Ont.
Hargrave, J. L., B.A.....	Rosedale, Man.
Hogg, L., B. A.....	Winnipeg, Man.
Jakes, R. W.....	Merrickville, Ont.
Johnston, F. E. L.....	Deleware, Que.
Kearns, J. F.....	Metcalf, Ont.
Kerry, R. A.....	Montreal, Que.
King, J. H.....	Chapman, N.B.

Knapp, H. G., B.A.....	Sackville, N.B.
Lambly, W. O.....	Ripon, Que.
LeRossignol, W. J., B.A.....	Montreal, Que.
Leslie, P. C.....	Montreal, Que.
MacLeay, A. A., B.A.....	Montreal, Que.
Matheson, R.....	Cardigan, P.E.I.
Mason, R.....	Dalesville, Que.
Merrick, J. H.....	Merrickville, Ont.
Oliver, W., B. A.....	Rockburn, Que.
Phillimore, R. H.....	Cookshire, Que.
Price, B. S.....	Springfield, N. B.
Reeves, Jas.....	Woodstock, Ont.
Saunders, E. H.....	Eganville, Ont.
Scott, W. H.....	Owen Sound, Ont.
Sharpe, E. M.....	Havelock, N.B.
Slack, T. J.....	Waterloo, Que.
Stearns, C. N.....	Montreal, Que.
Spearman, F. S.....	Hemmingford, Que.
Tees, J., B. A.....	Montreal, Que.
Wickham, W. W.....	Summerside, P.E.I.
Whyte, J. T., B. A.....	Osgood, Ont.

The following gentlemen have fulfilled all the requirements to entitle them to the degree of M.D., C.M. from the University. In addition to the primary subjects mentioned, they have passed a satisfactory examination, both written and oral, on the following subjects: Principles and Practice of Surgery, Theory and Practice of Medicine, Obstetrics and Diseases of Women and Children, Pharmacology and Therapeutics, Medical Jurisprudence, Pathology and Hygiene,—and also Clinical Examinations in Medicine, Surgery, Obstetrics, Gynæcology and Surgery, conducted at the bedside in the hospital:

Aylen, E. D.....	Aylmer, Que.
Blunt, H. W.....	Knowlton, Que.
Bostwick, W. E.....	Toronto, Ont.
Brown, J. A.....	Sarnia, Ont.
Cameron, J. D.....	L'Original, Ont.
Carroll, R. W.....	Stratford, Ont.
Coburn, A. D.....	Keswick, Ridge, N. B.
Cooper, M. A.....	Ormstown, Que.
Deeks, W. E., B.A.....	Williamsburgh, Ont.
Dewar, T. A.....	Sarnia, Ont.
Dewar, G. F.....	New Perth, P.E.I.
Du Vernet, Edward.....	Gagetown, N.B.
Fleming, G. W.....	Chipman, N.B.

Goff, H. M., B.A.	Woodville, P.E.I.
Gunter, F. B., B.A.	Fredericton, N.B.
Haight, M.	New Durham, Ont.
Hall, M.K.	Franklin Centre, Que.
Henderson, J. A.	Orangeville, Ont.
Jakes, R. W.	Merrickville, Que.
Jamieson, W. H.	Montreal, Que.
Lawrence, J. W.	Lower Dumfries, N.B.
Lindsay, W.	St. Mary's, Ont.
McArthur, A. D.	Kenmore, Ont.
McKay, R. B., B. A.	Toronto, Ontario.
McKenzie, S. R.	Hamilton, Ont.
McLennan, K.	Dunvegan, Ont.
McMillan, W.	Alberry Plains, P.E.I.
McMorrine, R. F.	Richmond, Que.
Masten, C. H.	Lacolle, Que.
Matheson, R.	Cardigan, P.E.I.
Mills, W. C.	Montreal, Que.
Moore, J. M.	Belleville, Ont.
Phillimore, R. H.	Cookshire, Que.
Rorke, R. F.	St. Thomas, Ont.
Seguin, J. W. A.	Rigaud, Que.
Scane, J. W.	Chatham, Ont.
Semple, E. J., B. A.	Montreal, Que.
Shaw, G. F.	Ottawa, Ont.
Shaw, T. P.	Montreal, Que.
Tomkins, J. E.	Coaticooke, Que.
Walker, J. L.	Montreal, Que.
Whyte, J. T., B.A.	Osgoode, Ont.
Wilson, R.	Montreal, Que.
Yearwood, C. A., B.A.	Barbadoes, W. I.
Yates, H. B., B.A.	Brantford, Ont.

Mr. T. W. Hewitson has passed all the examinations required for the degree of M.D., C.M., but is not of age. He will receive his degree on attaining his majority.

The following gentlemen have obtained First Class Honors in GYNÆCOLOGY :

- | | | |
|-----------------------|-------------------|----------------------|
| 1 Cameron, J. D. | 4 McMorine, R. F. | 7 Mills, W. C. |
| 2 Deeks, W. E., B.A. | 5 Lindsay, W. | 8 McKay, R. B., B.A. |
| 3 Semple, E. J., B.A. | | |

The following gentlemen have obtained First Class Honors in
HYGIENE :

1	Deeks, W. E., B.A.		{	Bostwick, W. E.	18	{	Shaw, G. F.		
	{	Cameron, J. D.	12	{	Hume, G. W.		{	Shaw, H. S.	
2	{	Lindsay, W.			{	Robertson, A. A., B.A.		{	Hewitson, S. W.
		{	Ross, D. W.	15	Du Vernet, E.	20	{	Lambly, W. D.	
5	Henderson, J.		{	Seguin, G. W. A.			{	Manchester, G. H.	
6	Lautermann, M.		{	Whyte, J. T., B.A.			{	Wilson, R.	
	{	Blunt, H. W.							
		{	Brown, H. W.						
7	{	Haight, M.							
		{	Masten, C. H.						
		{	Stearns, C. M.						

The following gentlemen have obtained First Class Honors in
OPHTHALMOLOGY and OTOLOGY :

1	{	Cameron, J. D.	3	Deeks, W. E., B.A.	5	Semple, E. J.	
		{	Tomkins, J. E.	4	Henderson, J. A.	6	Lindsay, W.
				7	Wilson, R.		

Third Year.

The following gentlemen have obtained First Class Honors in
PATHOLOGY :

1	Robertson, A. A., B.A.	7	{	Bazin, A. T.	11	Fry, F. M., B.A.		
2	McIntosh, L. Y.			{	Davidson, A.			
	{	Shaw, H. S.	9	Pritchard, J., B.A.	12	{	Colvin, A. R.	
3	{	Jacques, H. M.	10	Byers, G. M. W.		{	Fowler, E. S.	
		{	O'Connor, E. J.				{	Hart, E. C.
		{	Nicholls, A. G., B.A.					

The following Gentlemen have obtained First Class Honors in
MATERIA MEDICA :

1	Pritchard, J., B.A.	11	Colvin, A. R.		{	Holohan, P. A., B.A.		
2	Richardson, A.	12	{	Hart, E. C.	20	{	O'Connor, E. J.	
3	{	Fry, F. M., B.A.		{	Ross, J. J.		{	Reeves, Jas.
		{	Davidson, A.	14	Kinghorn, J. McL., B.A.	23	Gorrell, C. W. F.	
5	{	Byers, G. M. W.	15	Manchester, G. H.		{	McLaren, J. F.	
		{	McIntosh, L. Y.	16	{	Ross, W. D.		
7	Bazin, A. T.		{	York, H. E.	24	{	McCrea, J.	
8	Wolf, C. G. L., B.A.	18	{	Richardson, A.		{	Mathewson, G. W.	
9	{	Nicholls, A. G., B.A.		{	Jacques, H. M.		{	Shaw, H. S.
		{	Robertson, A. A.					

The following Gentlemen have obtained First Class Honors in
MEDICAL JURISPRUDENCE :

1	Nichols, A. G., B.A.	6	Drysdale W. F.	10	Quirk, E. McG.
2	Byers, G. M. W.	7	Davidson, A.	11	Colvin, A. R.
4	Robertson, A. A., B.A.	8	Pritchard, J., B.A.	12	McIntosh, L. Y.
5	Fry, F. M., B.A.	9	Ross, J. J., B.A.	13	Hannigton, J. P.

Second Year.

The following gentlemen have obtained First Class Honors in the
PRIMARY SUBJECTS :

- | | | |
|-----------------------------|------------------|--------------------|
| 1 Le Rossignol, W. J., B.A. | 3 Wickham, W. W. | 5 Oliver, W., B.A. |
| 2 Feader, W. A. | 4 Bouck, C. W. | 6 Carron, F. B. |
| | 7 Cruikshank, A. | |

The following gentlemen have obtained First Class Honors in
PHYSIOLOGY :

- | | |
|-----------------------------|----------------------|
| 1 Wickham, W. W. | 6 { Oliver, W., B.A. |
| { Anthony, X. L. | { Bouck, C. W. |
| 2 { Bailey, J. W. | 8 { Anderson, D. P. |
| { Feader, W. A. | { Cruikshank, A. |
| { Le Rossignol, W. J., B.A. | |

The following gentlemen have obtained First Class Honors in
CHEMISTRY :

- | | | |
|----------------------------|------------------|--------------------|
| 1 Steeves, C. P., B. A. | 3 Feader, W. A. | 5 { Cruikshank, A. |
| 2 LeRossignol, W. J., B.A. | 4 Wickham, W. W. | { Shaw, H. M. |
| | 7 Carron, F. B. | 8 Anthony, X. L. |

The following Gentlemen have obtained First Class Honors in
ANATOMY :—

- | | | |
|-----------------------------|------------------|-----------------|
| 1 Le Rossignol, W. J., B.A. | 4 Bailey, J. W. | 7 Basken, J. T. |
| 2 Bouck, C. W. | 5 Wickham, W. W. | 8 Carron, F. B. |
| 3 Feader, W. A. | 6 Bishop, C. W. | |

First Year.

The following gentlemen have obtained First Class Honors in
BOTANY.

- | | | |
|--------------------------|---------------------------|------------------------|
| 1 Kendrick, N. N. | 11 { Ferguson, J. B. | { Argue, J. F. |
| 2 Ellis, G. H. | { Howell, M. B. | 22 { Kelly, J. R. |
| { Brunelle, P. | { Lynch, D. P. | { Morse, L. R. |
| 3 { Robins, G. D. B. A. | 13 { Stackhouse, O. C. S. | { Kemp, H. G. |
| { Secord, J. H. | { Warren, I. T. | 25 { Moffatt, W. A. |
| 6 Smith, R. E. G., B. A. | 16 McTaggart, D. D. | { Fraser, H. B., B. A. |
| 7 Fisk, W. M. | 17 { Deacon, G. R. | 28 Campbell, E. J. |
| { Hogg, L., B.A. | { Wheeler, F. H. | 29 { Curran, T. J. J. |
| 8 { Shaw, R. B. | { Jackson, F. S. | { Donahue, M. |
| { Tetreau, T. | 19 { McAlister, D. H. | |
| | { Trudeau, M. A. | |

MEDALS AND PRIZES.

THE HOLMES MEDAL is awarded to William Edgar Deeks, B.A., of North Williamsburgh, Ontario.

THE FINAL PRIZE is awarded to John Alexander Henderson, of Orangeville, Ont.

THE PRIMARY PRIZE is awarded to W. J. Le Rossignol, B.A., of Montreal.

THE SUTHERLAND MEDAL is awarded to Walter John Le Rossignol, B.A., of Montreal.

THE CLEMESHA PRIZE is awarded to R. B. McKay, B.A.

PROFESSOR'S AND DEMONSTRATOR'S PRIZES.

THE BOTANY PRIZE is awarded to W. N. Kendrick, of Austin, Minn.

THE CLINICAL CHEMISTRY PRIZE is awarded to H. N. Goff, B.A., Woodville, P.E.I.

THE OBSTETRICS PRIZE is awarded to R. B. McKay, B.A., of Toronto.

THE SENIOR ANATOMY PRIZE is awarded to W. J. Le Rossignol, B.A., of Montreal.

THE JUNIOR ANATOMY PRIZE is awarded to Edward William Archibald, B.A.

HONORS AND PRIZES.**FINAL YEAR.**

The following gentlemen have obtained First Class Honors in the FINAL SUBJECTS :

1 Deeks, W. E., B.A.	5 McKay, R. B., B.A.	9 Tomkins, J. E.
2 Henderson, J. A.	6 McLennan, K.	10 McArthur, A. D.
3 Cameron, J. D.	7 Semple, E. J., B.A.	11 Wilson, R.
4 Yearwood, C. A., B.A.	8 Haight, M.	

The following have obtained First Class Honors in SURGERY and CLINICAL SURGERY :

1 Deeks, W. E., B.A.	7 { Fleming, G. W.	13 { Goff, H. M., B.A.
2 McKay, R. B., B.A.	7 { Gunter, F. B.	13 { McMorine, R. F.
3 Haight, M.	9 Hewitson, T. W.	15 Lawrence, J. W.
4 Yearwood, C.A., B.A.	10 Cameron, J. D.	16 { Semple, E. J., B.A.
5 Henderson, J. A.	11 Dewar, G. F.	16 { Wilson, R.
6 Shaw, T. P.	12 Bostwick, W. E.	

The following gentlemen have obtained First Class Honors in MEDICINE and CLINICAL MEDICINE :

1 Deeks, W. E. B.A.	5 Tomkins, J. E.	9 {	Lawrence, J. W.
2 McLennan, K.	6 Yearwood, C. A., B.A.		Cooper, M. A.
3 Henderson, J. A.	7 Semple, E. J., B.A.		
4 Cameron, J. D.	8 McArthur, A. D.		

The following gentlemen have obtained First Class Honors in OBSTETRICS :—

1 Deeks, W. E., B.A.	5 {	Cameron, J. D.	10 Shaw, J. P.	
2 Henderson, J. A.		McLennan, K.	11 {	Fleming, G. W.
3 {		Wilson, R.		Lindsay, W.
		McArthur, A. D.		8 {
	Yearwood, C.A., B.A.	14 Rorke, R. F.		

By direction of the Committee of Organization of the Pan-American Medical Congress, the following gentlemen have been elected an Advisory Council in the Section on Pathology :—Dr. W. H. B. Aikins, Ontario Medical Journal, Toronto ; Dr. Allen J. Smith, University of Texas, Galveston, Texas ; Dr. G. H. F. Nuttall, Johns Hopkins University, Baltimore ; Dr. W. T. Howard, jr., 804 Madison Avenue, Baltimore ; Dr. W. E. Gardner, Long Island College Hospital, Brooklyn ; Dr. Ira Van Gieson, 437 West 59th street, New York ; Dr. Thos. G. Lea, University of Minnesota, Minneapolis ; Dr. Joseph McFarland, Philadelphia ; Dr. Henry W. Cattell, Philadelphia ; Dr. E. H. Wilson, Hoagland Laboratory, Brooklyn ; Dr. James E. Reeves, Chattanooga, 201 McCallie Avenue ; Dr. Henry Dickson Bruns, Morris Building, New Orleans.

INFANTICIDE BY THE INGESTION OF PIECES OF SPONGE.—An infant of five months died suddenly in Haute-Savoie. At the autopsy eight dark grey bodies were found in the stomach. These proved to be fragments of sponge which had been given to the child with criminal intent, and which had been the cause of death. This is the only case of the kind in the annals of legal medicine.—*Repertoire de Pharmacie*, Jan. 10, '93.

—A physician was represented in Egyptian hieroglyphics by the picture of a duck. Our advices do not state whether this was because he was looked upon as a quack, or because he was a favourite among the fair sex.—*Med. Record*.