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THE TREATMENT OF INFECTIVE DISEASES BY BACTERIAL VACCINES.

BY

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A bacterial vaccine consists simply of an emulsion of sterilized bacteria of known numbers per volume.

In the past they have been prepared in many ways, but now the procedure is as follows:—

The organism is grown in pure culture in a nutrient medium for twenty-four hours at blood heat. It is then removed and emulsified by rubbing it up with saline sol. (0.1 per cent.) in an agate mortar. After this it is centrifuged and washed, but no attempt is made to triturate or treat it otherwise. It is now standardized, that is, the numbers per c.c. are counted approximately. A sufficient volume is pipetted off containing the desired number of bacteria for a dose. This is sterilized and sealed in a vial ready for use by subcutaneous injection with aseptic precautions.

While this method is adopted for staphylococcus, streptococcus, pneumococcus, colon, etc., vaccines, the new tuberculin T. R. is triturated more vigorously and disintegrated, then centrifuged and filtered, and is a solution of the bacilli. It contains 10 mgm. solid to 1 c.c.

I come now to the mode of action of vaccines as far as is known. This really introduces the subject of immunity, or the method by which the body protects itself against infection, with the result that the bacteria are held in check or disposed of. Immunity is itself described as spontaneous or acquired.

Spontaneous immunity is seen in races in the comparative insusceptibility of the black man to yellow fever and malaria, while the susceptibility of the Pacific Islanders to measles is known. Again, Algerian sheep and white rats are insusceptible to anthrax, while European sheep

and the brown rat are highly susceptible. Acquired immunity, on the other hand, results either as to the natural sequence of infective disease, and is well seen after small-pox, scarlet and yellow fevers, or as a transient state after diphtheria, pneumonia or erysipelas, or as the results of treatment.

Immunity is produced in two ways, either actively or passively: active immunity by seeking to call into action the natural protective processes of the body. An example is seen in vaccinia where vaccination is practised and the mild resulting infection protects against variola. Similarly, but by artificial means, the defensive mechanism is put in play by bacterial vaccines.

For various reasons vaccination is the fashion just now, and is receiving an extensive trial, but I would emphasize that immunity can also be produced *passively*. This results from the introduction into the body of anti-bacterial or anti-toxic substances or sera, obtained *ready made* so to speak, from animals, by the process of inoculating them either with bacteria or bacterial toxins.

The most favourable example of this is seen in diphtheria, in which the mortality has been reduced from 29.29 per cent. of patients treated in 1894 to 11.15 per cent. in 1901 (Metropolitan Asylums' Board). In Chicago the five year pre-anti-toxin period exceeded by 42 per cent. the actual number of deaths in the succeeding five years.

The question arises, "Why not use sera more frequently?" The reason is that a serum of high potency cannot always be produced. I will attempt a possible explanation. Diphtheria and tetanus differ from most infective diseases as tubercle, staphylococcus, pneumococcus, plague, Malta fever, etc., in being "intoxication" diseases, and their bacilli when grown in broth produce soluble poisons of toxins. Staphylococci, etc., produce little or no *soluble* toxins. We have seen that it is from the injection of these toxins into animals that the production of protective (and curative) substances or anti-toxic sera result. Thus, the injection of sterile cultures of certain infective diseases results in little or no anti-toxin being formed, though anti-bacterial bodies may be. In short, the injection of bacteria or their toxins in animals does not always result in a *proportionate* amount of these anti-toxins being formed. Hence there is no cumulative action in inoculation and sera of a high potency cannot always be obtained, and lack of success has resulted in their use. The reason for the extreme potency of diphtheria anti-toxin I cannot explain.

I mention some of the substances which may be present in the blood and which are hostile to the presence of bacteria. Bactericidal bodies

kill bacteria, bacteriolysins dissolve them, agglutinins and precipitins compel bacteria to clump together, opsonins help to prepare bacteria for digestion, etc., etc. Some of these bodies are complex, being composed of two substances. Thus bacteriolysis depends on the presence of two substances. One is specific, that is, specially antagonistic to the microbe in question (and can be formed by inoculating an animal with the microbe); the other substance is present in ordinary blood serum and rapidly disappears if blood is drawn. The former is known as "immune body" (amboceptor) and being able to withstand heating to 60° C., is called thermostable. The latter is known as complement (receptor alexin addiment cytase or hapton) and is thermolabile. As these opsonins prepare bacteria for ingestion by leucocytes, much importance is attached to their study, but I am quite sure that the study of phagocytosis cannot be neglected.

Phagocytosis, or the ingestion of foreign bodies by leucocytes is usefully distinguished as "spontaneous" and "induced." Spontaneous phagocytosis is defined as that process of ingestion which occurs when bacteria or inert particles which have not been acted upon by the blood fluids are submitted to the action of washed leucocytes in an indifferent medium (as physiological salt solution). It differs from that known as induced phagocytosis in certain respects, being less rapid and less complete. Induced phagocytosis is that observed when leucocytes are brought in contact with bacteria which are or have been submitted to the action of serum. The experiments of Wright and Douglas go to prove that phagocytosis is very largely dependent upon the presence in the blood plasma and serum of these opsonic substances, while the leucocytes are regarded as playing a subordinate part. As a corollary, immunity of cure, when brought about by vaccine treatment (which stimulates the formation of opsonins and raises the "opsonic content" of the blood) may be said to result from changes in the blood fluids rather than in the white corpuscles. On this depends the belief that the "opsonic index" of blood is the gauge of a person's powers of phagocytosis, because the person's own leucocytes are neglected as a factor, and, indeed, are not used in the experiment. Wright and Douglas believe that differences in the phagocytic count depend on the properties of the serum, not on the "strain" of the leucocytes, "æqualia æqualibus." In my opinion this distinction may be too rigidly drawn. Variations in structure and function are infinite in the animal body, and why should the blood cells escape them?

Thus the powers of phagocytosis of the different varieties of leucocytes in the same person are well known to differ, and this, I and Dr.

Williams have demonstrated. Again, at the Exeter Meeting of the British Medical Association, I described some observations made in the Ralli Laboratory, which showed that the polynuclear leucocytes of a healthy person were three-fold as phagocytic as those of a patient with myelocythæmia, "æqualia æqualibus." The variation from normal leucocytes in this case was, therefore, both of structure and function.

Also the brilliant work of Dr. Opie is quoted in Sir A. E. Wright's address in the *Lancet* (Augsut 17th and 24th, 1907), in this respect, in which Dr. Opie indicates that in addition to ingestion of bacteria by leucocytes, digestion must occur, if the patient is to be protected. Dr. Opie has proved that leucocytes, freed from blood serum, are able to digest blood clot and gelatine, though *not* in the presence of serum. This reminds us of Metchnikoff's views of the importance of phagocytes and of their digestive ferments. On these grounds the further study of the leucocytes is requisite and further points at once suggest themselves for research. Shattock and Dudgeon confirm this view, that immune leucocytes may have a higher phagocytic power than normal ones (April, 1908, Royal Soc. Med.).

A word as to our knowledge of opsonins. Muir and Martin (Proc. Roy. Soc. B., Vol. 79, 1907) believe them to be of two classes; one of the nature of immune body (specific substances) resistant to heat; the other of the nature of complement, an unstable substance in normal serum. Wright and Bullock (*Lancet*, 1905, II., p. 1605) consider them to be specific; Simon (*Jour. Exper. Med.*, Vol. VII., Dec. 14, 1906, No. 6) does not find them so. Dean (Proc. Roy. Soc., Vols. I., and XVI.) and also Smith, have shown that they are not altogether destroyed by heat, which agrees with Muir and Martin's work. (The opsonic power is said to stand at about one-half of what it was originally after standing five or six days, and Simon considers that it is necessary to dilute the serum to estimate the opsonic content.)

The last consideration is the administration of the vaccine, and this is all-important when we remember the disastrous effects that followed over dosage with Koch's old tuberculin. Therefore, I quote to you the practice of Sir A. B. Wright: "Where an examination of the "patient's blood, taken twenty-four hours before inoculation, shows a "subnormal index, and examination of his blood taken twenty-four hours "after inoculation shows that the index has been considerably reduced, "I take it that the smaller dose would have been appropriate. Where "examination of the blood twenty-four hours after inoculation shows "that the index has been raised, and where, after the expiration of "a week or ten days, the index has fallen back to what it was before

"inoculation—I take it that a larger dose might appropriately have "been administered. Where, in association with a slight initial fall "after inoculation, the index is, after the expiration of a week or ten "days found to stand higher than it was at the outset, I take it that "an appropriate dose has been administered."

However, Simon and his co-workers claim that the opsonic content of a person's blood varies much more than the determination of the opsonic index by Wright's method shows. For an opsonic index to be a safe guide, as I have indicated, extreme technical care and expenditure of time is necessary. Thus the opsonic index is said to range in healthy persons (Wright and Bulloch) from 0.8 to 1.2 for tubercle. Now, if the serum of a patient be compared with that of an individual whose standard is 0.8, and his opsonic index were 0.9, by which he is said to be free from tuberculosis, whereas if the standard serum were 1.2 his index would be 0.6, or tuberculous.

At the Sussex County Hospital we have examined the opsonic index of about 100 patients, some a great number of times, and certain of these have been treated by vaccines and improved. These have been tuberculous, staphylococcal, and streptococcal infections, and we feel justified in saying that, in cases properly selected, good results have accompanied the administration of vaccines and ill effects can be avoided.

A happy medium is to be drawn between a too rosy and a too pessimistic view of the value of vaccine treatment.

[We are not able to append Dr. Bushnell's figures on account of space. The most satisfactory cases are those of tuberculosis of the hip, knee, urinary tract, and epididymis; the organisms used are B. tuberculosis, staphylococcus, streptococcus, pneumococcus, B. neoformans, B. diphtheroid, B. coli, B. pyocyaneus and B. typhosus.—EDITOR.]

"HEPATIC TOXÆMIA."—"FATAL ACETONÆMIA."

BY

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On May 8th, C. B., female, æt. 14, was referred to me by Dr. T. L. Brown, of Richmond, for operation for acute appendicitis. The attack had commenced on the previous day at noon. The patient complained of excruciating pain in the right iliac region and vomited twice during the afternoon. The temperature was 100, and the pulse 90. Although the patient seemed somewhat improved the following day, Dr. Brown decided to bring her to the hospital for operation.

She came to the operating room at 12 o'clock noon, and the anæsthetic, chloroform, was administered by Dr. F. J. Austin. Throughout the whole course of the operation nothing of any moment occurred. The patient was under the influence of chloroform for one hour and fifteen minutes.

The appendix was easily located, but was gangrenous throughout one-half of its extent. As there were no adhesions, the appendix was quickly removed and the stump inverted, and a purse string suture applied, an extra row of Lambert sutures covering in the meso-appendix and appendix. The wound was closed by the layer method, no drainage being used.

As I had to leave for Montreal within half an hour after the operation was completed, I referred the case to Dr. W. W. Lynch, to whom I am indebted for the following report: The patient regained consciousness from the anæsthetic very quietly, vomited slightly at 7 p.m., and was nauseated until 11 p.m., when she became rather restless. Morphia 1-16 was given hypodermically, after which she passed a quiet night, sleeping well until 7 in the morning, when she appeared much brighter. From 7 p.m. to 7 a.m. 25 ounces of urine was passed. All day Saturday the patient was quite comfortable, being only slightly nauseated at 5 p.m. The pulse ranged from 90 to 98, temperature 97. The amount of urine from 7 a.m. to 7 p.m., 19 ounces.

At 1 a.m. Sunday the patient complained of slight pain in the abdomen and soon became very restless. This restlessness increased during the night until it assumed a very marked form of hysteria towards morning. At 9 a.m. the patient became delirious and very violent, requiring the constant attendance of two nurses to control her. A sixteenth of morphia was given followed in an hour by another sixteenth. At noon the patient became comatose and remained so for one hour. At 2 p.m. the delirium recurred, there was incontenence of urine and vomiting of dark brown fluid. This was followed by profound coma. This condition was present up to the time I saw the patient at 10.30 Sunday night, after my return from Montreal. Examination made during the day on Sunday showed normal reflexes, no ankle clonus, Babinsky's sign negative, pupils reacted to light and were slightly dilated, corneal reflex slow and at times absent, no retraction of the neck or tender points about back or abdomen. Heart and lungs negative. No paralysis and slight cutaneous anæsthesia.

On my return from Montreal I immediately went to the hospital and found the patient in a desperate condition, pupils dilated, corneal reflex absent, patient vomiting intermittently thin, watery, brown fluid, profound coma, no paralysis, but a slight rigidity of the muscles of the

legs and arms. There was incontinence of urine, the pulse was fairly strong and temperature subnormal. Stomach lavage and continuous saline irrigation in the rectum was resorted to. The patient was catheterized and 8 ounces of urine withdrawn. She had passed 12 ounces in the previous twelve hours, besides a certain amount passed involuntarily.

At 4 a.m. Monday pulse became very rapid, irregular and weak. Cheyne-Stokes breathing commenced, and at 5 a.m. cyanosis set in, which gradually became more marked, until death at 6.30 a.m. Temperature throughout did not exceed 98 2-5. The stimulants used were strych. gr. 1-40, adrenalin m.x. every two hours, chloral, grains 20, sod. bromide grains 30 by rectum when delirium was present. After death, the operation wound was opened and the abdomen examined carefully, and everything found to be in a perfectly normal condition. The peritoneum was free from fluid.

Not having permission to perform an autopsy no further examination was made. Examination of the urine made by Dr. Lynch on Sunday revealed nothing of special interest. However, on making a further examination myself on Monday, and looking particularly for acetone, I found this to be present by Legal's test. The train of symptoms corresponded so closely to those described by Bevan of Chicago in the "American Practice of Surgery," page 162, Vol. IV, that I have no doubt but in this case we have one of the so-called "Hepatic Toxæmias," due to chloroform narcosis. I am indebted to Dr. Lynch for assistance in working up this case with me.

AMBROISE PARÉ—MAN AND SURGEON.

BY

W. G. TURNER, M.D., M.R.C.S. (Eng.).

Mr. President and Gentlemen:—

The eighty years of Ambroise Paré's life, 1510 to 1590, were spent in times which have had one of the greatest influences on the world's history. The political aspect of Europe varied so frequently in that space of time and battles were being so constantly fought, that it certainly appears marvellous, in these relatively studious times of ours, that a military surgeon, who followed faithfully the fortunes of his native land, would have physical and mental energy to collaborate the crude surgery of his time and raise it above the mere superstition then prevalent.

At the time of his birth Louis XII reigned in France, and Henry VIII was King of England. During his lifetime the crown of France passed

from Louis XII to Francis I, and finally in succession to his three sons, Francis II, Charles IX and Henry III. Shortly before his death and after the ever memorable Siege of Paris, Henry IV of Navarre came to be in the ascendant.

By events in English history his life may be measured by the fact that he was born three years before Flodden Field, and that he died sixteen months after the destruction of the Armada. He was ten years of age when Luther burned the Pope's Bull, and forty-eight when France finally expelled England from her shores. The greatest wars of the times, however, were those against Germany, Italy and Spain, and the greatest enemy of France at that time was the Emperor Charles V. Conditions in France were steadily becoming worse and worse. On the one hand the steady growth of the Huguenot party, until it was fully organized under the Prince de Condé and Admiral Coligny, on the other, this influence for good was outbalanced by the pernicious intrigues of the Court. This last was dominated by the Queen Mother, Catherine de Medici, the Florentine, who quite controlled the actions of her three sons and the politics of the day. Such were the despotic and fickle rulers under whom Paré lived.

In 1562 began the long and disastrous Civil War between Catholic and Huguenot.

Among his contemporaries mention must be made of Ignatius Loyola, Luther and Erasmus, Calvin and Knox, Shakespeare and Rabelais, Raphael and Titian, Paræcelsus, Sylvius and Vesalius. Malgaigne, in his able and learned introduction to the works of Paré, has stated that the way was cleared for his coming and all Europe seemed waiting and watching for the advent. A glance at the condition of surgery before he became the master is necessary at this point:

From the time of Celsus there was a period of constant decline. The European schools had set tradition and authority on high above honest observation and experiment; then also the Church forbade the shedding of blood to the physicians and kept surgery at the level of a low unorganized trade, placing thus almost a premium on Charlatanism. Guy de Chaulliac was the shining light in this period of decadence. He wrote his "Grande Chirurgie" in 1393, when physician to Pope Urban V, at Avignon. His advice to the surgeon may be well quoted: "Let the surgeon be well educated, skilful, ready and courteous; let him be bold in these things that are safe, fearful in those that are dangerous; avoiding all evil methods and practices. Let him be tender with the sick, honourable to men of his profession; wise in his predictions; just, sober, pitiful and merciful; not covetous and extortionate,

but rather let him take his wages in moderation according to his work and the wealth of his patient and the issue of the disease and his own worth."

John of Gaddesden and John Ardern fought the good fight to a lesser extent in England. These men served the cause of surgery in two ways: they made a stand against the Arabian School following the teaching of Averroes and Avicenna, "the prince of physicians"; and, secondly, they wrote or translated into their mother tongue, endeavouring to return past tradition to the pure teaching of Hippocrates. The introduction of printing provided the means of propagation. The new era was fast approaching. The writings of the Greek school had been spread abroad in the language of the various countries, largely through the activity of the Italian printing houses.

And now we come to that brilliant scholar of Italy, Antonio Benivieni, of Florence, 1440 to 1502. Educated at the famous School of Padua, he was a surgeon of repute, but he lives to posterity as the writer of the first work on pathological anatomy, "De Abditis Morborum Causis." This little book was collaborated after his death by his brother in Florence and published in 1507. By his brains and the energy of the following the free thought in medicine was finally established.

Paræcelsus, the great iconoclast, then came on the scene nearly a century after Guy de Chaulliac. A radical who was neither courteous, pitiful nor sober; he was the incarnation of the spirit of the free thought in medicine which broke the Arabian schools and struck at the solemn rubbish taught in the universities. The books of the former he publicly burned as an introduction to his lectures at Basel in 1526. Paræcelsus demanded, "Is not medicine a plausible pretext to extract money from the purses of imbeciles?" To correct this impression he visited every school of any learning throughout Europe: Spain, Portugal, England, Denmark, Poland, Prussia, Hungary and Transylvania. In fact, from every source where he thought some fact might be learned. From physicians and surgeons, alchemists and soothsayers, noble and humble, everywhere he sought "what were the best and most reliable remedies which were being and had been employed to cure diseased conditions." His chief works were combined in "Grande Chirurgie," three volumes appeared in 1536, and the remainder after his death in 1565. He also wrote a volume entitled "La Petit Chirurgie."

As to the condition of surgery in the fifteenth century in France, it was depicted by its rank in Paris. There the surgeons were combined under the College of St. Cosmo as a governing body. This body was not under any jurisdiction of a university and claimed great anti-

quity. In fact, some manuscripts gave authority to the statement that St. Louis of France founded this brotherhood in 1208, two years before his death. To further the same he gave them property on condition that they would gratuitously treat the sick poor of the district. The college gradually assumed importance, and in 1370 granted the Licentiate and Baccalaureat degrees, which up to that time had been entirely reserved to the university faculties; later was granted the title of Master of Surgery. The candidate for surgery was regularly apprenticed to a master of surgery who had been received at least four years. There he worked until he obtained his Baccalaureat after examination. He then took the oath of the profession and paid a franc to enter the brotherhood. Certain other statutes had to be observed: to the clerk he had to give two francs silver and a coat, then twelve golden crowns were paid to the magistrate for his license; to each of his examiners a good hat, double dyed in scarlet, as also gloves to match, and, finally, on his departure from the Hotel Dieu, a solemn dinner was required of him.

This surgical body attempted to control the whole surgical practice of Paris, and they admitted as few as possible into their ranks.

The Barber Surgeons as a class originated in the first half of the thirteenth century, and by the surgeon were given the right of bleeding and scarification. These being of a lower rank of surgery and yet wielding the knife, caused a certain amount of contempt at the hands of the physicians, so that in a short time the students of the faculties held as undignified most operations, except those for stone, hernia and cataract. Thus, gradually throughout Europe, general surgery fell into the hands of the Barber Surgeons. The St. Cosmo clique, however, through its royal edict became more or less fatal to the Barber Surgeons' practice in Paris, and this caused constant bickering, until 1390 the university took hold of the matter, especially the faculty of medicine, and readjusted conditions. Under Louis XI, Olivier le Dain, his barber and favourite, proved a dangerous adversary to the surgeons.

In 1494 the faculty in its teachings to the barber-surgeons read certain authorities, briefly Guy de Chaulliac, to the class in Latin, followed by explanatory notes in French. In addition anatomy was demonstrated, and in order that this could be carried out, judicial permission was granted to purchase cadavers from the various gibbets. The barber surgeons gained further favour with the faculty by observing the statutes of the same and refraining from the practice of medicine unless under the advice of a physician, and when choosing a consultant, giving preference always to one of the masters of the faculty. By this means

and owing to the bigoted policy of its order the power of the college of St. Cosmo was very much reduced, until in 1510 a rearrangement was made by the faculty and the two orders of surgery were stated definitely.

Outside the city of Paris the barber surgeons held the controlling hand in surgery. The chief orders were those of Montpelier, Tours, Rouen, Bordeaux and Toulouse. They became very aggressive, and so frequently usurped the rights of the physician, that in 1496 Louis XII, in a royal edict, limited their practice according to the laws of the university.

As to military surgery: In the army there was no surgical organization. According to the feudal system, each captain or noble recruited his men, and when he had the foresight to have a surgeon or surgeons in attendance, these were attached to his person and not necessarily to his troop. Even when the kings in the fifteenth century enlisted their armies no provision was made for a surgeon until 1405 this privilege was granted.

The surgeons of St. Cosmo would not leave their lucrative practice for the somewhat precarious existence in the field, and the barber surgeons then stepped in to fill the demand. Thus they gained in favour, an example of which might be cited in the case of Louis XI and his favourite, Olivier. Charles the Bold had no other surgeon in his domains except barber surgeons, and among his troops a barber surgeon was attached to each body of 800 men. This gave him twenty-two barber surgeons in an army of 20,000 soldiers.

Time and place do not permit of a review of the prevalence of the various forms of charlatanism which were then practised, especially in the country districts. The control of Catherine de Medici by her *parfumeur*, Réné, is but an example of this.

From the above brief context it will be observed that the surgical revival originated in Italy, and Germany followed suit, chiefly owing to the influence of Paracelsus. The progress of wars brought benefits in the path of the conquerors; chief among these was the removal of the library of Florence by Charles VIII and that of Pavia by Francis I. The art of printing followed in the path of the libraries, and Paris, supplanting Italy, became the greatest publishing centre of the century.

And now appears on the scene Ambroise Paré, and as Malgaigne justly stated: the time was ripe and all the world was waiting for a practical and observant mind such as he possessed,

"Thundering and bursting
In torrents, in waves,
Carolling and shouting

Over tombs, amid graves—
See! on the cumber'd plain
Clearing a stage,
Scattering the past about,
Comes the new age." (*Matthew Arnold.*)

Ambroise Paré was born in the little village of Bourg-Hirsent, close to Laval, in Maine, in the year 1510. His father was a "coffretier." He had a sister, Catherine, who married Gaspard Martin, a master barber surgeon of Paris a brother, Jehan, who was master barber surgeon at Vitré, in Brittany, and another brother who followed his father's trade. Gaspard Martin died after an amputation performed by Paré, and was one of the first cases where ligature was employed. The brother at Vitré is mentioned in Paré's works for his skill in detecting the sham diseases of professional beggars.

As far as can be learned, he went to the village school and received a smattering of Latin from the chaplain of one of the seigneurs of the locality. The stimulus to take up surgery was received when a surgeon, Laurence Colot, came down from Paris to perform an operation and Paré assisted him. Shortly afterwards he went to Paris to try his fortune. The masters under whom he served his apprenticeship are not known, nor is it certain whether he served all his time in Paris or not. From a skit published long after his death some idea of the lean years of Paré may be gleaned:

"The cock has scarce done crowing when the apprentice must arise, sweep and throw open the shop lest he lose the least payment that the tricks of the trade may bring him—some early bird to be shaved. From this time on till two o'clock there are fifty customers. He must comb the wigs, hang about the parlour or the staircase selling his stock, put folks hair in curl papers, cut it or singe it. Towards the evening, if the young man wishes to improve his mind he will take a book, but the dullness and weariness of learning which comes of his not being used to it soon brings him to sound sleep, with interruptions from the door bell warning him that some rustic wants his hair cut. Never did any one ask so much of a servant, never 'in the Islands' did a white man seek so greedily to get profit out of a black man as a master barber surgeon tries to make gain out of the bread and water he gives his apprentices. If it is not their afternoon off he will not let them leave the shop, not even go to lecture for fear of losing the worth of some beard which, perhaps, will not come after all. That is why, out of kindness, the professors give their lectures to these unhappy young men at four o'clock in the morning."

These lectures were delivered by physicians, not by surgeons, and in Latin, as the dignity of the university forbade the use of French, and the apprentice did not understand Latin. The value of the teaching of these pedants can readily be imagined.

In 1533 he was in Paris and the plague was raging there. Paris was a walled city of about 150,000 inhabitants; the criminal class was very numerous, quite 6,000 to 7,000, and the paupers numbered 8,000 to 9,000.

He worked at the Hotel Dieu, and while yet unqualified was given a resident appointment, "compagnon chirurgien." For three years he lived in the hospital and here his true work began. Sylvius was one of his teachers, and Vesalius and he just missed meeting as students by a year or two; afterwards meeting in consultation over the case of Henry II. It is certain that during these years he had abundance of work. He had charge of the patients, privilege of making dissections and post mortem examinations, and some opportunity of teaching the students. As an example to any interne he worked well with everybody in the hospital.

Full of practical knowledge he left his beloved hospital and faced the question of the future. From this time forward, for over thirty years, his life followed two separate channels: with the army in times of war, at Paris in the intervals of peace. As stated before, the army medical service was very crude, and in the train of the barber surgeons followed a host of dressers and quacks. Gunshot wounds were supposed to have special virulence and were treated with boiling oil until Paré after his first forty-eight hours of fighting saw the folly of it and stopped it. He attached himself to one great man and then another, until in 1552 he was appointed as one of the King's surgeons in ordinary. During this time his fees were varied and somewhat romantic: a cask of wine, 50 double ducats, a horse, a diamond, a collection of coins from the ranks; "honourable presents of great value," from the King, 300 crowns and the promise that he would never let him want, a diamond from the finger of a duchess, a bag of gold and various others.

He qualified as a master barber surgeon in 1541 at the age of 31, after passing the two required examinations.

Here, with his admission to the Barber Surgeons ends the first chapter of Ambroise Paré's life.

Next comes the "Journeys in Divers Places," written in Paris long after the events, and published in 1585, in the Fourth Edition of his collective works.

This publication was the outcome of an attack made upon him in 1580 by Etienne Gourmelen, Dean of the Faculty of Medicine. This last had published a book on surgery in which he criticized Paré's method of ligature, and argued his case by an idiotic appeal to authority and tradition. The attack had an everlasting merit, as Paré embodied his reply in "Apologie et Traicté contenant les voyages faicts en divers Lieux; par Ambroise Paré, de Laval, Conseiller et Premier Chirurgien du Roy."

He cites cases and appeals to experience, concluding the argument with the statement: "That he had had good results by this method, and he had not discovered it by sitting in a chaïr, but by years of Practical work in Paris, and with the Army." The publication is of value also, as showing the wonderful vigour and spirit, and how he could hit out when roused. These Journeys should be read fully to enjoy them, as they describe briefly the romance of his thirty years' service, from 1537 to 1569. The account opens with the Journey to Turin, and describes his introduction to military surgery. One of his first cases occurred during the storming of the town, and was a captain named Larat, who had received an arquebus shot in the right ankle, "I dressed him and God healed him." Paré's natural powers of observation were displayed within forty-eight hours of his introduction to military practice. It came about in this manner: Ever since the arquebuss was first used in warfare such gunshot wounds were regarded as having special virulence, according to the teaching of Jean de Vigo, and the treatment prescribed consisted in pouring boiling oil into the wound. The night after the first day's engagement Paré followed this method; but as the casualties were very numerous, he ran short of oil. To supply the deficiency he made a lotion composed of yolks of eggs, oil of roses, and turpentine. During the night he could not sleep owing to the worry that his default in cauterizing should be followed by bad results. Rising in the early morning, he proceeded to inspect his patients, and then, to his surprise, he found that those treated according to established methods were all doing badly, while those he had treated by his makeshift lotion were doing relatively very well. From that time onward, he followed his own method of treatment. While at Turin he heard of a famous lotion for the therapy of these wounds, but could not persuade the surgeon to give him the recipe. However, he was not to be baulked, and, at last, after two years, thanks to his persistency, supplemented by gifts and presents, it was obtained. This lotion was to boil in oil of lillies young whelps just born, and earthworms prepared with Venetian turpentine; but this puppy dog oil was discarded for

Aegyptiacum, a preparation of mercury, during the Rouen campaign. After this campaign was over, others were on the tapis, now in Brittany, now in Normandy, and, while at Boulogne, he recites the case of the Duc de Guise, which rivals that of "the crow-bar man" of Boston. The Duke received a lance wound which entered over the right eye, towards the nose, and passed out to the other side between the ear and the back of the neck. It was so firmly wedged in that a smith's pincers and much strength had to be used to draw it out. "Yet, by the Grace of God he was healed." On this occasion Paré met the great Coligny. These various expeditions continued, in all of which Paré worked diligently. In the one against Chateau le Comte, Henry of Navarre was in command of 30,000 men, and at the end of the campaign, he mentioned the work of Paré very highly in despatches, which led to his being inscribed as Surgeon in Ordinary to the King. His rising reputation can be clearly seen in the campaign at Metz, 1552. There the Duc de Guise was besieged by 120,000 Burgundians, and was faring very badly, so badly, in fact, that he begged the King to send Paré to him in order that the surgery might be properly attended to. By bribery and stealth, Ambroise managed to get into the town. The siege was a desperate one, and the casualties very heavy, as may be judged by the fact that of the Emperor's force fully 20,000 died from wounds or disease. Some of the subjects of the frescoes in La Sorbonne and the Hotel de Ville in Paris were painted from scenes at this period, as also the one in the Ecole de Medicine recently destroyed by fire.

Then follows a graphic description of the siege of Metz and the desperate defence of the French under the gallant Duc de Guise. He is the same warrior who bade Paré place his foot on his face in order to get purchase enough to pull out the lance head which had wounded him as mentioned above. His conduct during the siege placed him in an enviable position, and he left the city mounted on a fine bay horse, a present from Guise himself, with his man riding behind him on guard over his valise of instruments, salves and dressings. The towns *en route* were filled with wounded, hospital gangrene was rife and fever was raging. He helped wherever he had the time and arrived back in Paris about the end of January, when he began his lectures on anatomy. By 1552 the second edition of his book on Gunshot Wounds was finished and dedicated to the King., but his work was interrupted by another campaign.

The story of campaigns must be cut short to follow his life in Paris. Let him be viewed now, not as an army surgeon, but as a citizen of Paris, a peaceful gentleman, whose face got to be as well known in the

streets as the face of the King himself, and much more welcome. In 1541 he was admitted as a master barber surgeon, and it is just half a century to the year of his death in 1590. The year of his admission he dined with Sylvius and discussed fully gunshot wounds. Sylvius urged him to write a book on the subject and this he fulfilled four years later. The traveller of to-day, after crossing the Seine to the Place St. Michel, may well study with interest the group of houses on the right just by the corner of Rue de l'Hirondelle, for there Paré lived and worked and collaborated his knowledge. The locality was well chosen as being near the Hotel Dieu and the Pré-aux-Clercs, where duels were frequent.

Within a few months he married Jehanne Mazelin, little being known of the circumstances which drew them together. His first two children died in infancy, the third, Catherine, survived the mother, who died in 1573. The family life, though so much disturbed by his many campaigns, was a happy and contented one. Though far from wars, he was quickly involved in the surgical strife waged so bitterly in Paris at this time. Mention has already been made of the triangular duel of the Faculty of Medicine, the St. Cosmo confraternity, or "Royal College of Surgeons," and the corporation of barber surgeons. He was admitted to the confraternity in 1554. In 1569 he had his controversy with Le Paulmier, a member of the Faculty, and in 1575, when he published the first edition of his collected works, began his conflict with the Faculty, which lasted almost to his death.

Paré was also a good man of business, as was shown by acquiring five houses in his immediate vicinity. These he filled with relatives. He also had a house in the Faubourg St. Germain and a property outside the city.

We have already mentioned how many kings Paré attended. In 1559 he was present in consultation over Henry II, who was wounded in a tournament by a pointless lance striking him over the eye. There was a great deal of "commotio," and he died on the eleventh day. The autopsy revealed an extensive hæmorrhage. Many consultants were in attendance, and the heads of four criminals were anatomized in the hopes of rendering some light on the case. Among those present was Vesalius, who had been brought from Brussels by Philip of Spain.

Francois II died within eighteen months of his father, and while attending him Paré showed his leanings towards the Huguenot cause. The King was suffering from an ear complaint at the time the Prince de Condé was on trial for his life. This had been brought about through the Guise ascendancy, combined with the influence of the Queen-mother,

and by these combined forces was condemned to be beheaded. When Coligny heard the news he consulted Paré, pretending that he was ill, and to his questions about the King's illness, Paré replied that there was grave danger, but he had not mentioned it yet for fear of doing harm at the Court. Coligny, in reply, called attention to the desperate position of Condé if he remained silent; whereupon Paré notified the court, and in this way saved Condé.

The dark days in France were becoming still more gloomy. On Friday, August 22nd, 1572, the massacre of St. Bartholomew took place. The King, Charles IX was almost beside himself, and yet even in his frenzy he was careful to keep Paré in safety, as also his old nurse. It is stated that on that day the King told him that "now everybody must turn Catholic." Paré coolly answered him: "By the light of God, Sire, I think you remember your promise never to command four things of me: To enter again into my mother's womb, to look after myself in battle, to leave you service, and to go to mass."

The following year, Jehanne, his wife, died at the age of fifty-three, and a few months later he married Jacqueline Rousselet. The affluent air of this second marriage contract is very different from the poverty of the first; more money, but less romance.

This second wife of Paré bore him five children, of whom three daughters survived him; one of these, Catherine, married an official named Hédelin and the famous Abbé d'Aubignac was one of the sons of this marriage.

The death of Charles IX, from phthisis, was on Whitsunday, May 30th, 1574, in his twenty-third year. He had been under Paré's care for pain and contracture of the arm after venesection, some time before 1569. He performed the autopsy and carried out the embalming in the presence of eight physicians and surgeons of the household. Any reader of the memoirs of Marguerite de Valois will readily judge of the intimacy of Paré with the Court and the high repute in which he was held by that fickle body.

In the following year began the long fight with the Faculty, which was waged over the publication of his collected works. It was a sort of Holy War for the deliverance of surgery from the bondage of medicine, and there is much amusement to be derived from the fatuous indignation and futile reprisals of his opponents after each succeeding defeat. These various editions came out in the following order: 1575, 1579, 1582 in Latin, and the last edition in 1585. This last is the most valuable as it contains his apologia and the Journeys. The Faculty offered no opposition to this last, thus acknowledging their final defeat

in regard to publishing, but the supremacy of the physician survived in regard to practice. Quite a furore existed at this period for mummy dust and unicorn's horn; and the use of these was made the subject of a violent attack by Paré, who introduced the story of his friend, Guy de La Fontaine, concerning an interview with an Alexandrian Jew dealer in the same, and the source of his supply.

He was still young at seventy-two, and when he wrote the Apologia and Journeys he was seventy-five. The internal condition of France during his last years was desperate. A fool King and a dissolute Court were at the head of the State, to which was added the bitter rivalry between the Royal Faction and that of the Guises, which last, however, made way for the increase in power of the third party, the Huguenots under Henry of Navarre. Paris itself was full of beggars and criminals, when Henry, after his victory at Ivry, laid siege to it, and the plague was raging. The people were dying like flies, and one day the Archbishop of Lyon, leader of the League, who was furious against peace, met Paré at the Place St. Michel, amidst a crowd of dead and dying; and there Paré arraigned him for the misery caused by him and his followers. In 1590 Henry entered Paris, and a few months later Paré died, after seeing just a glimpse of a better future in store for France.

His works: The Dedication and Preface are interesting reading. Save art and politics, the works contain every possible subject,—Anatomy and physiology, medicine, surgery, obstetrics, state medicine, pathology, pharmacy, natural history, demonology, and much else. The breadth, insight and humanity of his writings, his infinite care for trifles, his clear headed sense are remarkable. The reader may well note his clear directions for the making of a restorative draught, and the numerous devices adopted to give a plain diet and yet not a monotonous one. In bandaging, old, soft linen was employed, of certain lengths and widths, and without seams; and his dressings were clean and well washed. At the siege of Metz his four washerwomen were kept busy cleaning dressings by the fear of the whip. The rules for the comfort of patients show great care and insight. The discussion and treatment of the plague show most clearly his skill in practice. An example of brilliant surgical practice is cited in the case of the Marquis d'Auret, for whom he made his Journey into Flanders:—

In his own words he thus describes the "Status Præsens": "I found him in a high fever, his eyes deep sunken, with a moribund and yellowish face, his tongue dry and parched, and the whole body much wasted and lean; the voice low as if a man very near death; and I found his

thigh much inflamed, suppurgating and ulcerated, discharging a greenish and very offensive sanies. I probed it with a silver probe, wherewith I found a large cavity in the middle of the thigh, and others round the knee, sanious and cuniculate; also several scales of bone, some loose, others not. The leg was greatly swollen and imbued with a pituitous humor . . . . . and bent and drawn back. There was a large bedsore; he could rest neither day nor night; and had no appetite to eat, but very thirsty. I was told he often fell into a faintness of the heart, and sometimes as in epilepsy; and often he felt sick with such trembling he could not carry his hands to his mouth. Seeing and considering all these great complications, and the vital powers thus broken down, truly I was very sorry I had come to him, because it seemed to me there was little hope he would escape death."

And then followed the consultation with the other physicians and surgeons.

"Each said what he thought of the malady of the patient, and in conclusion they all held it hopeless. I told them them was still some hope, because he was young, and God and Nature sometimes do things which seem to physicians and surgeons impossible."

After this Paré went for a walk in the garden to think over the case, and after a time returned, and thus gives his opinion:

"To restore the warmth and nourishment of the body, general frictions must be made with hot cloths, above, below, to right, to left, and around, to draw the vital spirits from within outward..... For the bedsore, he must be put in a fresh, soft bed, with clean shirt and sheets..... Having discoursed of the causes and complications of his malady, I said we must cure them by their contraries, and must first ease the pain, making openings in the thigh to let out the matter..... Secondly, having regard to the great swelling and coldness of the limb, we must apply hot bricks round it, and sprinkle them with a decoction of nerval herbs in wine and vinegar, and wrap them in napkins; and to his feet an earthenware bottle filled with the decoction, corked, and wrapped in cloths. Then the thigh and the whole of the leg must be fomented of a decoction made of sage, rosemary, thyme, lavender, flowers of chamomile and melilot, red roses boiled in white wine, with a drying powder made of oak-ashes and a little vinegar and half a handful of salt..... Thirdly, we must apply to the bedsore a large plaster made of the desiccative red ointment and of Unguentum Comitissæ, equal parts, mixed together, to ease his pain and dry the ulcer; and he must have a little pillow of down, to keep all pressure off it.

And for the strengthening of his heart, we must apply over it a refrigerant of oil of water-lillies, ointment of roses, and a little soffron dissolved in rose-vinegar and treacle, spread on a piece of red cloth. For the syncope, from exhaustion of the natural forces, troubling the brain, he must have good nourishment, full of juices, as raw eggs, plums stewed in wine and sugar, broth of the meat of the great pot, whereof I have already spoken; the white meat of fowls, partridges' wings minced small, and other roast meats easy to digest, as veal, kid, pigeons, partridges, thrushes, and the like, with sauce of orange, verjuice, sorrel, sharp pomegranates; or he may have them boiled with good herbs, as lettuce, purslain, chicory, bugloss, marigold, and the like. At night he can take barley-water, with juice of sorrel and of water-lillies, or each two ounces, with four or five grains of opium, and the four cold seeds crushed of each half an ounce; which is a good nourishing remedy and will make him sleep. His bread is to be farm-house bread neither too stale nor too fresh. For the great pain in his head his hair must be cut, and his head rubbed with rose-vinegar just warm, and a double cloth steeped in it and put there; also a forehead cloth of oil of roses and water-lillies and poppies, and a little opium and rose-vinegar, with a little camphor, and changed from time to time. Moreover, we must allow him to smell flowers of henbane and water-lillies, bruised with vinegar and rose water, with a little camphor, all wrapped in a handkerchief, to be held some time to his nose..... And we must make artificial rain, pouring water from some high place into a chauldron, that he may hear the sound of it; by which means sleep shall be provoked on him. As for the contraction of his leg, there is hope of righting it when we have let out the pus and other humors pent up in the thigh, and have rubbed the whole knee with ointment of mallows, and oil of lillies, and a little eau-de-vie, and wrapped in black wool with the grease left in it; and if we put under the knee a feather pillow doubled, little by little we shall straighten the leg....."

After this comes his after treatment.

"The following days I made injections into the depths and cavities of the ulcers, of Ægyptiacum dissolved sometimes in eau-de-vie, other times in wine. I applied compresses to the bottom of the sinuous tracks, to cleanse and dry the soft, spongy flesh, and hollow leaden tents, that the sanies might always have a way out; and above them a large plaster of Diacalcitheos dissolved in wine. And I bandaged him so skilfully that he had no pain; and when the pain was gone the fever began at once to abate. Then I gave him wine to drink, moderatetly tempered with water, knowing it would restore and quicken the vital forces. And

all that we agreed in consultation was done in due time and order; and so soon as his pains and fever ceased, he began steadily to amend."

There were many drawbacks in Paris at that time: he had no proper knowledge of the circulation of the blood; no anæsthetics, no bacteriology, no knowledge of antiseptics. He had neither microscope, stethescope nor thermometer. But besides the lack of these essentials of the present day, other things stood between him and accurate pathology.

He had some belief of the influences that the stars had on the course of disease; that the plague was of divine origin; in spontaneous generation, as was the general belief of the time, and he judged this from the putrefactive changes occurring in wounds of princes as well as common soldiers. The terror of the powers of the air was a real one, and it is of interest to note that two hundred years later, in his own hospital, there was the same frightful mortality and the same fear of the air.

He had belief in devils, witchcraft and sorcery, and, on the other hand, the power of saints to cure disease, as well as the Royal touch to cure the King's evil. His fear of air infection was a very real one, both in surgery and the plague.

In practice some of his operations and methods were curiously modern. He understood and practised massage; he had quite a good method of producing local anæsthesia; he was opposed to immoderate bleeding; he knew the value of rest and silence for his patients. The Journey to Turin tells of his discovery of amputations through joints; and, later, he describes the use of the ligature in cases of amputation. He recommends good threads, two together, and a catch forceps, such as is now used by surgeons. This last was the result of direct observation of the ill effects and the frequency of secondary hæmorrhage following the use of the cautery His publications were:

1. The method of treatment of wounds made by arquebuses and other firearms, and of those made by arrows, darts and the like, also the burns made by gunpowder.—1545.
2. A short compendium of the chief facts of anatomy, with the articulations of the bones.—1550.
3. A second edition of the book on gunshot wounds, with additions.—1551-2.
4. The method of curing wounds and fractures of the human head, with illustrations.—1561.
5. Universal anatomy of the human body.—1561.
6. Ten books of surgery.—1568.
7. Treatise on the plague, small-pox and measles; with a short account of leprosy.

8. Five books of surgery.—1572.
9. Two books of surgery.—1573.
10. Discourse on mummy, poison, unicorn and the plague.—1586.
11. Reply to an attack against his discourse on unicorn.—1584.

These have been translated into Latin, English, Dutch and German; but the collaboration of Malgaïgne in 1840 with his historical and critical introduction is a masterpiece of learning and labour. The reader of his works will note how frequently he refers to his sources of information, his graphic descriptions, his care of detail in every case.

As a man the reader will quickly form his own opinion. Having a healthy body, his illnesses were few and usually due to accidents: a broken leg, a viper's sting, attempted poisoning by sublimate, an attack of the plague make up the list. In living he was temperate, even though enjoying good wine on occasions.

In conclusion, though separated by two centuries, there is somewhat of a comparison between Ambroise Paré and John Hunter. They both made constant appeal to experience, they both were indefatigable in questioning and comparing notes. The note of John Hunter's maxim: "Don't think, try," constantly occurs in the works of the former. They both had experience in gunshot wounds, were great lovers of animals and their ways, and they spent their money lavishly when it came. To the men of the present day his methods are antiquated, his theories are wrong, and his books are sought only by the book fancier or librarian; and yet, for three centuries he kept his hold on men by force of character and integrity and by these alone.

MEDICINE IN CANADA.

BY

M. CHARLTON.

The first physicians of New France were not remarkable for any great brilliancy in the profession, but without doubt they possessed indomitable courage. Dr. Bouchard's name is remembered because he was the one who failed to diagnose the case of Jeanne Mance, who was then in charge of the Hotel Dieu of Montreal, which had been established in 1643. But from the end of the seventeenth century the medical profession began to assume and make for itself a place in the new country. In 1690 there were practising at Quebec, Drs. Gervais, Beaudoin (physician to the Ursulines), Roussell (physician to the Hotel Dieu), Léger de la Grange, Dumain and Pierre du Roy, and lastly, and most noted of all, Nicolas Sarrazin. He was, without doubt, one of the most talented

men of the day. Born in France in 1659, he came to Canada immediately after receiving his degree, and here remained until his death in 1736. He was a noted botanist, and published several works on Natural History as well as Medicine. The pitcher plant was discovered by him and is named after him, *Sarracenia purpura*. Dr. Gauthier, of Quebec, was also an eminent botanist.

The name of Philippe Badelard, a famous surgeon, brings us to the period which precedes and follows the conquest of Canada by the English in 1759. The following account may, perhaps, be worthy of notice as it brings one into touch with the old City of Quebec. "Badelard was present at the Battle of the Plains of Abraham; seeing that the French troops to which he was attached were about to yield, he retired to the rear, where he found a wounded Highlander, named Fraser, who was bleeding abundantly. The surgeon first dressed the wounds, then gave himself up to Fraser as a prisoner of war. Both these men afterwards became firm friends.

It was in the house of Dr. Arnoux that Montcalm's wounds were dressed after he had been carried through the Gate of St. Louis.

The Coming of the English.—1759.

After the Conquest of Canada by General Wolfe in 1759 the history of the English medical profession began to establish itself. As the British settled in the country English doctors commenced to practice. The first to do so were the surgeons attached to the army, from which quite a number retired and settled in the cities and towns. But hardly had the country recovered from the Conquest (a little over twenty-five years) when the American Revolution broke out, and by 1790 about fifty thousand U. E. Loyalists had came over to Canada to settle, principally in what afterwards became Upper Canada. "The British Government, knowing that the Loyalists would not rest without some form of representative institution, and wishing to separate the new comers from the French settlers, passed in 1791, the Canada Act, by which it was provided that the country should be divided into two provinces, Upper and Lower Canada." It is a noticeable fact that in all this large number of refugees there were very few doctors, for the simple reason that although many of them were ardent Tories, yet they were not banished from the revolted Colonies as the rest of the people were. The few doctors who were banished settled in New Brunswick and Nova Scotia.

As the colonists began to settle in the western part of the country they experienced untold hardships for the want of medical attendance, as the only doctors within reach were those stationed with the garrisons

at Kingston, Niagara and Detroit. The Military Hospital at Kingston was used for a time by Sir John Johnston for the Indians, but was afterwards restored to the town for its original purpose.

In these early colonial days the history of medicine was beset with all the difficulties of a newly settled country, inhabited by an alien race, for Wolfe's Conquest gave to England a colony of 60,000 French settlers with French customs and French laws. As the country developed and the population grew, subjects of dispute became more frequent. Party spirit ran high and made its influence felt in the medical profession as in other professions; especially was this the case in the Province of Quebec.

Up to this time there were no medical colleges in the country. The young men who wished to enter the medical profession were articled as pupils to some of the leading physicians, subsequently going abroad to finish their education. The fees paid for being thus articled were from thirty to fifty pounds. A great deal of work was gone over in the four, or, as it sometimes happened, five years the student spent with his teacher. They read together for a certain number of hours, and for clinical work the student would accompany his teacher on his visits to his patients, and not infrequently was called upon to assist in some minor operations. The consulting rooms of these pioneer doctors often resembled a dispensary.*

COPY OF THE INDENTURE OF THE LATE PROFESSOR WM. WRIGHT:

* On this day of the Second of May, in the year of Our Lord one thousand eight hundred and forty-three. Before us, the undersigned Public Notaries, duly commissioned and sworn in and for part of the Province of Canada, heretofore constituting the Province of Lower Canada, residing in the City of Montreal, in the said Province.

Personally came and appeared, William Wright, Junior, aged fifteen, on the second day of July last, declared to have bound and engaged, and by these presents doth bind and engage the said William Wright, Junior, to and with James Crawford, of the said City of Montreal, Esquire, Doctor of Medicine, party hereto, and accepting the said William Wright as his covenant student and apprentice to the Study and Science of Medicine and Surgery for and during the term of five years, to be computed and reckoned on and from the 1st day of May Instant month, to all which the said William Wright, Junior, here also present, is perfectly consenting; these presents having been entered into with his will and voluntary accord, as testified by his signature hereto.

This stipulated and agreed that the said William Wright shall and will at all times during the continuation of his present engagement willingly serve the said James Crawford, obey his lawful commands, do not hurt or damage to him in any manner whatsoever, nor suffer nor see it done by others without giving information thereto to the said James Crawford; shall follow his directions, attend regularly every day during the said term the laboratory and all and every the particular and special duties which may from time to time be assigned to him by the said James Crawford. And finally, demean himself in all things as a good attentive and faithful apprentice and student ought to do.—

And the said James Crawford on his part doth hereby promise to teach and instruct, or cause the said William Wright to be well and sufficiently

taught and instructed in all and every matter and thing touching and concerning the Profession of a Doctor of Medicine and Surgeon as far as in him the said William Wright, and to that end shall allow him the use of such books from out of his Library as may be fit and proper, and also the use of such instruments and materials as he the said James Crawford may have and which shall be deemed requisite and necessary in the prosecution of his the said William Wright studies during the continuation of the present engagement, and for the execution of these presents the said parties have elected their domiciles as their ordinary places of residence above mentioned.

Done and Passed at the said City of Montreal, on the day, month and year first above, and before written and signed by the said parties hereto, with and in the presence of us said Notaries these presents having been first duly read.

Signed, W. WRIGHT.
" JS. CRAWFORD, M.D.
" WM. WRIGHT, JR.
Signed, F. X. LEFAIVRE. J. J. GIBB, N.P.

A true copy of the original hereof remaining of record in my office.

J. J. GIBB, N.P.

Those students who could not afford to go abroad went to the United States, where a number of colleges had sprung up. The study of medicine was introduced into Harvard as early as 1683, about forty-five years after its foundation. As for the French students, unless they understood the English language they could not avail themselves of the advantages offered by the American colleges. It is worthy of note that as far back as the year 1674 the French doctors had pupils articled; for instance, the case of Jean M. de Fonblanche, who was at that time practising surgery in Montreal, received as his apprentice, Paul Prud'homme, promising to teach him in the space of three years his art of surgery and all that appertained thereto.

FIRST MEDICAL ACT (1788).

Under French dominion the medical profession was under no particular regulations, but in 1788, thirty-eight years after the Conquest, under the administration of Lord Dorchester, it was judged opportune to legislate on the practice of medicine, in order to put a stop to the abuses which then overran the country. This Act of 1788 forbade any person to practise medicine or surgery within the Province of Quebec or Montreal without a license from "His Excellency the Governor, or the Commander-in-Chief of the Province, for the time being, which license shall be granted, but upon certificate of the person applying for the same, having been examined and appointed by such persons as the Governor or Commander-in-Chief, for the time being, may be appointed." Under this Act Boards of District Examiners were appointed yearly for each of the two districts of Quebec and Montreal. A very full account of the Boards which followed these early ones has been written by Dr. William Osler on "The Growth of the

Profession," published in the *Canada Medical and Surgical Journal*, Vol. 14, 1885. The great advantage of these boards can be realized when one considers the numerous quacks and so-called doctors who applied for licenses. Many of them had never been inside a medical college; others had no knowledge of Latin, while others, with a certain knowledge of medicine obtained from medical books, had never dissected.

There were now about this time quite a number of practitioners settled in the cities and large towns. These were mostly well educated men and able doctors. In the country places matters were deplorable, as the so-called doctors were utterly unfit for their duties. Many of them had been connected with the Hessian troops, where they had performed the minor duties of dressers and such like occupations.

Beginning of the Nineteenth Century—First English Hospital and Medical School.

At the close of the war of 1812-1815, English emigration, which had ceased during these years (in 1813 the number of vessels had fallen off to 9; in 1816 the number of vessels was 63) began once more. Owing to the crowded state of the ships and unsanitary conditions prevailing, the emigrants brought a deal of sickness with them, so that many persons died of the dreaded emigrant fever, similar in many of its features to the deadly plague. It was not until about 1849 that the Government awoke to the great necessity of having inspectors appointed to see after these emigrant ships. Their duties were to limit the number of passengers and to inspect the provisions, water, conveniences for cooking and ventilation, and also to have a surgeon on board. These surgeons were to be taken from the Navy Medical Department, the period of service on such ships to count as service on their own ships. Although the Passengers' Act was passed it was not at all times carried out. Sometimes as many as forty deaths would occur from typhus fever on a ship containing five hundred emigrants, and the conditions on board were simply awful. The medical superintendence was very defective. Occasionally the so-called surgeon was but a student with very little knowledge of medicine. On one ship which had just arrived at Quebec it was found that several of the passengers had their limbs bandaged for supposed fracture; the Captain's arm was in a sling, but on examination there was found to be nothing the matter with it beyond a slight bruise. The surgeon being called to explain, said, "I assure you the tibia and fibula are broken"!!

Montreal General Hospital.

Quebec had its marine and emigrant hospital, but many of the emigrants came straight to Montreal, and, consequently, the need was felt

of some suitable place where the sick would be promptly attended to. Up to this time the English residents of Montreal had no hospital of their own. The Hotel Dieu was, like most of these early hospitals, rather the abode of the poor and incurable. In this critical state of affairs, when every ship load brought out those who required immediate attention but had no hospital to receive them, Dr. T. P. Blackwood and several other well known medical men of the city came forward and offered their professional services if a house was provided for them. This was immediately done, and a small house of four rooms procured in the St. Joseph suburbs, chiefly through the efforts of a society called "The Female Benevolent Society." This society afterwards undertook to receive convalescents from the hospital, when room had to be made for others. The place was called "The House of Recovery." This house soon proved too small, and a larger house was taken on Craig Street. It consisted of three wards and held about twenty-four patients. All the expense of moving and rent was covered by a sum of money raised by a subscription list sent round the city. The place was ready for patients in May, 1819, when the name, House of Recovery, was changed to the Montreal General Hospital. From these small beginnings grew the now famous Montreal General Hospital. It was, in these first years of its existence, an experiment. The public anxiously awaited results. At the end of the second year, after moving into the larger house. the results were so gratifying that the public felt that it must be conducted on a still larger scale. It was now no longer an experiment; it had proved its usefulness, and the decision was that it should become a permanent institution. Subscriptions began to come in more freely, and in August, 1820, through the generosity of three citizens, the Hon. John Richardson, the Hon. William McGillivray and Samuel Gerrard, Esquire, ground was purchased in the St. Lawrence Suburb. The foundation-stone was laid with great Masonic ceremonies in June, 1821, by the celebrated Sir John Johnston who, at the time of the American Revolution, brought out a large body of U. E. Loyalists from the Mohawk Valley and settled in Upper Canada. One of his descendants, bearing the same title, is now residing in Montreal. In less than a year the new building was ready for use. In May, 1822, the hospital was opened, free of all debt, thanks to the ready response of the citizens.

In the library is the original manuscript of the first report of the hospital showing the different diseases which were treated from May 1st, 1822 to May 1st, 1823. The list shows that 412 cases were treated with 36 deaths during the year. In this report the nurses are instructed to be clean and decently clad.

The first great step in the progress of medicine in Canada was taken by the establishment of this hospital. By its inception, the medical college became possible, for the idea of giving a systemized course of lectures originated with the doctors composing the medical board of the hospital. About this time Dr. Stevenson and Dr. Holmes gave a course of lectures; Dr. Stevenson on Anatomy, Physiology and Surgery, at the hospital, and Dr. Holmes on Chemistry, at the home of Dr. Shakel, who also lectured on Natural Philosophy. Previous to this, in 1817, we find that Andrew Smythe gave a course of lectures on Anatomy and Surgery, at his house on the corner of St. Gabriel Street. These lectures were illustrated by a series of anatomical preparations. In 1819 Dr. Sleigh lectured on Anatomy, Surgery and the Practice of Physic.

Montreal Medical Institution.

Some months later the officers of the medical board of the hospital met and considered the question of starting a regular medical school, formed along the lines of the Edinburgh Medical School, which was then coming into great notice. His Excellency, the Earl of Dalhousie, gave his sanction to the plan which the medical board of the hospital had drawn up for his approval, appointing at the same time the medical officers of the board of the hospital to be examiners of licenses for the District of Montreal.

No time was lost by this little band of pioneers in medicine in carrying out the second great undertaking, and the first organized lectures were given in 1823, at No. 20 Little St. James Street. It was not until 1824, however, that the new school was really opened under the name of the Montreal Medical Institution. The founding of this school was watched with great interest by not only those in Montreal, but in Upper Canada as well. The young men realized that now they would be able to get their medical education in their own country, and in course of time many of the Upper Canada men became graduates of the McGill Medical Faculty. The first regular session of 1824-5 was attended by twenty-five students; unfortunately the records of the previous session are not available. The staff of this new school was practically the same as that of the Montreal General Hospital—Drs. Holmes, Caldwell, Stevenson and Robertson.

Dr. Stevenson was one of the most enthusiastic of those concerned in these two great enterprises. He graduated at Edinburgh in 1820, about the same time as Dr. Holmes; Dr. Robertson and Dr. Caldwell were retired surgeons of the British Army, and were the leading physicians of the day. Shortly after the founding of the medical school

Dr. Holmes, who had taken an active part in both these institutions, now became one of the most active in starting a Medical library.

The First Medical Library.

"We have now a hospital and school, let us at once begin forming a library." Such were the words uttered by Dr. Holmes at a meeting of the doctors of the school. Then and there it was decided that a collection of books and journals should be at once started, and that Dr. Holmes be appointed Secretary and Librarian. Dr. Holmes entered into this undertaking with his untiring energy and zeal for any cause which would advance medical education in Canada, and it was an undertaking when it is considered how scarce at that time were medical books and journals. A room was set apart by Dr. Holmes behind his consulting office in his house (which stood where the Molson's Bank now is), and here was the beginning of the library.

The First Medical Journal.

Up to this time no Canadian medical journal had been published, though in the United States there were several, the earliest being published about 1798. The first Canadian journal was published in 1826, and to the City of Quebec is the honour due for this first venture in Canadian Medical journalism. It was called "Le journal de Médicine de Québec," and ran from January, 1826, to October, 1827. The journal had two title pages, and was published in both languages. Copies of this journal are now exceedingly rare, but we are fortunate in having a very good specimen in our library. Owing to the death of Dr. Tessier, the editor, shortly after the first volume was printed, no further issue was printed. One of the most enthusiastic promoters of this journal was Dr. Blanchet, he it was who prepared the number of meteorological charts which this journal contains. At that time great importance was attached to the nature of the atmosphere.

Dr. Blanchet was one of the first Canadian doctors to graduate in the United States, and his name must ever rank one of the first in the medical history of Quebec. The basis of medical teaching in Quebec was started by him when he gave private courses in chemistry in the Emigrants' Hospital. These lectures were largely attended, many coming from great distances to hear them. Dr. Whitelaw at the same time was giving lectures in the old theatre.

Previous to this, in 1823, Dr. A. Von Iffland had, with Dr. Blanchet and several others, established the Quebec Dispensary, and had given a course of lectures on Surgery, Medicine, Anatomy and Physiology. The

Dispensary, after two years, was obliged to close because of the need of funds. Owing to the urgent request of the students and several of the doctors, Dr. Von Iffland continued to give his lectures on Anatomy for two years longer. The recent war of 1812 had only too plainly shown the great want of knowledge in this important subject of the surgeons who had attended the wounded. Yet Dr. Von Iffland was not allowed to procure subjects for dissection without having his life harassed and even threatened by an irate population, and finally he had to flee from Quebec and take refuge elsewhere. He says, "Not only were my private apartments ransacked, myself held in durance for some days, but nearly the whole of my anatomical preparations were ordered to be interred, under the surveillance of a military (27th regiment) and civil escort! And, what must appear most surprising, is, that the very *subject*, that gave rise to so scandalous a proceeding, had been, but a few days before, one upon whom an inquest had been held by that very coroner. He had been found lying dead at Point Levis, a stranger, totally unknown to everyone, but, through some connivance or other, had found his way to the dissecting room."

(To be continued.)

DUODENAL ULCER; ITS DIAGNOSIS AND SURGICAL TREATMENT.

BY

A. E. GARROW, M.D., Montreal.

The surgical treatment of duodenal ulcer is no longer limited to the management of two of its most fatal complications, viz., perforation and hæmorrhage.

A very cursory review of the ever increasing literature of the last four years, will hardly fail to impress you with the view that this disease, like appendicitis, is best dealt with by surgical means. Indeed, the knowledge that it is a very frequent cause of abdominal disturbance, has been acquired as the result of systematic examination of the viscera in operations performed for supposed gall bladder, and stomach disease.

The most recent statistics inform us that it is as common as gastric ulcer, and many of us have been reminded of it as a possible cause of peritonitis, when we have opened the abdomen for appendectomy, to find a normal appendix.

Secondary anæmias of unexplained origin may owe their existence to a latent duodenal ulcer with unrecognized melæna.

Read before the Ontario Medical Association, Hamilton, May 27th, 1908.

Surgical measures directed to the relief of gall bladder complications have failed to relieve the abdominal symptoms, until a more careful and subsequent exploration revealed an overlooked duodenal lesion, which yielded promptly to a gastro-jejunostomy, and such mistakes have not happened to the tyro in surgery.

Medical treatment and suitable dieting, carefully observed, will undoubtedly cure successive recurrences of the indurated duodenal ulcer, but it cannot prevent the subsequent narrowing of the canal and the associated dilatation of the stomach, nor does it prevent the disabling adhesions to contiguous organs, which may cause life-long misery, ending in invalidism.

Surgical treatment, on the other hand, can show indubitable and satisfactory evidence that it can deal more promptly and more safely—and this, I say, advisedly—with peptic ulcer in this region, than can any form of medical treatment yet devised.

Let me say right here that my remarks refer only to chronic indurating ulcers, and not to recent erosions, which, like similar gastric lesions, yield readily as a rule to medical treatment.

Surgical treatment shows a larger percentage of permanent cures and improvement. It more assuredly prevents hæmorrhage and perforation, acute and chronic, as well as obstructive symptoms. Disabling adhesions can often be dealt with, and, lastly, and by no means the least, the patient is able to enjoy the pleasures of his own table without incurring the penalty of possible recurrence of dyspeptic symptoms, when he strays from a strict dietary.

The clinical history of duodenal ulceration, in many cases, is possibly less clear than is that of gastric ulcer. But as our experience increases, and in proportion to the care we exercise in establishing the sequence of symptoms so shall our mistakes diminish.

From personal experience in a limited number of cases chronic duodenal ulceration may be conveniently classified as follows:—

1. Those which give an unmistakable symptom complex of this disease.

2. Those giving an atypical history strongly suggestive of gall-stones or cholecystitis.

3. Cases which are latent until acute or chronic perforation, hæmatemesis, or melæna occur, or where symptoms of motor disturbance manifest themselves.

In the typical cases there is the so-called hunger-pain coming on several hours after eating, relieved by taking food or alkalies,—as a rule, most severe when there is hyperchlorhydria, rarely radiating to any extent—

described as acute and burning, sometimes colicky, and referred to the right of the middle line—very rarely to the back.

Vomiting, rarely excessive in the early stages, relieves the pain, but may be an unimportant symptom.

Flatulence usually in direct proportion to the severity of the pain.

Tenderness, and sometimes rigidity, to the right of the mid line.

So long as the motor function is good the appetite is keen and the patient is well nourished and even florid when hæmorrhage is absent.

Emaciation and anæmia are dependent upon pyloric spasm, obstruction and to frank or occult hæmorrhages.

Dilation of the stomach and the presence of a tumour-like mass are symptoms of a later stage.

Constipation is the rule at least in all my cases.

A history of biliary colic with jaundice chills and fever were present in two of my series.

Hæmatemesis, but especially melæna, occur in a large number of cases, and when duodenal ulcer is suspected, routine examination of the stools for occult blood is necessary.

Intermittency of attacks is the rule, the intervals of freedom from symptoms varying from months to years. In two cases attacks lasted but a day or two and were strongly suggestive of biliary colic. With such a history, even in the presence of a tumour with marked gastric dilatation, emaciation and anæmia, operation is not contraindicated, since primary carcinoma of the duodenum is rare.

The diagnosis of cases of the second class is attended with more difficulty. Last year, at the meeting of the Canadian Medical Association, I reported four cases where a diagnosis of cholelithiasis had been made not alone by the writer, but by men of wide experience.

Two were operated on for gall-stones—both bad attacks, simulating hepatic colic—both had jaundice, one had chills and fever. Both had a history of such attacks for fifteen to eighteen years respectively, with varying periods of complete relief from digestive disturbances.

Of the other two, one had a sharp attack of melæna, which enabled us to correct our diagnosis just prior to operation, and in the last case a careful review of the clinical history in the light of previous mistakes made a diagnosis of duodenal ulcer almost certain.

The differential diagnosis of duodenal ulcer from ulcer at or near the pylorus is practically impossible, in fact, the two conditions may be associated.

As a rule, pain, flatulence and vomiting are more intense in duodenal than in gastric ulceration. As already stated, my chief difficulty has been with the second class.

The pain of gall-stones is more severe,—more sudden in its onset, radiates wider, and is not relieved by food, alkalies, or vomiting, and the tenderness lies further to the right, and in the intervals there is, as a rule, more perfect relief of all digestive disturbances.

A history of acidity or hyperchlorhydria is wanting.

The presence of jaundice, chills, and fever may speak for either condition, in ulcer due to involvement of the papilla or to an ascending cholangitis.

It may be impossible to distinguish between an acute infective cholecystitis and perforation of a duodenal ulcer.

Perforation may be the first and only symptom of duodenal ulcer. It is a very frequent complication of all duodenal ulcers, and is more fatal than gastric perforation. The majority, like the ulcers, are in the first portion and on the anterior wall, and the perforation is more apt to be acute than in gastric ulcer. In the acute form, the onset of pain is sudden and severe, doubling the patient up, and followed, as a rule, by faintness and marked symptoms of shock. The initial symptoms, however, vary in degree, and are often followed by a longer or shorter period of relief, only to give rise to a second recrudescence of the symptoms, and it is at this period that mistakes for appendicitis occur, since the duodenal contents are directed down to the iliac fossa by the arrangement of the transverse meso colon and the ascending colon. The subsequent picture of the case is that of a spreading peritonitis.

The diagnosis will rest on the previous history, the sudden onset of abdominal pain, the early local tenderness and rigidity, possibly hæmatemesis and the development of a spreading peritonitis chiefly to the right side, and, last of all, to the left. In each of my cases a well marked leucocytosis was present.

In some cases premonitory symptoms of leakage precede the frank perforation.

Perforation on the upper or posterior wall—protected by adhesions, may give rise to subdiaphragmatic-abscess occupying the various connective tissue and peritoneal areas seen in purulent invasion of this region, a localized abscess may rupture subsequently into contiguous viscera or into the pleura or lung.

Like perforation, hæmatemesis or melæna may be the first symptom of duodenal ulceration. Repeated examination of the stools during an "attack" will show blood in a majority of cases. In several of my cases with a history of ulceration an attack of faintness was followed by a copious passage of blood.

Severe and fatal hæmorrhage is most apt to occur in ulcers situated on the posterior and inner wall of the duodenum. Robson has noted that the anterior ulcers bleed but little. Moderate hæmorrhages are usually recognized in the stools as melæna, and in the fulminating variety proving rapidly fatal, hæmatemesis not infrequently coexists.

Anatomically, the bleeding may be from the aorta,—hepatic,—gastro-duodenal, superior pancreatico-duodenal, and the pyloric,—pancreatica magna,—right gastro epiploica, the portal vein and the superior mesenteric vein. Duodenal ulceration needs surgical treatment for

1. Perforation.
2. Hæmorrhage.
3. Gastric, gall-bladder, liver, and pancreatic, complications.
4. The relief of pain and other dyspeptic symptoms not yielding to medical treatment.

Perforation.—A recognized perforation demands immediate operation. First, a row of hæmostatic sutures, then one of Lembert sutures placed parallel to the rent and fortified when necessary by an omental flap. Cleanse the site of soiling and, if needed, use a small Mikulicz drain. Pelvic drainage is necessary when extensive soiling has occurred, and in the presence of a spreading peritonitis. Gastro-jejunostomy should be performed when the patient's condition warrants it, especially in the presence of much induration with gastric dilatation. Pylorectomy is not justifiable under such circumstances. In desperate cases a short operation for closing the rent and draining the pelvis, with the patient in Fowler's position and the judicious use of rectal and intravenous salines will, in my experience, give the best results.

Hæmorrhage.—Robson takes no chances on a second hæmorrhage when the first is at all profuse. Both he and Moynihan perform gastro-jejunostomy, leaving the ulcer intact, and have been satisfied with the results. Others advise exposing the ulcer and ligating the bleeding point, this may or may not be a difficult procedure, depending upon the pathological conditions present. Personally, I have followed Robson's advice in three cases, with very profuse hæmorrhages, and in each with satisfactory results.

Excision of the ulcer and closing of the area with infolding sutures, combined with gastro-jejunostomy have been recommended by Moynihan. Gastric dilatation may be dealt with successfully by one of several methods. At present there seems to be a tendency on the part of surgeons whenever possible, to restore the function of the duodenal route and this, by either pyloroplasty, or by Finney's gastro-duodenostomy. The English surgeons practice and preach gastro-jejunostomy in spite

of experimental proof that the gastric contents escape largely through the patent pylorus, and give as a reason that the ulcer heals rapidly when the acid contents escape through the new anastomotic opening; rather paradoxical, is it not? In many old chronic indurated ulcers, with great thickening and numerous adhesions, gastro-jejunostomy is the operation of choice. In small ulcers with little thickening and few adhesions pyloroplasty or gastro-duodenostomy.

Possibly, the operation of choice in the future will be pylorectomy combined with gastro-jejunostomy and the closing of the duodenum and stomach openings, especially, if subsequent experience will show a tendency to malignant involvement of cicatricial tissue. So far as we now know this is very rare.

In all cases periduodenal adhesions to the gall bladder, stomach, and colon, should be severed and the ligated stumps buried beneath a purse-string suture.

An associated cholecystitis or cholangitis, but especially evidences of chronic interstitial pancreatitis involving the head, demands suitable treatment, either by establishing a temporary biliary fistula, or else by performing cholecyst-enterostomy.

For the relief of pain, and for the "cure" of duodenal ulceration, independent of the foregoing conditions, surgeons practice either gastro-jejunostomy, pyloroplasty or gastro-duodenostomy. The indications for and the selection of the method of choice have been already indicated in gastrectasia.

During the last two years and a half I have operated on nineteen cases of duodenal ulceration. Of four cases for acute perforation, two lived and two died. The successful cases were operated on within twelve hours of the onset of symptoms, and in addition to closing the gastro-jejunostomy was performed. The fatal cases showed the clinical picture of extensive generalized peritonitis, subnormal temperature and adynamic ileus. In each instance the rent was sutured and the pelvis drained without irrigation. During operation, intravenous saline transfusion was practised, and though the patients seemed to leave the operating table in a better condition, both died within eighteen hours of operation.

On three cases for profuse and repeated hæmorrhages by performing gastro-jejunostomy. All recovered, the last case operated on ten days ago gave me some anxiety owing to hæmatemesis occurring in small quantities for eighteen hours.

On four cases for marked dilatation of the stomach, one having a tumour-like mass suggesting cancer and operated on fourteen months

ago, is still gaining in weight. One with marked cicatricial contraction and narrowing following trauma, and operated on again in May of this year for fulminating gangrenous appendicitis. In each case gastro-jejunostomy was done with marked relief to the symptoms. All recovered.

On eight cases for chronic ulcer not yielding to medical treatment, seven by gastro-jejunostomy and one by pyloroplasty. All recovered, and, with two exceptions, with marked relief to symptoms indeed, I may say, with a cure.

In one, a young man of markedly neurotic type, an exploratory operation was done to confirm the diagnosis. A small indurated area with numerous adhesions was found. Improvement followed, but within a month some of the symptoms recurred.

In the other case, a middle aged woman with moderate dilatation which had been very marked a week or two before, but was relieved by gastric lavage, there was extensive infiltration with adhesions and enlargement of the head of the pancreas. Prompt relief followed for several weeks and then pain and vomiting returned at intervals. Lately, there has been a period of marked improvement. She is still under observation in the hospital. At first I thought of jejunal ulcer, but lately I am inclined to think there is some mechanical obstruction. She has refused to let us pass a stomach tube, and up to the present the vomited material has been scanty.

Fifty per cent. of the perforation cases died. There was no death from hæmorrhage, dilatation, or for the surgical treatment of chronic ulceration.

THE

Montreal Medical Journal.

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

EDITED BY

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PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE.

The last few months have seen the production in England of three journals of a quality superior to anything previously published in their respective lines. We refer to the admirable quarterly *Science Progress,* to the equally admirable *Medical Quarterly,* and to the *Proceedings of the Royal Society of Medicine.* All three are indispensable to those wishful to keep level with the progress of medical science—all three afford reading matter of high quality and interest—the only pity being that there is so much of it! The last of the three differs from the other two and deserves special mention. Let the reader realize that for a sum of ten dollars he can—as a non-resident member of one of the sections of the Royal Society of Medicine—add each year to his library the (London) Clinical Society's Transactions, the Transactions of the Medico-Chirurgical Society, of the Epidemiological Society of Great Britain, the Obstetrical and Gynæcological Society, the Dermatological, the Pathological Society, the Laryngological Society, and half a dozen more of the well known special medical societies having their head-quarters in London. When, as the result of long and careful negotiations, the majority of the medical societies in London combined together to form the Royal Society of Medicine, it was determined to fuse together all the separate Transactions of these societies, which became sections of the main society, and to publish those not yearly, (when much that

had been given during the twelve months might be, if not out of date at least out of interest) but monthly, the transactions of each society being given separate pagination, so that those interested in the work of a particular society or societies, and not interested in that of the others, might, at the end of the year, bind those particular transactions separately. The number before us—that for March of this year—is made up of 262 large pages of clear, large type—a pleasure to read—contributed by eleven of the constituent bodies. There is here matter to please all tastes, abundant short reports of rare cases—a monograph on coxa vara, contributed by Tubby, to the surgical section; a critique on Acidosis, by Leathes, contributed to the pathological section; the beginning of a philosophical address on the therapeutics of diet, given to the therapeutical section; Dr. Lewis Jones' paper on ionic medication, delivered before the electro-therapeutical section. These are but some of the chief features. Altogether, it is an extraordinary mass of good material.

A COUNSEL OF PERFECTION.

At the annual convention of the Ontario Medical Association, which was held in Hamilton, on May 26th to May 28th, a resolution was passed in the following terms:—"That the Ontario Medical Association desires to give expression to its hearty approval of the proposition of the Government of Ontario to establish psychiatric clinics to work in conjunction with the hospitals for insane in the province; that the association also respectfully requests the Government to have a lunacy board of alienists, who alone shall give expert evidence in courts of law as to sanity or insanity, and also institute reforms in the civil service whereby promotion for merit alone shall take place, and especially to make a rule that no one shall be appointed superintendent of any hospital for insane until he has had some years of training in the service." In view of the conduct of the Ontario Government, to which attention has frequently been called, in appointing men to hospital positions, whose attainments have been political rather than scientific, this resolution would appear to be a counsel of perfection rather than the expression of a hope which may reasonably be fulfilled.

THE FEUD IN HALIFAX.

The disagreement in the profession in Halifax is becoming more acute. The matter is no longer confined within the ranks. It has extended to the public, and is now under full discussion in the news-

papers. The *Eastern Chronicle,* which is published in New Glasgow, prints an editorial on April 17th, in which the facts are fully set forth. The whole affair is discreditable to the profession, none of it more so than the letter to another newspaper from Dr. Hawkins, which we reproduce. The charge, and the method of making it, against Dr. Mackay, is shocking and contrary to all the amenities of the profession which have existed for 2500 years.

We think it proper to print an account of the controversy as an example of what we are constrained to consider as unprofessional conduct. We introduce this subject with regret, but we quote the following paragraphs to explain to our readers the basis upon which we declare that this must stop. We do not know the rights of the question that gave rise to the discussion, but we do know that this is not the way in which it should be treated; by bringing it before the public in this way, the members of the profession concerned have let it to some extent out of their own hands, and we, representing in this the medical profession of Canada declare that they have exceeded their own rights and have infringed upon ours in subjecting us to the indignity of a public spectacle such as this. We believe that every reader of these paragraphs quoted will endorse us in our statement that the medical profession of Canada *commands* that this making public of private affairs instantly cease. The editorial reads:—

"Tuesday's Halifax newspapers gave an account of a lurid debate in the House of Assembly on the management of the Provincial Hospital. What led up to the debate was that Chief Justice Weatherbe has a son who studied for a doctor in Halifax. Then he went to London and took a post-graduate course. His father, with a father's partiality for a son, and in this instance, a father who seems to think that the province is his personal estate which owes his family a living, recalled him (the son) from London with the intention of putting him on the medical board of the Victoria General Hospital.

"As is known to the people of Nova Scotia, the doctors of Halifax have generally always been quarrelling over the affairs of the Victoria Hospital. This grew so hot and unbearable that the Government took over the management of the institution and now appoint the medical board. To fill the vacancy the Chief Justice wanted for his son, the Government appointed Dr. Hawkins, who has practiced in Halifax for twenty-three years. This appointment riled the Chief Justice, and he wrote Premier Murray a long and bitter letter, and one or two short ones, filled with vague allusions to mal-practices in the hospital, and pointed references to the superiority of his son. The Chief Justice, should

know that veiled charges are indiscreet and improper; that if he had a charge to make, it should be clear and definite. In this regard the letters are disappointing; indeed, pretty nearly disgusting.

"About the son, Dr. Weatherbe, we know nothing only that he has been a bright student, and apparently has been trying to learn how to do things. But whether he can do medical or surgical things better than any other doctor, or better than Dr. Hawkins, who is a bright man with a long practice, is yet to be shown. We have stated more than once that bright and clever graduates of colleges seem to be imbued with the belief that the toiling masses must provide them with fat offices just as soon as they are through college. As a rule, instead of going to work at whatever they can find to do, as an ordinary college graduate is compelled to do, they become a public charge and must at once be elevated over members of the same profession, who have borne the burden and heat of the day and who, by application and faithful service, have earned the right to some little honour, or there will be a great clamour. Just now Dr. Weatherbe is one of these and is backed up by a prominent, but indiscreet father.

"On Monday, Dr. McMillan, of Inverness, brought the subject up in the House of Assembly. Mr. Tanner was, of course, drawn into the debate, and read all the letters written by the Chief Justice about the college and about his son. On the side of the Government, the Premier, Commission of Mines and Works, and Drs. Bisset and Kendall defended. The two members of government merely, but ably, defended their actions. The doctors poured shot and shell into the aspirations of other doctors and into the Weatherbe family. However, the details we will leave to our Halifax correspondent.

"Regarding the management of Victoria Hospital it may not be perfect. What public institution, where two parties are struggling to keep on top, is perfectly managed? On the whole, being run partly as a political institution, this hospital is well managed. Anyway, the Government is responsible, and that the Government does its best is shown by several of its bitterest political opponents being on the medical board of the Hospital. In addition, Dr. John Stewart, one of the leading doctors of the Province, was offered a place on the medical board, but declined to serve. Among the members of the medical board is Dr. N. E. McKay, an able and skilful surgeon, but a man who is inflicted with an infirmity that leads him to look with contempt on any other surgeon who can perform operations probably as well as he can. Dr. McKay has generally been found in the midst of every row, and they are legion, that has taken place in that hospital during many years.

He may be always right, but his domineering temper puts him often in the wrong.

"It is well known that operations are being constantly performed in all hospitals that do not lead to the recovery of the patient. It may be that some of these have not been performed by as skilful a surgeon as others. It may be, too, that some patients would die even if operated on by the most renowned of surgeons. Indeed, it may as well be admitted, that the skill of the most renowned physicians and surgeons cannot always triumph over a malady, even when the cause is removed by the knife. As we understand the work of the Victoria General Hospital, one lot of doctors or surgeons have always been ready to condemn the work of another lot. There has been too much of that condemnation. It is unreasonable to believe that, where two or three, or more, surgeons decide after due deliberation on a serious operation as being necessary, or the only means to save a person's life, these surgeons do not exercise all the precaution known to their school. To believe that they do not is to believe that they are regardless of human life,—this we absolutely refuse to believe. In Halifax such accusations from one coterie and from another have been rife. To add to the confusion, fathers and families high in official life, have striven to get their sons on the hospital board over the heads of others that may reasonably claim a turn. The latest of these is the one under discussion, and it may be said to be the more provoking because the father is no less a personage that Sir Robert Weatherbe, Chief Justice of the Province. In our opinion, it would be far more becoming for this great man, who has been so highly honoured by country and King, to say to his son,—'You have had the best education that money and influence could provide you with. But, my son, in Canada there is no royal road to success. You must now turn your attention to work, and it depends on your own efforts whether the promise of your natural abilities and scientific education will be fulfilled. You have been taught the best methods in surgery. Show the people that you have profited thereby, and thus win their confidence.' Instead of that, he withdraws him from London; from college, and seeks to place him, a mere stripling in his profession, over his fellow professionals who have had a score of years of practice, and if the Government did not appoint his son he would write them a long letter full of veiled allusions but not one direct charge. The performance is disappointing and provoking, and we are pleased to find Doctors Bisset and Kendall condemn it, as, in our opinion, it deserves to be condemned."

Dr. A. C. Hawkins, to whom reference is made, continues the controversy in a letter to the *Mail*. We would call especial attention to

the two case-reports, which he thinks he "may be pardoned for publishing." The letter reads:—

"I see Dr. McKay is out again at his old work of disparagement and detraction. This time, for a wonder, he leaves his older colleagues alone, and aims his shafts directly at myself and Dr. Bissett, and, indirectly, at the hospital and local government. In private and in public, in season and out of season, in places of low repute and high repute, he pursues his libelling way, and with it all he manages to make it appear that he is actuated by unselfish and disinterested motives, for the public good. If the truth were known, however, it would be quite apparent that Dr. McKay's motives in trying to shake confidences in the hospital, is that of the very lowest and meanest order.

"Being the oldest surgeon on the staff, and having established a reputation by fair means and foul, it pays him to place and keep his colleagues on the staff, under a cloud of distrust and suspicion. It is grist in his mill to make it appear that he is the only man in Nova Scotia who can be safely trusted with a knife. With this end always uppermost he keeps the alleged inferiority of the hospital always before the public.

"Nero, in quest of pleasure, set fire to Rome, and Norman, in quest of dollars, makes the pages of the *Herald* sizzle with flaming "dolorations." The disgraceful methods by which he strives to accomplish this are too well known to require mention or elaboration. His last attack upon myself from behind Dr. Bissett's shoulders, is quite characteristic of his sly cunning. Were I the only one whose professional reputation he has tried to blacken, I would have more cause to complain, but as it is, I simply fall heir to his selfish malignancy towards the whole surgical staff of the hospital.

"I was house surgeon for Dr. McKay when he was appointed to the Victoria General Hospital. For many years I have been surgeon to the D. A. R. and I. C. R. That, with a large private practice has kept me in touch with the surgery of the day. I did my own operating whenever possible, and when otherwise, I took advantage of the Victoria General Hospital, where, through the courtesy of the staff, I often assisted in cases sent there by myself. I am, therefore, familiar with the record of Dr. McKay and his colleagues, and I can truthfully state that they have been quite as successful, if not more so, than he has. They have had a lower death rate, and led the way in some of the most recent advances in surgery. They were first to perform prostatectomy, and that successfully; they were first to operate for rupture of the stomach, also successfully; they were first to do an end to end anasto-

mosis of the intestines, successfully also, and first with cæsarean section, successfully. Last summer, by this operation, at both of which I assisted, they saved two mothers and their children, the first time in the history of the province. But there is this difference, that while Dr. McKay advertises himself and defames his colleagues to the utmost, they go on with their work, saying nothing.

"One would imagine that a man of Dr. McKay's position, with a large practice, and fat salary from the Dominion Government, for doing next to nothing, could afford to let others live unmolested and work without being slandered. He is not in such a strait as to be compelled any longer to float upon the wrecked reputation of others, nor can he by any means shield himself by claiming to be doing dirty work for the public good. In refusing to have anything to do with his colleagues, he has given them a chance to show that they can do equally good work; that they can take charge of the whole as well as a part, and that his presence on the staff is not by any means essential to the success of the hospital. On the other hand, it is well known that he is a hindrance in many ways. His place could be filled very easily by an equally good man, who would work in harmony with the staff and be a source of assistance and strength to it.

"Coming to the charge which Dr. McKay tries to father upon Dr. Bissett, viz., that my appointment to the staff of the hospital was a disgrace. I have to point out that the expression of any opinion in private is not justification for uttering a libel in public. Two wrongs do not make a right. A thrust over another man's shoulders may be as fatal in effect as it is malignant in intention, and cowardly in execution. This is characteristic of Dr. McKay's attacks. They are delivered here, there, and everywhere, but always under sly cover. A man who fights in this way may escape for a time, but sooner or later he becomes an object of universal distrust and contempt.

"I am not afraid to compare the success of my surgical operations with that of Dr. Mackay. Two parallel cases, now come to mind, which under the circumstances I may be pardoned for publishing. One is my own practice—Mrs. K., suffering from pain in the right side, diagnosed as cholelithiasis (stone in the gall-bladder), operated on in the infirmary by myself, Drs. Chisholm and Hogan assisting, stone removed, and patient sent home cured in four weeks.

"The other, Mr. W., also suffering from pain in the right side, diagnosed by Dr. McKay as stone in the gall-bladder, also operated on by him in the hospital. No stone: so much for diagnostic skill; but, worse still, on fumbling around, he discovered an enlarged kidney, and

forthwith removed it. On examination by Dr. Murray it was found to be in such a condition as is often seen in chronic Bright's disease. The other kidney must have been in a worse condition, for the patient died promptly in six days from complete suppression of urine.

So far as I know he has not yet tried to father this mistake of his upon others, but judging from his past record, that is the next thing he will be stooping to do."

AMERICAN LARYNGOLOGICAL ASSOCIATION.

The American Laryngological Association opened its Thirtieth Annual Congress in the Windsor Hotel, Montreal, on Monday, the eleventh of May last. This was the first time in its history that the Association convened outside the United States. It was a glowing compliment to the popularity and worth of Dr. Herbert S. Birkett that, setting aside all precedent, the society thought fit to cross the border, and meet in the metropolis of Canada, the home of its energetic president.

The sessions were held in the Ladies' Ordinary, which was beautified with an abundance of flowers. At the opening meeting Dr. T. G. Roddick, Dean of the Faculty of Medicine, McGill University, on behalf of the medical profession, welcomed the visiting Fellows and their ladies to Montreal.

Then followed the address of the President, Dr. H. S. Birkett, on "The Early History of Medicine in the Province of Quebec." This was both literary and scientific, and will be a valuable asset to the history of Canada, for, if one thing more than another could be gathered from the reading of this address, it was the manner in which the History of Medicine was incorporated with the very history of Canada itself.

The amount of work that the preparation of such a paper entailed must have been enormous. Dr. Birkett is to be congratulated upon presenting something new, and original, and opening up a new field of thought for future papers. All must hope for the time when they will be able to read Dr. Birkett's able address in extenso. On the conclusion of his address the President declared the congress formally open for business.

The first two papers were on much the same subject, "Case Report; Removal of Foreign Body (grain of corn) from the Trachea of a Child of Six Years," by Joseph H. Bryan, M.D., of Washington, and "Personal Experience in the use of the Bronchoscope, Esophagoscope, and Gastroscope," by Thomas H. Halsted, M.D., of Syracuse. Both papers elicited considerable discussion. The important facts that all emphasized in the use of the tubes were:

1st. Early examination of the patient after the swallowing of a foreign body; 2nd, The importance of the X-rays in revealing its location; 3rd, The necessity of trained assistants in passing the tubes; 4th, The advantages of a general anæsthetic; 5th, The use of cocaine, even with a general anæsthetic; 6th The advisability of having everything ready for an immediate tracheotomy; and 7th, The means of local medication of lesions of the respiratory passages, and œsophagus through the tubes.

Dr. Harris P. Mosher, of Boston, read the next paper, "The Formation of the Hard Palate," which was a supplement to his paper of last year. With the aid of wet specimens and plates the salient points of the paper were strikingly illustrated. The alteration of the nasal septum and accessory sinuses were all shown to be dependent upon facial asymmetry, in the formation of which the hard palate played an important role.

After the discussion on this paper the Fellows and their ladies took a special car for the Montreal Hunt Club, Outremont, where they were tendered a luncheon by Dr. and Mrs. H. S. Birkett. The drive out to the club was a pleasant diversion, and all thoroughly enjoyed their short sojourn on the west of Mount Royal.

While the association was in session in the Hunt Club, the ladies of the party, under the guidance of Mrs. Birkett, were driven around the city and shown the principal points of interest, after which they returned to the club, where the whole party entrained for Montreal after a very pleasant afternoon. During the afternoon session the following papers were read and discussed:

"Case Report: Cyst of the Frontal Sinus, communicating with the Frontal Lobe," by Clement F. Theisen, M.D.; "Notes upon two unusual Frontal Sinus Cases," by J. Price-Brown, M.D.; "A case of Sinusitis; severe Cerebral Symptoms relieved by operation, Pyemia, Death, Autopsy," by Lewis A. Coffin, M.D.; "Papillitis Atrophicans Bilateralis Linguæ," by Henry L. Wagner, M.D.; "Case Report: Sarcoma of the Tonsil, Operation and Pathological findings," by J. Edwin Rhodes, M.D.; "The Influence of Adrenalin in the Causation of Arteriosclerosis," by Frederic E. Hopkins, M.D.

The symposium on "Recurrent Abductor Paralysis of the Larynx," was begun in the afternoon. It was opened by a reading of the following papers: "Introductory Remarks on Anatomy and Physiology, Causes of Central Origin," by Joseph W. Gleitsmann, M.D.; "Causes, of Peripheral Origin," by D. Bryson Delavan, M.D.; "Symptomatology," by Clarence C. Rice, M.D.; "Diagnosis and Treatment," by William E. Casselberry, M.D.

In the evening the members were the guests of the President at a a reception given in their honour in the Galleries of the Art Association, where they had the opportunity of meeting some of the medical profession and society of Montreal.

The presentation of the reports of the secretary, treasurer, librarian, and committee on nominations opened the second day of the Congress. Dr. John O. Roe, of Rochester, read his paper on "Methods of opening the Maxillary Antrum with Presentation of a new Instrument." The writer strongly advocated the intra-nasal route as against the Caldwell Luc operation. His method was to raise the mucosa and periosteum over the nasal wall of the antrum in one flap, removing a portion of the inferior turbinater if necessary, and then with the Ballenger knife cut forward through the nasal wall of the antrum along the floor of the nose. For the further removal of the wall he presented a new forceps which expedited and facilitated the operation. Once the antrum was exposed it was treated in the usual manner. Before packing the cavity the flap of mucosa and periosteum was turned in over the edge of the opening to make it quite smooth..

Dr. Roe's paper aroused a spirited and lively discussion. Whilst all the Fellows did not hold the same opinion, still all agreed that the radical operation should not be performed on acute cases of empyæma of the antrum; that in many cases, notably the acute, the intra-nasal route sufficed; that the radical should not be done before trying the minor operation; that opening into the antrum through the alveolus was neither surgical, scientific, nor hygienic, for through it there was a constant discharge of pus into the buccal cavity; that the Caldwell Luc method offered the best view of the antrum; that both operations effected cures, and, finally, that the introduction of drainage tubes was to be deprecated, for in the majority of cases they projected above the floor of the antrum.

Dr. T. Melville Hardie, of Chicago, reported a case of unusual ætiology, "Abscess of the Larynx following Pneumonia." The patient made a successful recovery after the abscess was opened.

Other papers read at the morning session were: "The further history of a case of Laryngeal Scleroma previously recorded (1906)," by Emil Mayer, M.D.; "Case Reports: (1) Sub-glottic Neoplasm presenting several unusual complications and cured by Tracheotomy, Brachiocephalic Cyst of the Naso Pharynx," by Thomas J. Harris, M.D.; "Some Surgical Emergencies associated with Tuberculous Larynx," by Charles

P. Grayson, M.D.; "A further consideration of Papilloma of the Larynx in Children," by J. Payson Clark, M.D.

At the afternoon session Professor Wesley Mills, M.D., delivered an elaborate address on, "The Essentials of Voice Production." This was one of the treats of the meeting, and coming from such an authority as Professor Mills, only served further to enhance its value.

Dr. G. Hudson Makuen, Philadelphia, followed with a paper on, "The Essentials of Speech Production." The rest of the afternoon was devoted to the exhibition of radiographs and pathological specimens. The pathological specimens were from the pathological museum of McGill University, and illustrated morbid conditions of the nose and throat from cases which had occurred in the Montreal hospitals. The mounting was done with that artistic care and scientific accuracy which has given the pathological department of McGill University a world-wide reputation.

Whilst all the specimens were admired, three of them attracted the greatest attention. These were three larynges with part of the trachea and œsophagus that had been removed from patients suffering from malignant diseases of these parts, and who were at present convalescing in the Royal Victoria Hospital.

The thanks of the association are due to Professor J. G. Adami, Director of the Museum, for the privilege of exhibiting these specimens, to Dr. Maude Abbott for the preparation of the descriptive catalogue, and to Mr. E. L. Judah for the expert mounting displayed.

The exhibitions of radiographs was elaborate, and the association was deeply indebted to Professor G. Prout Girdwood, Dr. Robert Wilson, and Mr. J. C. McNeill, Montreal, for their kind assistance in the preparation of this exhibit.

A special room had been darkened for this purpose, and all the plates were so arranged on a stand lighted from behind that they could be readily studied without taking them in one's hands. The many anomalies and diseases of the accessory sinuses were there depicted. The plates furnished abundant and striking proof of the importance of X-rays as a means of diagnosis. On all sides were heard words of praise, both for the excellence of the plates and their skilful mounting.

Those who contributed plates were:—Dr. C. G. Coakley, New York; Dr. S. Cummings, Toronto; Dr. W. E. Casselberry, Chicago; Dr. H. S. Birkett, Montreal; and Professor G. P. Girdwood, Montreal.

Dr. St. Clair Thompson, London, England, presented three interesting X-ray photographs showing the dangers of indiscriminate instrumentation of the frontal sinus. Both the pathological and radiograph dis-

plays had special catalogues, wherein each exhibit was fully described and explained.

Whilst the Fellows were in session, Mrs. T. G. Roddick, assisted by Mrs. Birkett, entertained the ladies of the party at an afternoon tea.

In the evening the association held its annual dinner at the Mount Royal Club, at which Dr. H. S. Birkett presided. The only non-members present were Dean Roddick, Professor Wesley Mills, and Mr. W. Harrison Bradley, the American Consul-General, who were the guests of the association.

The closing session of the meeting on Wednesday morning, May 13th, was opened by Dr. Henry L. Swain, of New Haven, who read a paper on "Cysts of the Epiglottis with Oedema and Abscess." The symptoms, diagnosis and treatment were carefully described, and the histories of several cases given. The unanimous opinion of both Dr. Swain and those who took part in the discussion of his paper, was that, while enucleation of the cyst was the ideal method of treatment, the one essential for its permanent cure was the destruction of the cyst wall, whether that be by the galvano-cautery, punch forceps, curette or irrigation of caustics.

Dr. William R. Simpson, of New York, followed with a case report of "Laryngeal Stenosis in the Adult." The patient had been successfully treated by intubation which resulted in ultimate recovery after he had worn the tube continuously for two years. This is the first case on record of laryngeal stenosis treated in this way, and Dr. Simpson is to be congratulated upon bringing before the profession a new field for the use of the O'Dwyer intubation tubes.

Papers were also read by John M. Ingersoll, M.D., of Cleveland, on "Morphology of the Turbinals"; and Dr. Braden Kyle, M.D., of Philadelphia, on "Membranous Tertiary Syphilitic Lesions of the Pharynx, Tonsils, Mouth and Soft Palate, with report of three cases."

The Secretary, Dr. James E. Newcomb, of New York, presented the closing paper of the Congress, on "Hæmorrhage following Quinsy," and reported one case where recovery followed ligation of the common carotid artery. From an exhaustive study of fifty-one cases of hæmorrhage in connection with pharyngeal suppuration, Dr. Newcomb concluded that at times the hæmorrhage was due to spontaneous rupture of a vessel owing to its weakened infiltrated wall, and not to the wounding of an artery by the operator. Dr. Newcomb's paper evoked an animated discussion. Owing to the danger of hemiplegia, the ligation of the internal rather than the common carotid was advocated by Dr. Casselberry, of Chicago. Dr. Ballenger, of Chicago, claimed that by avoiding injuring the muscles in operating the dangers of hæmorrhage

were minimized. He therefore dissected away the tonsil from the anterior pillar of the fauces and the superior constrictor of the pharynx, and then opened the peritonsillar abscess by an incision directed upwards and backwards. The discussion was closed by Dr. Roe, of Rochester, who said that in opening these abscesses he used a sharp pointed forceps having a slight upward curve, with which he went right through the tonsil until he reached the pus, when he withdrew the forceps with the blades open.

The executive session which followed brought the Congress of 1908 to an end. The visiting Fellows then drove to the Royal Victoria Hospital, where they were entertained at luncheon by the Medical Board, and later were shown through the hospital and nurses' home. Whilst in the operating rooms, Dr. James Bell, and Dr. A. E. Garrow exhibited three cases of laryngectomy, the specimens from which were among the pathological display to which reference has already been made. The new apartments for the Nose and Throat clinic of Dr. Birkett elicited the greatest interest.

We desire to offer our heartiest congratulations to the president, Dr. H. S. Birkett, for the eminent success which attended the meeting, both scientifically and socially.

J. T. R.

Reviews and Notices of Books.

Diseases of the Nose and Throat. By Herbert Tilley, B.S. (London), F.R.C.S. (Eng.), Surgeon to the Ear and Throat Department, University College Hospital, London; Teacher of Laryngology and Otology, University of London; formerly Surgeon to the Golden Square Throat Hospital, London. With one hundred and twenty-six illustrations. London: H. K. Lewis.

In the preface to this the third edition, the author says that he has endeavoured to remember that this manual is intended to form one of a "Practical Series," and, consequently, symptoms diagnosis and treatment are more fully discussed than debatable matters relating to the ætiology and pathology of the various diseases of the nose and throat.

Part I of the volume is devoted to Diseases of the Nose, the first two sections of which deal with the anatomical and physiological features of the nose, methods of examination and instruments required, with a few remarks on local anæsthetics.

In an interesting chapter on Nasal Reflex Neuroses reference is made to the fact that in spite of the vast amount which has been spoken and

written on the subject it cannot be said that even yet there is any consensus of opinion as to the true relationship which exists between pathological conditions within the nose and the influences which these may exert in the production of symptoms either in the nose itself or in more distant parts of the body.

The author then enumerates a large number of affections which have been attributed to a reflex neurosis and draws attention to the fact that similar statements have been made regarding the far-reaching good to be derived from the treatment of uterine irregularities, at the same time warning against a too hasty conclusion that a varying peripheral factor is of more importance than possibly a constant but as yet undiscoverable constitutional or central cause.

In the section on Hay Fever its association with asthma is emphasized by the fact that out of 400 cases of hay fever recently reported by Thost, 266 are said to have suffered from asthma.

As regards the internal treatment, the author has found valerianate of zinc the only drug that does any good.

Locally he has found, as have many others, tha pallantin is the agent best suited.

For the correction of deviations of the nasal septum, the operations known as Gleason's, Moure's and Asch's are described, their advantages being (according to the author) that they can be very quickly performed, and the manipulation may be carried out under local anæsthesia, or the short narcosis induced by nitrous oxide or ethyl chloride.

In enumerating the disadvantages the writer omits to mention the fact that even with the greatest care observed during the operation and subsequent treatment the results are too often unsatisfactory.

The submucous resection of the septum is next described, the method being that of Freer, which differs in minor details from that of Killian.

Nasal Polypi the author considers as of inflammatory origin, consisting of a network of connective tissue fibres in the meshes of which are a muciginous matrix and connective tissue corpuscles. Fine capillaries, in many places surrounded by small, round cells and nature of the tissue indicate inflammatory character. The theory of local œdema, and, consequently, serous nature, for some reason is not even mentioned. As regards the ætiology of polypi, he considers that inflammatory or degenerative changes in the ethmoid bone are intimately associated with their production.

Diseases of the accessory sinuses of the nose are dealt with at some length, the very excellent illustrations being of material assistance in making the subject clear to the reader. In the section on adenoids

attention is drawn to the fact that Lartigan and Nicoll found 10 per cent. of adenoids contained tubercle; similar results having been obtained by many other observers.

Mention is also made of the fact that Nicoll, after an analysis of 500 cases of enlarged cervical glands, believes 80 per cent. of them are due to tuberculous infection from the tonsils and naso-pharyngeal mucosa, a percentage that would strike one as altogether too high.

Part I is brought to a conclusion by a section devoted to non-malignant and malignant growths of the naso-pharynx.

In Part II Disease of the Pharynx and Tonsils form the subject matter, the commoner and rarer forms are discussed in a painstaking and comprehensive manner, and much information may be derived from a careful perusal of the various sections, both as regards ætiology, pathology, diagnosis and treatment.

Part III deals with the affections of the Larynx. In the section on Malignant New Growth of the Larynx, the importance of an early diagnosis is emphasized, and the writings and statistics of Semon and Butlin referred to as showing that the most successful results, in many cases amounting to actual cure, are those in which the radical operation has been performed in an early stage of the disease, when the interference can be limited to the performance of thyrotomy with removal of the soft tissues only. With regard to the radical method of treatment three kinds of procedure are open to the surgeon.

1. Thyrotomy with removal of the diseased parts. Early intrinsic carcinoma.

2. Partial excision of the larynx. Called for when the lateral cartilage is involved, or when the disease has spread to the arytænoid regions, or it may be necessary in cases of recurrence following thyrotomy.

34. Complete excision when extensive intra-laryngeal or limited extrinsic and intrinsic disease is present.

Before performing the operation of laryngectomy the author lays stress on the careful cleansing of the mouth and teeth during the days immediately preceding the operation.

The discussion of neuroses of the larynx occupies several sections, and a short reference to rheumatic affections of the larynx brings this interesting and well compiled volume to a close, a list of seventy-five formulæ being appended.

Space does not permit of a more extended or detailed review of this book, which covers a great deal of ground, it being, of course, impossible to even mention the great majority of subjects discussed; suffice it to say that a vast amount of information is contained in the 524 pages,

and anyone interested in the study of diseases of the throat and nose will find it to his advantage to read this carefully prepared and excellently illustrated volume.

W. H. JAMIESON.

PARAFFIN IN SURGERY; A Critical and Clinical Study. By WILLIAM H. LUCKETT, B.S., M.D., and FRANK I. HORN, M.D. Surgical Publishing Co., 92 William Street, New York.

This is an instructive little book to all who are interested in the subject of paraffin in surgery. A brief *résumé* of the literature of the subject has been carefully presented and criticized. The chapters devoted to the chemistry of paraffin, the early disposition of paraffin in the tissues, physical state of paraffin bearing on its disposition, the ultimate disposition of paraffin, technic and armamentarium, as well as its many indications for use, have been ably dealt with.

Medical News.

CANADIAN MEDICAL ASSOCIATION.

The 41st annual meeting will be held at Ottawa, June 9th, 10th and 11th, 1908.

PROVISIONAL PROGRAMME.

Presidential Address—Dr. F. Montizambert, Ottawa.

Address in Medicine—Dr. Risien Russell, London, England.

Address in Surgery—The Surgical Rights of the Public—Dr. John C. Munro, Boston, Mass.

MEDICAL SECTION.

Dr. John T. Fotheringham, Toronto, Chairman; Dr. Alex. J. MacKenzie, Toronto, Secretary.

Our Experiences in Broncho-Pneumonia—Dr. C. S. McVicar, Hospital for Sick Children, Toronto.

The Differential Diagnosis of Some Forms of Mental Disease and a Note as to Treatment—Dr. G. J. Fitzgerald, Toronto.

Out-Patients' Clinic for the Tuberculous Poor—Dr. Harold C. Parsons, Toronto.

On the Choice of a Climate—Dr. Geo. D. Porter, Toronto.

Hæmoptosis in Pulmonary Consumption—Dr. J. H. Elliott, Toronto.

Spina Bifida Associated with Syringo Myelia—Dr. Colin D. Russel, Montreal.

Meningitis—Dr. A. E. Kanney, North Bay.

Some Interesting Complications of Pulmonary Tuberculosis and Their Treatment—Dr. J. K. M. Gordon, Gravenhurst.

Ergot—Drs. E. V. Henderson and W. H. Cronyn, Toronto.

Some Unusual Cases of Rheumatism—Dr. A. McPhedran, Toronto.

What Shall We Say to Our Neurasthenic Patients?—Dr. C. S. Young, Prescott.

Pernicious Anæmia, Report of Cases in Country Practice—Dr. James Baird, Hemmingford, Quebec.

Some Further Observations on Pneumo-Thorax—Dr. W. F. Hamilton, Montreal.

Myo-Cardial Change in Valvular Disease—Dr. H. B. Anderson, Toronto.

SURGICAL SECTION.

Dr. Geo. E. Armstrong, Montreal, Chairman; Dr. Edward W. Archibald, Montreal, Secretary.

Title to be announced—Dr. James Bell, Montreal.

Congenital Pyloric Obstruction—Dr. F. J. Shepherd, Montreal.

Temporary Colostomy as a Curative Agent in Post Operative Fæcal Fistula of the Colon—Dr. J. M. Elder, Montreal.

The Administration of the General Anæsthetic from the Standpoint of the Operator—Dr. H. A. Beatty, Toronto.

Reports of Two Large Abdominal Tumours with Remarks—Dr. A. B. Atherton, Fredericton, N.B.

Title to be announced—Dr. A. Primrose, Toronto.

Diagnosis and Treatment of Ureteral Calculus, accompanied by Case Reports—Dr. A. E. Garrow, Montreal.

Exhibition of Cases to Show Result of Operations Reported at the London Meeting, 1903. Advanced Hip-Joint without Shortening—Dr. R. P. Robinson, Ottawa.

Calculus of Ureter Removed per Vaginam—Dr. Walter McKeown, Toronto.

COMBINED MEDICAL AND SURGICAL SECTION.

Discussion on General Peritonitis.

Carcinoma of the Buccal Cavity, Etiology and Treatment—Dr. A. R. Robinson, New York.

Subdural Hæmorrhage and Its Surgical Treatment—Dr. E. W. Archibald, Montreal.

On the Use of the Ortho-Diagraph in Medicine—Dr. Robert Wilson, Montreal.

Treatment of Meningitis with Flexner's Serum—Dr. F. G. Finley and Dr. P. G. White, Montreal.

The Diagnositc Value of Perversion of Gastric Secretion—Dr. Graham Chambers, Toronto.

The X-Ray as a Therapeutic Agent, Its Indications and Untoward Effects, Having Special Reference to Its Action upon the Generative and Internal Secretory Organs of the Body—Drs. Omar Wilson and J. Harold Alford, Ottawa.

Public Health Section.

Address by the Chairman, Dr. Hodgetts.

Title to be announced—Prof. Starkey, Montreal.

Title to be announced—Dr. J. D. Lafferty, Calgary.

Title to be announced—Dr. Seymour, Edmonton.

The Medical Inspection of Schools—Dr. John Hunter, Toronto.

Laboratory Workers.

Dr. W. T. Connell, Kingston, Chairman; Dr. A. R. B. Williamson, Kingston, Secretary.

Anæsthesia in Laboratory Work—Dr. V. E. Henderson, Toronto.

Chorion Epithelioma in the Testis—Dr. C. B. Keenan, Montreal.

A Criticism of the Ammonium Nitro—Molybdate Method of Detecting Organic Phosphorus in the Tissues—Geo. G. Nasmyth, M.A., Ph.D., and E. Fidler, B.A., M.B., Toronto.

The Bio-Chemical Characteristics of Bacillus Influenzæ—Dr. Hanford McKee, Montreal.

Title to be announced—Prof. J. George Adami, Montreal.

Title to be announced—Prof. J. J. Mackenzie, Toronto.

Title to be announced—Dr. C. W. Duval, Montreal.

Contribution to the Pathology of Tumours of the Lung—Three cases of Sarcoma: (1) Primary, (2) Secondary—Dr. E. St. Jacques, Montreal.

On the Technique of the Study of Complement Deviation—Dr. A. H. U. Caulfeild, Toronto.

Combined Public Health and Laboratory Work.

Water Supplies and Water Analysis—Dr. J. A. Amyot, Toronto; Dr. T. A. Starkey, Montreal; Dr. Gordon Bell, Winnipeg; Dr. W. T. Connell, Kingston; and others who will contribute to this discussion.

Section on Eye, Ear, Nose and Throat.

Dr. H. S. Birkett, Montreal, Chairman; Dr. Hanford McKee, Montreal, Secretary.

New Therapeutic Notes—Dr. Wilfrid Beaupré, Quebec.

Title to be announced—Dr. G. H. Mathewson, Montreal.

Title to be announced—Dr. Roy, Quebec.

Some Points in the Technique of Sub-mucous Resection of the Nasal Septem—Dr. C. M. Stewart, Ottawa.

Ulceration of the Cornea, Etiology and Treatment—Dr. Hanford McKee, Montreal.

(1) Calcified Fibroma of the Orbit; (2) A Case of Bilateral Lardaceous Infiltration of the Buccal Mucous Membrane, not hitherto classified—Dr. J. N. Roy, Montreal.

SECTION ON MENTAL AND NERVOUS DISEASES.

Dr. W. H. Hattie, Halifax, Chairman; Dr. J. C. Mitchell, Brockville, Secretary.

Some Clinical Considerations of Dementia Præcox—Dr. Elbert M. Somers, Ogdensburg, N.Y.

Hydrotherapeutics when applied to Mental and Nervous Diseases—Dr. A. T. Hobbs, Guelph.

The Differential Diagnosis of some forms of Mental Diseases, with a note as to Treatment—Dr. Gerald Fitzgerald, Toronto.

Title to be announced—Dr. E. W. Archibald, Montreal.

Title to be announced—Dr. Colin Russel, Montreal.

Some Points in the Etiology of Progressive Muscular Atrophy, with Especial Reference to Heredity—Dr. D. A. Campbell, Halifax.

A Study of Thomsen's Disease (Myotomia Congenita)—by a sufferer from it.

Insanity and the General Practitioner—Dr. Moher, Brockville.

Hysterical Manifestations Occurring After the Removal of a Brain Tumour—Dr. D. A. Shirres, Montreal.

SECTION ON GYNÆCOLOGY AND OBSTETRICS.

Dr. F. A. L. Lockhart, Chairman, Montreal; Dr. D. Patrick, Montreal, Secretary.

Title to be announced—Dr. Wm. Gardner, Montreal.

Some Cases of Cæsarian Section—Dr. R. E. Webster, Ottawa.

Pregnancy and Heart Troubles, with Reports of Cases—Dr. J. C. Cameron, Montreal.

Title to be announced—Prof. de L. Harwood, Montreal.

Cases of Vicarious Menstruation—Dr. Blakeman.

Uterine Inversion, with the Report of a Case—Dr. D. Patrick, Montreal.

The Role of the Gonococcus as a Factor in Infection, following Abortion or Full Term Delivery—Dr. Fraser G. Gurd, Montreal.

Report of Second Case of Chorio-Epithelioma—Dr. F. A. L. Lockhart, Montreal.

Thoroughness in Abdominal Surgery—Dr. A. Lapthorn Smith, Montreal.

Pubiotomy—Edward D. Farrell, Halifax, N.S.

Title to be announced—Dr. D. J. Evans, Montreal.

Military Surgery.

Dr. G. Sterling Ryerson, Toronto, Chairman; Dr. T. H. Leggatt, Ottawa, Secretary.

Addresses by the President of the Association of Medical Officers of the Militia of Canada, Colonel Ryerson, M.R.D., Toronto.

On the Advisability of Forming a Canadian Ambulance and Red Cross Association—Lieutenant-Colonel Jones, D.G.M.S., Ottawa.

Title to be announced—Lieutenant-Colonel Cameron, A.M.C., to V Field Ambulance.

The Territorial Army Medical Corps, and the Canadian Medical Services—A Comparison—Lieutenant-Colonel Sponagle, A.M.C.

Title to be announced—Captain H. A. Kingsmill, 7th Fusiliers.

Some of the Difficulties met with in Camp Sanitation—Captain G. M. Campbell, 7th C. A.

Title to be announced—Lieutenant-Colonel Maclaren, P.M.C., M.D. No. 8.

The Present Aspect of Military Sanitary Work—Major L. Drum, P. A. M. C.

Ready and Simple Tests for Water, Milk and the Detection of Disease in Animals—Captain L. M. Murray, A.M.C., No. 1 Field Ambulance.

THE ONTARIO MEDICAL ASSOCIATION.

The twenty-eighth annual meeting of the Ontario Medical Association, held in Hamilton, on the 26th, 27th and 28th of May, proved a great success. The attendance was extremely good, there being between three and four hundred members and their friends present. The meetings of the various sections were well attended, and it was particularly noticeable that the special section for Diseases of the Eye, Ear, Nose and Throat, a new departure this year, was especially well attended, there being over forty members at its meetings. The discussions were keen and to the point—the system adopted by the committee of sending beforehand synopses of the papers to be read, to those elected to lead the discussion evidently had its effect, and might well be adopted in

future association meetings. The programme was long, but owing to the commendable strictness of the chairmen of the various sections in enforcing the time-limits, the day's schedule was carried through without delay and without any of the sense of weariness one so often experiences towards the close of a long day's session.

While nothing very new was added to the sum of scientific knowledge, the contributions were, on the whole, well prepared and interesting. Amonst those who read papers were several from the neighbouring cities in the States and also from New York and Baltimore. Montreal was represented by quite a large contingent, and papers were read by Drs. Armstrong, Stirling, Garrow, Howard and Russel. Dr. Meakins, formerly of the Royal Victoria Hospital staff, at present working in the Rockefeller Institute, New York, also contributed an interesting paper on Rheumatism.

As usual in such meetings the social aspect vied with the scientific in interest. A smoking concert one evening at the Royal Hamilton Yacht Club, and the banquet, at which the members and guests of the association were the guests of the doctors of Hamilton, were both most enjoyable. At the latter, Dr. Roddick, in an able speech once more championed the worthy cause which he has had so long at heart, the much to be desired Dominion Registration. Dr. Birkett, an old Hamilton boy, responded to the toast of "Our Guests," while Dr. Howard replied to the toast of "The Ladies."

As a place for meeting Hamilton could not be excelled, the natural beauty of the city and its environment lends itself to any such entertainments. The guests were afforded an opportunity of visiting the fruit-growing district, where the trees, one mass of blossoms, were a memorable sight.

We cannot conclude without a word of congratulation to the doctors of Hamilton, the committee, and especially to Dr. Ingersoll Olmsted, the president, to whose hospitality, energy and enthusiasm the meeting largely owes its success.

The 41st annual meeting of the Canadian Medical Association will be held on June 9th, 10th and 11th, in Ottawa. The meeting will be held in St. George's Parish Church Hall, Metcalfe Street, and in the Racquet Court, while sections will meet in the Carnegie Library. The Medical Protective Association will meet at noon on June 9th, and the Military Surgeons meet for the first time as a section of the Association. The Presidential Address will be given by Dr. F. Montizambert, the Address in Medicine by Dr. Risien Russell, of London, England, and

the Address in Surgery by Dr. John C. Munro, of Boston. The sections, as usual, will be Medical, Surgical, Public Health, Laboratory Workers, Eye, Ear, Nose and Throat, Mental and Nervous Diseases, and Gynæcology and Obstetrics. Visitors are requested to ask for a Standard Certificate when buying single fare tickets, which will entitle them to return at reduced rates.

At the 58th annual meeting of the Montreal Dispensary, the secretary announced that a sum of $1,500 additional income is required for the coming year. Dr. Jack and Dr. H. B. Carmichael were elected honorary life governors, and Hon. J. K. Ward was made a life governor.

Following are the newly-elected officers:—President, Mr. Geo. Esplin; First Vice-president, Mr. G. F. C. Smith; Second Vice-President, Mr. W S. Kerry; Hon. Treasurer, Dr. Jack; Hon. Secretary, Dr. H. B. Carmichael; Committee of Management—Messrs. C. S. J. Phillips, I. H. Stearns, E. E. Rothwell, A. Piddington, John Patterson, Drs. R. H. Westley, H. D. Hamilton, R. A. Kerry, George A. Brown.

A most important meeting, to be held this year in America, is that of the International Congress of Tuberculosis, which will be convened in Washington, from September 21st to October 12th. Many of those interested in the subject here will attend; Professor Adami, who has always been prominent in the local League for the Prevention of Tuberculosis will officially represent Cambridge University.

At the annual meeting of the Royal Society of Canada, held in Ottawa last month, Professor A. G. Nicholls was elected a Fellow of the Society. Professor A. B. Macallum, of Toronto, presented a paper upon "The Nuclear Membrane, and its bearing upon Heredity"; Professor Adami, one upon "Pathological Data bearing upon Adaptation," and Professor Wesley Mills, upon "The Care of Laboratory Animals."

At the recent annual meeting of the German Pathological Society, at Kiel, Dr. Oskar Klotz, of McGill University, presented a paper upon "Work Arterio-sclerosis," which was read by Professor Aschoff, of Freiburg. We present in the space devoted to the Retrospect of Pathology, an account of the work of this meeting, which is the most representative assembly of German pathologists that takes place.

We understand that the contracts for the new Medical Building of McGill University have been given, and that the actual excavating will

begin at once. It is our hope to be able to give our readers the plans of the building at an early date.

Dr. T. G. Roddick, Dean of the Medical Faculty, McGill University, has laid his resignation of the Deanship before the Governors of the University.

Retrospect of Current Literature.

MEDICINE.

UNDER THE CHARGE OF DRS. FINLEY, LAFLEUR, HAMILTON, AND HOWARD.

MEDICAL PROGRESS IN 1907.

Tuberculosis.

This is still the subject about which most is written. In fact, there was probably about as much published on the subject of tuberculosis during 1907 as all the other medical diseases together. One of the first publications of interest during the year was the 2nd Report of the Royal Commission on Tuberculosis, which was concerned wholly with the question of the relationship between human and bovine tuberculosis, the subject which has been so widely discussed since Koch's famous assertion in 1901, that bovine tuberculosis was a different disease and not dangerous to man. The conclusion explicitly stated in this report was that while there were many strains of tubercle bacilli of varying virulence, nevertheless, a certain number of cases of tuberculosis, especially in children, are caused by the bacillus of bovine tuberculosis, introduced through cow's milk; further, that while there is a difference between the effect of bovine and human tuberculosis on inoculation, the bovine is always the more virulent. This is only in accordance with many other recent publications on the subject, but the report of the Royal Commission is noteworthy as likely to carry considerable authority, especially with the English people.

The International Congress on Tuberculosis in Vienna, last September, was largely concerned with channels of infection of tuberculosis, especially as to whether the bacilli reached the lung chiefly through the respiratory or digestive tract. This has been the subject of an enormous mass of investigation and publication since Behring published his hypothesis that pulmonary tuberculosis was of intestinal origin, the bacilli entering the blood from the lymphatics and being filtered out by the lungs. Calmette, Vansteenberghe, Grysez and others endeavoured to

show the intestinal origin of both pulmonary tuberculosis and anthracosis, by putting cinnabar, India ink, charcoal powder, and tubercle bacilli in the stomachs of animals either through a tube or by laparotomy, and later showing by autopsy that they had been conveyed to the lungs. The various articles are most contradictory in their conclusions, and the most that can be concluded is that the tubercle bacillus is able to pass through the intact mucous membrane of the alimentary tract without producing a lesion at the point of entrance and then pass with the chyle through the thoracic duct into the blood and so reach the lungs, and also that the lungs may be directly infected through aspiration, but which is the usual mode of infection remains unsettled.

The question of notification of tuberculosis and management of sanitoria was also discussed at the Vienna Congress. Compulsory registration has been adopted in some places in Great Britain and United States, voluntary registration in many other places. Both methods have their advocates, but neither has been tried long enough to draw definite conclusions as to its usefulness in limiting the spread of the disease.

The use of tuberculin as a diagnostic agent has come strongly to the front through, 1st, the work of v. Pirquet of Vienna, who showed that a local reaction may be obtained by applying tuberculin to the abraded skin, and 2nd, the independent demonstration by Calmette and Wolff-Eisner that a filtered sterile solution of tuberculin dropped in the eye causes a conjunctival hyperæmia in tuberculous patients without causing constitutional symptoms. The subject has been so fully discussed recently in the Medico-Chirurgical Society here that I merely refer to it as one of the discoveries of the year. The conclusion of E. R. Baldwin in a recent comprehensive paper on the subject is worth quoting. He says, "The most one can say at present is that a prompt, positive reaction to a small dose adds to a suspicion when symptoms of tuberculosis are present."

No account of the year's work on tuberculosis would be complete without some reference to questions of opsonins, the opsonic index, and Wright's method of treatment of vaccines controlled by the observation of the opsonic index. Very numerous papers on the subject have been published and the question is being investigated in all medical centres of the civilized world. I had hoped to get some one who was better qualified than myself to discuss this subject this evening, but failing this, can only give my personal impressions for what they are worth, hoping some member of the society will volunteer more exact information later.

My own impression is that while the observation of opsonic index by Wright's method has afforded us much interesting information as

the cause of certain phenomena in acute diseases and the effects of various treatments, nevertheless, the practical results of the treatment of tuberculosis, gonorrhœa, meningitis and many other diseases with vaccines as advocated by Wright, have been on the whole disappointing, and the method has by no means achieved the success originally claimed for it, and is already falling into disuse in most places.

As to the treatment of tuberculosis there is little new to report. The use of tuberculin in small doses has steadily become more general, whether controlled by observation of the opsonic index or not. Many different preparations of tuberculin are now in use, and each has its advocate. The whole question of the preparation of the different tuberculins and the dosage is too intricate for detailed discussion at this time, but I merely note in passing that the use of tuberculin in some form in selected cases, has become a feature of nearly all the sanitaria and many favourable results are quoted.

The publication of the method of the use of graduated exercise in convalescent cases of phthisis at the Brompton Hospital Sanitarium has led to considerable discussion. Some observers claim that the course of convalescence can be shortened and the general condition of the patients improved by allowing carefully supervised work, and incidentally the patients thus allowed to contribute something towards their support. Of course, no exercise or manual labour is permitted any patient showing rise of temperature or other active symptoms.

The principle of hyperæmia, as in Bier's method, has recently been applied to the lung, and Kuhn publishes a description of a mask to be worn by the patient with a view of inducing hyperæmia of the lungs by opposing inspiration while allowing full expiration.

Francis Hare publishes several papers in the *Lancet* advocating the use of amyl nitrite inhalations for hæmoptysis, on the theory that this does not act as a vaso-dilator to the pulmonary vessels, and that the prompt lowering of blood pressure checks the hæmorrhage. A number of papers have been published on the subject, many of them favourable to the idea.

Of the acute infectious diseases, typhoid fever naturally takes the first place.

The fact seems established that a certain proportion of patients recovering from typhoid become chronic typhoid carriers, that is, virulent bacteria are present in their body and may be excreted in the urine and fæces for many years, and thus these persons remain sources of infection to the community. It is asserted that the gall-bladder is the usual home of the bacilli in these cases, and one writer goes so far as to advo-

cate draining or excising the gall-bladder in these cases, a suggestion not likely to be adopted, especially as the bacilli seem to cause no disturbance to their host.

The subject of paratyphoid infections continues to excite considerable interest and the various strains of paratyphoid bacilli and their relation to the typhoid and colon bacilli respectively have been thoroughly investigated. Many cases of paratyphoid infection and small epidemics due to this form have been recorded. The cases appear to fall into three classes: 1st, those resembling typhoid fever and only distinguished by the absence of the Widal reaction and the power of the blood-serum to applutinate organisms of the paratyphoid group, or by the appearance of paratyphoid bacilli in blood cultures. This is the usual type and the course is usually mild; 2nd, cases giving the clinical picture of an acute septicæmia, some of the cases on autopsy show a condition of ulceration of the intestine more like dysentery than typhoid; 3rd, the organisms have been found in abscesses in cases in which no history of typhoid fever has been obtained.

It is suggested that the immunity conferred by an attack of typhoid is more absolute than was formerly supposed and that the history of second attacks of the disease are really infections of another organism.

Letulle, in an article in *La Presse Medicale* calls attention to a symptom of typhoid fever first described by Duquet in 1883. He asserts that in 10 to 20 per cent. of all cases, small, shallow, painless ulcers appear, generally on the anterior pillars of the fauces, sometimes on the soft palate. He states that these appear about the end of the first week, often before the roseola, and are pathognomoic of typhoid, also that the reason they have not been more frequently noted is that they are easily overlooked unless specially searched for.

Many laboratory workers report increasingly favourable results in the method of early diagnosis of typhoid fever by blood cultures; the success appears to be due to the larger amount of blood taken and the use of bile salts media. Some go so far as to claim that typhoid bacilli are present in the blood throughout the course of every case of typhoid fever.

Leishman, Harrison, and Luxmoore publish further results of the use of antityphoid inoculations in the British Army, and claim that the incidence of the disease has been greatly diminished in those inoculated, especially where the inoculation has been repeated.

Chantemesse of Paris, publishes full accounts of his use of antityphoid serum in the disease and his results for six years. The serum is obtained from horses which have been repeatedly inoculated with typhoid toxins in the form of filtered and sterilized cultures of typhoid

bacilli. After the injection of the serum is a period of reaction lasting several days, when the temperature is apt to be higher and the patient appears worse. This phenomenon Chantemesse ascribes to the destruction of the bacilli in the body and consequent liberations of toxins. After the reaction is a period of deflevescence during which the patient gradually becomes convalescent. In 1,000 unselected cases treated, Chantemesse claims a mortality of 4.3 per cent, while the mortality in the other hospitals of Paris during the same time was 17 per cent.

Apart from this there is little new on the treatment of typhoid in the many papers dealing with the subject. A more liberal diet than formerly is generally advocated, *i.e.*, all liquids and soft foods allowed in cases desiring them and presenting no contra-indication in the way of diarrhœa, etc.

The rigid Brand system of cold baths is advocated in several papers, notably in the article of Thos. McCrae, in Osler's Modern Medicine, but, I believe I am not mistaken in stating on my own responsibility, that the general tendency is to substitute cold sponges and cold packs for the general bath. It is certainly the tendency in the hospitals in this city.

On the subject of pneumonia I find little to note. The method of treatment in the open air as advocated by Northup has found many supporters and is now widely used.

Edsall and Pemberton advocate the treatment of unresolved pneumonia by X-rays, claiming good results in all cases treated early, *i.e.*, before fully organized.

Thompson, in the *Edinburgh Medical Journal*, advises the use of urotropin in all cases of scarlet fever as a prophylactic against nephritis; he quotes a rather inadequate number of cases (43) in support of this.

The occurrence of scattered epidemics of cerebro-spinal meningitis continues to attract considerable attention to this disease. The disease and its treatment by serum, as advocated by Flexner, was too recently considered in this society for me to do more than mention it. Much light has been thrown by recent work on the symptomatology and course of hydrocephalus and chronic basilar meningitis and their relation to epidemic meningitis more clearly understood.

The recent epidemic, if it may be so-called, of anterior poliomyelitis in the United States has called forth a number of papers. The study of the cases and the result of lumbar puncture and autopsy seem to have thrown little new light on the etiology, but some authors draw an interesting contrast between the cases occurring epidemically and the ordinary sporadic cases. They assert that the epidemic cases

are more liable to be fatal, are more apt to be confused by meningeal symptoms, and to be complicated by a more widespread paralysis than the sporadic cases, and on the other hand, the paralysis is more apt to clear up entirely, leaving no ill results than in an ordinary case.

Blumenau (Russkii Vratch) Romberg and Pässler (D. Arch, f. kl. M.) publish articles based on experimental and clinical data to prove that early collapse in acute infections, as typhoid, pneumonia and scarlatina are not due to cardiac failure or acute dilatation, as often stated, but to a dilatation of the blood vessels of the body, especially of the splanchnic system from vaso-motor paralysis, so that the condition is analogous to shock in surgical condition. They state that the heart usually is able and willing to do its work and only fails through lack of its usual blood-supply. They therefore urge that such cardiac stimulants as alcohol and strychnine are more or less useless. Blumenau advises more particularly digitalis, for its effect on the vaso-motor system, and camphor, with intravenous salines.

Musser contributes an interesting paper on empyema as a complication of pneumonia. In 12,982 cases of pneumonia empyema occurred in 2.1 per cent. He is inclined to lay great stress on the persistence of leucocytosis after the crisis, on the reappearance of leucocytosis as probable evidence of a beginning empyema. He also states that the presence of a constant, not necessarily severe pleuritic pain and deep-seated localized tenderness along the division of the lobes or at the extreme base of the lung is highly significant of a beginning empyema.

Emmerich (Münch. Med. Woch.) describes the treatment of diphtheria by pyocyanase. This is obtained by passing culture of B. Pyocyaneus through a Berkefeld filter and reducing the filtrate to one-tenth its volume in vacuum. The substance thus obtained is strongly bacteriolytic for many bacilli and dissolves the false membrane in diphtheria. Emmerich insufflates 3-4 cc. of pyocyanase into the throat with a hand atomizer and claims the diphtheritic process is arrested at once. Escherich, Pfaundler, Jehle and others seem to corroborate his results. One difficulty of estimating the success of the treatment is that it is scarcely justifiable to omit the antitoxin treatment, and it is difficult to know to which treatment the results should be ascribed.

Osburn and Craig have investigated the cause of dengue in the Philippines, and assert that there is no infection if protection from mosquitoes is rigidly enforced. Inoculations of filtered and unfiltered infected blood, intravenously into healthy men produced a typical attack. The disease can be transmitted by the culex fatigans. Period of incubation is three to four days. No organism could be demonstrated in the blood.

Their conclusion is that it is transmitted only by the bite of the mosquito.

The publication of the 7th Report of the Commission on Mediterranean or Malta fever, under the control of Col. David Bruce, is noteworthy as marking the ultimate success of a long and painstaking investigation.

I need scarcely remind this society that Malta fever is known around the shores of the Mediterranean and resembles typhoid in many ways, except that it has a lower mortality and a more chronic or intermittent course. It has always presented a serious obstacle to the maintenance of English garrisons in Malta and other places, and so has been carefully studied by English army surgeons. Some years ago the cause of the disease was found to be the micrococcus melitensis, but the method of transmission remained a matter of dispute until a little over a year ago, when it was discovered that goats were susceptible to the disease. When one reflects that goats are the chief source of milk supply in those countries, that 10 per cent of the goats in Malta were found to be actually suffering from the disease, and that the specific organism can be recovered from milk of the affected animals, the means of transmission and also of prophylaxis become obvious. By exercising supervision over the goats supplying the English garrison and ordering all milk to be boiled the number of cases in the English army was reduced in a few months by 85 per cent. There seems no doubt that Malta fever may now be regarded as one of the absolutely preventable diseases.

H. B. C.

PATHOLOGY.

UNDER THE CHARGE OF DRS. ADAMI, KLOTZ, DUVAL, AND NICHOLLS.

The German Pathological Association.

Kiel, April 23rd to 25th, 1908.

The association held its annual meeting in the new Pathological Institute at Kiel. Professor Hiller, the director of the Institute, presided at the meetings and invited the members of the association to inspect the new Institute.

The most important part of the programme was the discussion of the cancer problem. The subject was introduced in its various aspects by Professor Lubarsch, Professor Ehrlich and Professor Apolant. The first gave an excellent *résumé* of our present knowledge of cancer as we know it in the human body, while the two latter confined their

remarks to the experimental study of cancers, and more particularly to the process of immunity in cancer.

Lubarsch pointed out that the research, concerning the origin of cancer, is particularly difficult, since our recognition of cancerous states is dependent upon a single method, the histological, and, further, our definition of cancer as an "infiltrating and destroying growth," does not permit us to recognize the earliest beginnings of cancer. As yet we have no way of definitely differentiating cancerous cells from the normal,—and this must necessarily be so, since between the normal epithelial cell and the very malignant cancerous cell there are all transitions of atypical structures. Moreover, animal experiments of transplanting tumour-masses, although teaching us much concerning the biological nature of cancers, cannot help in determining the origin of the cancerous nucleus.

It was also pointed out that those theories which represent the cancerous growth as the result of foreign cell proliferation (Kelling, Sticker), must be disregarded to-day. (Sticker in the discussion brought forward experiments in support of his contention. He found that certain cancers of the penis in dogs are inoculable to bitches by coitus.)

Lubarsch, and he was supported by others, found that Ribbert's inflammatory theory of cancer was untenable. In Ribbert's doctrine two main features are brought into prominence, the changes taking place in the subepithelial connective tissue, and the unicentral growth of cancers. Ribbert has, however, placed too much stress upon the connective tissue changes, which he believed were necessary antecedent processes of atypical epithelial overgrowth. That connective tissue changes, sometimes inflammatory, do take place about cancerous infiltration was admitted by Lubarsch, but these are *secondary*. It was also admitted by Lubarsch that these (inflammatory?) changes in the stroma of cancer may aid the further invasion of epithelial cells, probably on account of the altered biological relationship between the cancer cells and the connective tissue. But the feeling of the meeting was almost unanimous that the inflammatory changes in the subepithelial connective tissue do not necessarily precede cancerous growth. In fact, the condition of the subepithelial connective tissue gives us no clue as to the character of the epithelial growth (whether malignant or benign), for changes quite similar to those seen in cancer can be found in the fibrous stroma of adenoma and papilloma.

The biological change in the cancerous epithelium can, in many cases, be recognized histologically by certain alterations in the protoplasm and nuclei of the cells; nevertheless, one often finds that the specific nature of the cells is retained, even when a high grade of malignancy is present.

Lubarsch believed that the biological change of the cancer cells was not dependent upon congenital abnormalities, and that we need not seek the origin of all cancers in embryonic misplacements of epithelial tissue. Nevertheless, some cancers bear some relationship to developmental defects which are particularly prone to occur in the testis, ovaries and kidneys. In general, it might be said that the growth of cancers, as well as the property of the individual cells, bears some relation to, and is dependent on the surrounding tissue and the general system. These properties of cancerous cells, differing, of course, with the organs from which they are derived, are gradually developed and are, to a certain extent, alterable. This is best noted in the animal experiments, where it is found that cancerous tissue may, after many generations, alter its functions and nature.

Thus, in short, Lubarsch pointed out that our knowledge of cancer has been but little enhanced in recent years; that our recognition of cancerous tissue is still dependent upon certain histological changes which can be appreciated only after the growth has reached certain dimensions; that cancerous cells assume new functions which are developed gradually; that the power of growth of these cells is increased, and that the reasons for these altered functions and rapid proliferation of epithelial cells, is still unknown.

Ehrlich and Apolant discussed their recent animal experiments with cancer. They found that certain animals present a lessened resistance to cancerous inoculations. This variation in the resistance varies at times with the race of animals used, and when a susceptible race is inoculated with cancerous material, the newly developed cancer increases in virulence for all animals. This is an important point in the understanding of malignancy of tumours. Animal cells, in this way, resemble the changes in virulency that can be produced in bacteria.

These authors have also found that the implantation of cancerous tissue of low virulence into animals, protected those animals, to a certain extent against the inoculation of more malignant tissue of the same kind.

A remarkable result was obtained in one case. Cancerous tissue of moderate virulence had been inoculated from animal to animal for about twenty generations. In the later generation the cancerous tumour gradually gave place to a sarcomatous one arising out of the stroma of the epithelial growth. In the end, the epithelial tissue entirely disappeared, leaving only a tumour mass resembling a spindle-celled sarcoma. It was not made clear whether this new tumour was a true sarcoma or only a sarcoma-like growth arising out of epithelial cells. The question

of carcinoma sarcomatodes was discussed at some length, but no new light was thrown on these peculiar growths.

To summarize these findings, Ehrlich and Apolant report that animals vary in their resistance to the same cancerous tumour; that tumours can be altered in their malignancy by repeated inoculation into susceptible animals; that the transplantation of tumours over many generations may alter their histological structure; that a relative immunity can be acquired by the inoculation of tumour masses of low virulency.

In the general discussion which followed, Gierkie presented some opposition to Ehrlich's findings. Working in Bashford's laboratory, he found that the implantation of tumour masses into animals did not protect these animals against the inoculation of fresh and more virulent cancers. He also noted the variation in the malignancy of cancerous material when inoculated into susceptible animals, and he pointed out also the difference in the resisting powers of the animals. In general the English grey mice show a much lower resistance to cancerous growths than the German.

Lewin reported a case of cancerous metaplasia similar to that reported by Apolant. In this case a mouse cancer which had been carried over many generations developed into a mixed tumour and eventually into a pure sarcoma, in which no remains of the epithelial tissue were evident.

The finding of spirochætes in cancerous tissue was explained by Simmonds. He noted that cancers of the alimentary tract usually contained spirochætes. These organisms were identical with the spirochætes found in the mouth. Not infrequently, too, cancers of the skin contained these organisms. In no case did he find spirochætes in primary growths of the prostate, kidneys or pancreas, while cancers of the mouth, stomach and intestine usually contained these in large numbers.

Dr. Nagayo and Dr. Saigo reported on the degenerative changes found in the Purkinje muscle bundles of the heart. Saigo found that the bundle of His undergoes degenerations in common with the general musculature of the heart. These degenerations, however, are less pronounced in the Purkinje fibres. Inflammatory exudates and fatty degeneration are at times to be noted. Nagayo found that normally the Purkinje fibres in animals contain large quantities of glycogen. In man, on the other hand, the glycogen becomes evident only under pathological conditions.

That the heart is severally affected by extreme injuries was shown by Külbs. He demonstrated that in dogs, severe blows on the thorax will produce hæmorrhages into the myocardium, epicardium and endocardium. Hæmorrhages at the base of the valves are not infrequent.

Saltykow reported the production of arteriosclerosis in rabbits by the inoculation of staphylococcus cultures. His results are similar to those

obtained by Klotz with streptococcus and typhoid inoculations. Dr. Klotz demonstrated arterial changes of the nature of sclerosis (atherosclerosis) which had been produced in animals by increasing the arterial tension through work. This had been accomplished by suspending the animals by the hind legs for three minutes each day for three months. The changes produced resemble human arteriosclerosis.

Professor Marchand demonstrated an anomaly of the heart in an adult, in which the aorta sprang from an undeveloped ventricle. Marchand considered the ventricle to be the right one. The specimen was similar to one in a case of situs inversus, reported by Dr. McCrae in the MONTREAL MEDICAL JOURNAL.

Dr. Ziller demonstrated the results obtained by the inoculation of filtered "old" tuberculin, under the skin. He showed that typical tubercles with giant cells are developed. From this it would appear that the toxic substances of the bacteria stimulate this tissue growth and the production of the "foreign body" giant cells. Baumgarten believed that even with the finest filters at our disposal, a certain amount of fine particles passed through, and that it was these particles which stimulated the giant cell growth.

Ellermann reported the successful transference of fowl leukæmia from animal to animal.

Dürck demonstrated a peculiar nodular syphilitic leptomeningitis. By some the evidence of syphilis was considered incomplete and they regarded the process as tuberculous.

Beitzke discussed the retrograde lymph flow, and its bearing to tuberculous infection.

Aschoff reported his study on the hypertrophy of the medulla of the adrenal in cases of arteriosclerosis and chronic interstitial nephritis.

O. K.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

(Continued from last issue.)

A swab infected with the gonococcus when rubbed across the medium will give a good growth of the specific coccus. In fact it is easier to grow than the bacilli of typhoid and dysentery, or many other bacteria that most practitioners regard as easy to cultivate. Dr. Chipman said that after all, in a great many cases, we were thrown back on the clinical picture for diagnosis and he gave as example typhoid fever. I may be permitted to say that at present the up-to-date laboratory does not rely

on the "Widal test" as it once did. Here again the material is plated and the organism isolated. The typhoid bacillus is isolated from the stool and the blood with comparative ease and long before the agglutination reaction develops, therefore instead of waiting for the Widal test to confirm the diagnosis they immediately examine the blood or the stool for the isolation of the organism.

HANFORD MCKEE, M.D.—The question is one which appeals more or less to oculists as sometimes called upon to treat ophthalmia neanotorum. That this condition is caused by other organisms than the gonococcus has been established. There are many points in Dr. Gurd's paper which are of very great interest, especially the technique used in carrying out the experiments. I think the hæmoglobin agar as used by him both in the tube and in the plate is the best medium for growing the gonococcus and certainly the most useful medium for conjunctival bacteriology. That we cannot depend upon "smears" in doubtful cases was brought to my mind two months ago in a case of ophthalmia neanotorum which was clinically a very severe gonorrhœal infection. I made numerous smears from the thick greenish discharge but was unable to find any micro-organism whatever. The history and appearance of the case were typical and I felt sure that it was a gonorrhœal infection. The inoculation of a tube of hæmoglobin agar resulted in a pure culture of the gonococci.

WESLEY MILLS, M.D.—I wish to congratulate Dr. Gurd on his work. He is one more of the very youngest members of the Association to point the way of the immediate future on medicine, and it will be well for us all if we can realize this. I would also call attention to Dr. Cameron's suggestion. It seem to me that if the method of the future, is that of scientific accuracy in diagnosis, there must be some public laboratory accessible to the general practitioner, and this is one of the subjects which I think might well come before this Society. Certainly it appeals to me very strongly.

F. B. GURD, M.D.—Dr. Lapthorn Smith rightly remarks that many cases are seen in which he would be unwilling to take his oath upon the diagnosis of gonorrhœa. I am no more willing to state that in all cases it is possible to make a positive diagnosis from the bacteriological examination of the vaginal, cervical or other discharge. I think, however, that the bacteriological diagnosis is frequently most easily made in cases clinically the most difficult.

In the acute cases which are apparently gonorrhœal after the presence of various contaminating organisms in large numbers or the active antiseptic treatment being carried out by the patient makes the isolation of the gonococcus almost impossible. On the other hand as Dr. H. M.

Little at one time was good enough to remark, rarely is the bacteriological examination unsatisfactory in the chronic and otherwise difficult cases.

The twelfth meeting of the Society was held Friday evening, March 20th, 1908, Prof. Wesley Mills, President, in the chair.

INFANTILE HEMIPLEGIA.

A. MacKenzie Forbes, M.D., showed two cases of this condition before the Society. This form of cerebral paralysis is of the spastic type, of which there are three subdivisions: the infantile hemiplegia, cerebral diplegia and spastic paraplegia. The two cases before the Society are of the hemiplegic type and present the characteristic lesions. In both the paralysis appeared some time after birth. In the older of two boys these deformities or symptoms are accompanied by convulsions, in the younger there is defective cerebration. As regards treatment, both are being treated for the common deformity, wrist drop. In these cases the hand instead of being allowed to drop is held in the hyper-extented position, after the plan of the late Mr. Thomas, "the muscle shortening scheme." Both, also, have their forearms held in pronation and I have thought of operating in both cases, later for this deformity. Mr. Tubbey has described an operation for this. By changing the insertion of the pronator radii terres he converts it into a supinator.

C. F. Gurd, M.D.—I would like to ask what results are expected from this treatment if it is merely expected to get the hand into proper position or if any real permanent improvement is to be expected. Do these cases show improvement from the first symptoms? One case I saw similar to this showed considerable improvement after a lapse of some time, the patient has now a fairly useful leg which was absolutely useless two or three months previously. The arm was in the same condition as these patients show.

W. G. Turner, M.D.—One point with regard to these cases is early diagnosis, before they get too spastic or the limbs become too fixed. In a number of these cases if the early diagnosis is made and the anticipation of these contractures provided for and corrected much better results are obtained; this is well seen in the two cases before us which had they been treated when infants these contractures would not have been in the marked condition they are now. In any case correction treatment is distinctly indicated to prevent the unsightly flexion and pronation deformity, which is almost the usual result if they are neglected.

A. MacKenzie Forbes, M.D. In answer to Dr. Gurd's question I think there is not any doubt at all that these cases tend to improve in the

early years, for instance these children must have walked with a much more pronounced limp originally. The improvement tends to appear in the lower limb first. The principle of treatment (or of muscle shortening) is, that at first we have a strong tendency to flexion and that this stretching the extensors gradually weakens them. If we can dorsi-flex the hand these muscles get a chance to retract and in this position increased power is gradually obtained.

Dr. Cushing, of Baltimore, suggests that as soon as we have diagnosed a lesion which is likely to cause paralysis it is wise to consider operation on this lesion. All this class of paralyses is due to hæmorrhage, and it may be wise to perform a cranial operation for the relief of pressure and by doing this ward off the later paralysis and probably the epilepsy which occurs in about 60 per cent. of the cases.

CHART OF TRYPANOSOMIASIS IN A EUROPEAN.

JOHN L. TODD, M.D.—A chart was shown to emphasise three important points:—

1. The extraordinary chronicity of trypanosome infections. The patient had been under continuous observation for eight months. During all this time, save during the severe fever of the first fortnight, the patient had felt, comparatively speaking, well and had no great complaint. The temperature had been usually normal, but at irregular intervals of from a few days to a fortnight there had been rises of temperature, on one or two occasions reaching 102.5 but usually not exceeding one degree.

2. In spite of continual treatment by Atoxyl, the trypanosomes were still present in the circulating blood; that is, the parasites were "Atoxyl-fast" or atoxyl resistant. Atoxyl had been introduced in the treatment of trypanosomiasis by Dr. Thomas, a McGill graduate. The wonderful action of this drug on the parasites has been abundantly confirmed by other observers. Thomas had shown that it was not always efficacious and Ehrlich had proved that strains of trypanosomes may acquire a permanent resistance to the drug and be able to run a course in an infected animal entirely unaffected by its administration.

3. The disease commenced in the present instance within three weeks after the arrival of this case in Africa. We may therefore assert with confidence that the incubation period of human trypanosomiasis may be so short as three weeks. The shortest incubation period previously noted was four weeks.

CHIGGER FLEAS.

JOHN L. TODD, M.D.—Moist preparations of feet heavily infected with Chigger fleas were shown.

This flea (*Sarcopsylla penetrans*) and its habits have been known for centuries (1551). It was first discovered and named by Linnaeus in the middle of the Eighteenth Century. It originated in Tropical America, between 30° North and 30° South. At about 1872 it was imported by a Portuguese vessel to the West Coast of Africa; from there it spread rapidly over the whole of the African Continent, and from its East Coast, to Madagascar, Persia, India and China. It is found everywhere but is particularly abundant in dry, sandy places.

The males, and the females—until they are impregnated live in the same way as does the common flea. They are only casual parasites of warm-blood animals; but, so soon as the female is impregnated, she attaches herself to the skin of her host and burrows beneath the epidermis until only the terminal segments with the genital orifice and tracheal openings are visible; all that can be seen on a white skinned person when the flea first embeds itself is a small black spot. Since the fleas live upon the ground, naturally those parts coming in contact with the earth are the most frequently infected by the fleas. Thus for example, in men, the soft skin between the toes and around the roots of the nails are the most usual sites.

The free living female is about 1 m/m in length. The male is twice that length. Both have the familiar laterally compressed, ovate brown body of the more common fleas; but are slightly smaller, and their body is somewhat deeper. So soon as the female has become embedded beneath the epidermis of its host, it commences to increase rapidly in size through the enormous development of its reproductive organs, until it reaches the size of a large pea and contains hundreds of eggs; the abdominal segments become so stretched that the originally brown flea becomes quite white. The cephalo-thorax, with the first and the last two segments of the abdomen, does not participate in this enlargement. As the eggs mature, they are laid and expelled through the wound opening into the sand, where they develop after a few days in to a long cylindrical larva. The larva forms a cocoon, from which the perfect insect emerges in 8 or 10 days.

The chief danger of infection by the chigger is the possibility that the little wounds it creates may become infected. It is probable that the life of the embedded flea is only some three weeks; it then dies. Probably the fleas are often killed before this by some slight pressure or violence which ruptures their distended abdomen. In either case infection occurs and the space formerly occupied by the flea becomes a small abscess cavity in which the remains of the chigger are present as a foreign body. In many cases ulceration sets in earlier and by the sloughing of the enclosed skin the living insect is set free. Sometimes the entrance of the flea is accompanied by pain; frequently, however,

the first intimation of its presence is a scarcely noticeable uneasy sensation of pain or pressure with slight itching. On inspection, the black spot which shows the end of the flea is seen surrounded by, perhaps, a slightly raised reddened area. On shelling out the flea it is often found to have reached the size of a large pea without producing any noticeable discomfort. One can easily understand, therefore, that a careless person, or one whose sensibilities are dulled by disease, as sleeping sickness, may come to be fairly honeycombed by these parasites. In such persons, whose wounds are untreated, the condition may easily go on until deformity or even loss of toes be produced through suppuration and gangrene. Tetanus is not an infrequent complication.

The treatment consists in merely removing the sand flea at the earliest possible moment. If it is already of any size, the very greatest care must be taken not to rupture it lest portions be left behind in the wound. The cavity is wiped out with some disinfectant and the wound heals uninterruptedly. Where chiggers are at all numerous, every native carries a blunt needle or a sharp little stick with the sole purpose of shelling out the chiggers which attack him. Those living in chigger infected countries should wear high shoes, these and the socks should be in good repair. One should never go bare-footed, even in a bedroom. Some persons recommend the use on the feet of strong smelling substances: Oil of Cloves, Balsam of Peru, or Petroleum, perhaps a needless precaution. In any case, a careful inspection of the feet should always form part of the daily toilet. In dwelling places the development of the fleas may be kept down to some extent by the constant sprinkling of water: carpets are, of course, inadmissable and all rooms must be kept scrupulously clean.

D. J. Evans, M.D. I was unfortunate enough while on a trip to Jamaica to get one of these fleas in my toe; it caused little or no inconvenience and was removed by one of the natives. On the return trip also just as we were entering New York I had a similar experience. It caused a little discomfort on walking but nothing else and I had it removed some four or five days later by a confrere in Vermont.

Wesley Mills, M.D. Dr. Todd has just become a member of the Society this evening and as he has presented a communication I think he must hold the record for activity in a new member. We welcome him as a member of our Society and trust that this activity and originality may continue to stimulate the rest of us.

THE OPHTHALMO-TUBERCULIN REACTION.

R. P. Campbell, M.D.

Hanford McKee, M.D.

P. G. White, M.D.—Dr. Campbell read the paper which was published in the April number of the Journal.