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THE

MONTREAL MEDICAL JOURNAL.

VOL. XXX. SEPTEMBER, 1901. No. 9.

Original Communications.

PRESIDENT'S ADDRESS.

BY

H. H. CHOWN, M.D., Winnipeg.

Delivered before the Canadian Medical Association, Winnipeg, August 28, 1901.

As this is the first time that the Canadian Medical Association has met in Manitoba, I would like briefly to call attention to the future of the province. With less than ten per cent. of the arable land under cultivation, our farmers this year have a crop estimated to yield 85,000,000 bushels of grain. In the Territories west of us, about one-tenth of one per cent. of the available crop area has as yet been touched by the plow. Between the Laurentian hills on the east and the Rocky Mountains on the west and north of the forty-ninth parallel, it is possible to grow the total amount of the wheat now used in the whole world. We want population, and we hope to make each of you a willing immigration agent.

Winnipeg is a growing and vigorous infant, but I must not delay to point out its many interesting features. I have seen it almost from its birth onward, and would probably be paternal in my estimation of its charms. Babies have their moments of repulsiveness, and you will find many things to criticize in this growing city, but I trust you will:—

Be to its faults a little kind,
Be to its failings ever blind.

It is within the scope of an address to a medical association, to refer to the work performed for the purpose of making the city a healthy one. Notwithstanding the level nature of the land, an excellent system of sewers has been introduced through all the streets. Arrangements have been made for regular flushing by means of tilting basins at the upper

end of each sewer. As we have two rivers at our doors, the problem of removing sewage was easily and safely solved.

The water supplied to our people is as pure as can be found in the world. Vienna boasts of having water which contains only 35 colonies of bacteria to each cubic centimeter, and has therefore to all intents and purposes a sterile water. A similar examination of the city supply showed that there were in it only 9 to 30 colonies. The water is taken from an artesian well, 17 ft. in diameter and 48 ft. deep, and although they have been pumping for months a supply of from 2,000,000 to 3,000,000 gallons per day, there is not the slightest evidence of any diminution of the amount flowing in. The well is supposed to tap an underground passage which runs from Lake Manitoba, and as this lake is 130 miles long, the supply is inexhaustible. The underlying rock formation in this section is a magnesian limestone, and consequently the water contains a large amount of the carbonates of lime and of magnesia, and is too hard for satisfactory use in boilers and hot water appliances. This is overcome by using Clark's method of softening, by precipitation of these carbonates through the action of lime-water ; 75 per cent. of the lime and 50 to 60 per cent. of the magnesia, or 68 per cent. of the total hardness is removed. The softening plant is unique on this side the Atlantic, and well deserves study at your hands. The water when taken from the taps in our homes is so cold that it requires no ice, and the danger of importing disease germs in the ice is thus eliminated. The citizens of Winnipeg, both those of to-day and those of the future, will ever owe a debt of gratitude to the engineer, Col. H. N. Ruttan, who discovered the source, inaugurated the system and carried it through to so successful an issue.

During the past year the subject of tuberculosis has held the paramount place in the interest of the profession. Congresses have convened at London, New York and Ottawa for the discussion of this white man's scourge, and for the formulation of means to overcome its sway. As Friday evening will be devoted to the full discussion of the subject, I shall only draw your attention to one point which I believe would well repay thorough investigation. Koch's tentative denial of the oneness of tuberculosis of man and tuberculosis of cattle still needs the proof of non-inoculability from cattle to man. In this new country, where our farmers, young and free from tuberculous taint, live in newly-built houses which harbor no bacilli and are separated by long distances from their neighbours, tuberculosis constantly makes its appearance. We have here unconsciously, but no less disastrously, an experiment on a wide scale. If you can eliminate heredity, house infection, and contagion from other cases, to what cause can you ascribe the origin of

these outbreaks? Add to this that in every case where the farmer's cattle have been tested by tuberculin, some of them have reacted strongly. The juxtaposition may not be proof positive, but its continuous recurrence certainly is suggestive. If our Government would back up financially a careful study of this one point, I believe that information of great value would be obtained. Indeed, without assistance from the ruling authorities, the progress of stamping out this disease will be slow and disappointing. You can get money appropriated to suppress outbreaks of glanders or lumpy-jaw, but when you appeal for aid in lessening the greatest scourge of the human race, you will find that the coffers are always empty.

Medical education continues and will continue to demand great attention at your hands. I commend very strongly to you the plan of Dominion Registration as introduced by Dr. Roddick. Why should each practitioner who desires for any reason to move from one province to another be compelled to pass examinations that will pluck ninety-nine per cent. of the examiners? Why should our respected teachers, who were our fathers in the profession in Canada when we were in swaddling clothes, be made to submit to quizzing at the hands of those whom they instructed? The present system seems to be based on unnecessary self-appreciation on the part of some, and base fear of competition in others. It is not the number of years given to study or the number and variety of lectures attended that make the competent practitioner. As an examiner and as a consultant, I have often found the greatest failures among those who passed through the curricula that are most lauded and most strongly supported. I regret that in the higher standard now demanded for matriculation, no place has been given to logic and metaphysics. Every workman who knows the nature of the tools he uses is more reliable and more proficient than his ignorant neighbour. Surely a clear knowledge of the mind and a thorough study of the laws of reasoning would form an invaluable addition to the equipment of the physician. The present mode of training our students makes keen their powers of observation, but leaves them without any conception of how to join together all the facts that have been noted into an accurate and full diagnosis. Want of clear reasoning is more frequently the cause of mistakes than inability to gather together the symptoms of the case. Then how much more satisfactorily would cases of mental instability be dealt with if the physician understood the functional disturbances to which the mind is liable? Would there be the same field for Christian Science, hypnotism, telepathy, osteopathy, electrical treatment, if we were well posted in the reciprocal influence of mind on matter? The almost universal habit of prescribing drugs for each one applying for

relief from neurotic affections, is the foundation on which is constructed the greater part of quack treatment. An honest acknowledgment of our inability to locate the cause of many pains and a strong demand for further opportunities of observation would ultimately redound to our credit, though for a moment a crude denunciation might follow us.

It would be the height of presumption for me to describe the status of medicine to-day, but it may be interesting to review the amount of our knowledge a hundred years ago. We all know the commanding sphere occupied by our science and art now, but few have taken the trouble to inquire into the real knowledge possessed by our predecessors at the beginning of the nineteenth century. Bichat, early in the century, announced the difference between pneumonia, pleurisy, and bronchitis. This differentiation was made on constitutional symptoms, as the physical examination of the lungs was unknown. Although percussion was employed over a hundred years ago, mediate auscultation was first introduced by Laennec when one-fifth of the century had passed by. The description given by Watson of tubercle is worth comparing with our present knowledge. "Tubercles," he says, "are composed of unorganized matter, deposited from the blood, of a yellowish colour, opaque and friable and of about the consistence of cheese." This corresponds well with the process of caseation as we know it to-day. He also describes miliary tubercles very clearly. "The lungs are often studded with a number of small granules of firmer consistency, almost as hard as cartilage, and of a bluish-grey colour. Whatever may be the true theory respecting these little grey bodies, it is certain that they acknowledge some intimate connection with the true cheese tubercle." How much clearer is our knowledge of this disease now, and how widened is our conception of the part played by the bacillus tuberculosis.

There was no distinction known between the varied forms of continued fever when the last century began. Typhus and typhoid fever were not distinguished the one from the other. Yellow fever was believed to be due to local insanitary conditions and to be discriminated from other febrile disorders only by its severity and by its limited locality. Rush writes, "To say that a febrile disorder is contagious is the same thing as to say that it is produced by an animal poison. These animal poisons affect changes in the blood whereby they are abundantly multiplied or reproduced. In order that a specific animal poison should affect its own reproduction in the blood, it is requisite that a certain ingredient should be present. If this ingredient is exhausted the same disease cannot be again produced by the agency of that poison." This is really a very clear statement of our doctrine of contagion and immunity, requiring few changes to meet our present day knowledge.

Malarial fever was supposed to be caused by "certain invisible effluvia or emanations from the surface of the earth." They rôle of the festive mosquito in spreading this disease as well as yellow fever was then undreamed of. They did not believe in the contagiousness of phthisis, but explained its prevalence by constitutional predisposition. Diathesis figured largely in their etiology. Watson states that tubercular diseases are liable to occur principally in the phlegmatic with pale complexions, narrow chests, flabby muscles and feeble circulation; in the sanguine with transparent rosy skin, long silky eyelashes, and unusual mental precocity; and in the bilious with dark muddy complexion and mental and bodily sluggishness. Surely under these three heads all of mankind would be included and the value of the explanation rendered useless.

The energetic agent of proprietary drugs was as active then as to-day, and found a too easy and credulous hearer among the doctors. I learn from a presidential address delivered before the Medical Society of the State of New York, that "medicated gout water," the composition of which was unknown, was nevertheless approved by the faculty in London, Paris and New York. How many of us to-day succumb to the temptation of using some much vaunted remedy of which our total knowledge is embraced in the puffing of some verbose commercial traveller? As a proof that there is nothing new under the sun, I may mention that in 1810 the "gold cure" was recommended to the attention of every practitioner. This most valuable discovery was said to cure "syphilis, scrofula and scirrhus uterus" and more still, to have succeeded in nearly every trial. Credulity was rampant then as to-day, and the poor patients were compelled to swallow gallons of chemicals, whose only potency lay in the assured promises of the prescriber. Palatability is much more sought after to-day, and the belief in the efficacy of a mixture as proportionate to its nauseousness has passed away. This is partly due to developments in chemical analysis, for a century ago, they had cinchona bark but not quinine, opium but not morphine, nux vomica but not strychnine. Bleeding was in constant use, and the heroic way in which it was performed must evoke our admiration for the courageousness of both patient and physician. They counted blood not by ounces but by pints. Even after this onslaught upon the life-giving fluid, they did not hesitate to follow on with such doses of purgatives and emetics as would cause the ruin of professional standing in anyone who ventured on such medication to-day. I can only explain the recovery of their patients by the surmise that they became so limp and helpless that the fair and honourable disease germ retired from the contest rather than gain a victory over so poor an antagonist.

In surgery greater progress has been made than in any other department of our art and science. Wounds in 1800 were supposed to require inflammation to produce union. *Pus bonum et laudabile* accompanied benign forms of inflammation and indicated that all was going regularly. As they had no anæsthetics, they resorted to the use of infusions of tobacco taken internally to place their patients in the condition of the sea-sick passenger, who is so prostrate that he cares not what operation is performed so long as the end comes quickly. Too surely indeed did death follow the use of the knife, for those who survived the shock had to run the gauntlet of that list of wound infections which has now been almost banished by antiseptics. The appreciation of surgical cleanliness, as taught by Lord Lister and his followers, has enabled the surgeon to widen the field of his labours so that scarcely any part of the human body has, during the past twenty years, escaped the use of the knife. I have not heard of anyone removing the pineal gland, and possibly this holds the proud position of being the only unassailable organ. But I warn it not to be too elated or some surgeon will snatch world-wide fame by removing it. The safety with which major operations can be performed, the slight amount of pain which follows, and the rapidity with which the wounds heal, make the practice of this branch of medicine an attractive and alluring occupation. It is unnecessary for me to enter into a detailed account of the newer operations now performed, the change has been too recent and too striking to have escaped the notice of every practitioner.

Anæsthetics and antiseptics have played a benevolent rôle, not only in surgery, but also in obstetrics. The expectant mother can await her approaching confinement without dread of agonizing pain, as the modern accoucheur will control with chloroform the most violent suffering. Puerperal fever has been largely suppressed by our recently acquired knowledge of its causes and the application of the necessary means of prevention. Deaths from the sequelæ of childbirth have been greatly reduced during the last quarter of a century.

What has the future in store for us? I will not attempt to prophesy, as my qualifications are not well attested. We all know that there are large questions yet to be settled, and therefore the need for patient and persevering investigation is still paramount. Bacteriology and hæmatology are in their infancy, but have been so illuminating in their short development that we expect a flood of light yet to come from these sources. No one can sit down complacently and feel that the summit has been reached; rather should each of us resolve to work more faithfully in order in even a humble capacity to add to the sum of knowledge in our chosen profession. Cannot some one grasp the kernel of

truth that underlies the fallacies of Christian Science, Dowieism, Faith-healing, *et hoc genus omne?* Are we not too prone to rely on drugs and to forget the control of mind over body? If many of the ailments brought to our notice are imaginary, why not treat them through the source of imagination rather than through the stomach? I feel that a duty rests upon us to get at the true cause of all forms of disease, and rescue the public from the deceived fanatic and the ignorant pretender by doing not only all that these claim, but doing more and doing it better.

Let me conclude this address by quoting a layman's opinion of what a physician should be and do. The standard is a high one, and if we can measurably achieve success in the direction pointed out, we will do much to gain and hold the confidence of the public as the only true guides in matters of health and sickness.

The Rev. J. M. Buckley, of New York, says:—

"An intelligent, educated, experienced and candid physician studies both the mind and body, relieves the sick man of the responsibility of treating himself, strengthens him by hope and encourages him by his personal presence and manner. He understands the mineral, plant and animal substances included in the materia medica, he knows that not medicines, but inherited vital force, is the primary cause of health and healing of the repair of injuries. He knows also by observation and experiment that nature can be assisted, but he interferes only when it is safe and necessary. Such a physician is too learned and too honest ever to do he knows not what, because he knows not what to do. He can relieve the pains of incurable diseases, smooth the pathway of sufferers to the inevitable end, and to convalescents he can give such hygienic hints as may prevent the recurrence of the malady or save them from something worse. Certain that all men must die and that all die of old age, disease, accident, or intentional violence, he claims by hygiene, medicine, and surgery to assist nature, to delay the inevitable, and to render the journey to it more endurable."

THE ADDRESS IN MEDICINE.

BY

J. R. JONES, M.D., Winnipeg.

Delivered before the Canadian Medical Association, Winnipeg, August 28, 1901.

Mr. President and Members of the Canadian Medical Association. When the President of this Association deputed to me the honor of delivering the Address in Medicine I had no little anxiety in the selection of a theme worthy of the occasion and which would command the interest of the Members. This difficulty was accentuated by the fact that I had never attended any meeting of the Canadian Medical Association, and I had no knowledge of the addresses of my predecessors. However, at this particular juncture in the history of our profession in the Dominion of Canada, I have concluded it would be wise, and I hope profitable to address you upon the unsolved problem of medical education. Its importance is especially manifest when we assume the possibility of the establishment of a Dominion Medical Board. It is necessary, therefore, for the various bodies engaged in teaching or in registration of qualifications to make ample provision and preparation for this long-looked-for event. Uniform or equivalent curricula will greatly facilitate paving the way for the accomplishment of Dominion registration in Canada. There are as many standards of medical education as there are political subdivisions.

The great aim of the medical profession, chiefly through the potent influence of this association, is to create on a sound and enduring basis a Dominion Medical Board whose qualification can be registered in every Province of the Dominion. Nor should we rest here; its qualification should not only be Canadian but Imperial, capable of registration in Great and Greater Britain.

PRELIMINARY EDUCATION.

In Dr. Roddick's Bill provision is made for the proposed Board to conduct the medical entrance examination by examiners appointed by the Dominion Council. It is desirable that examination in general education be left to the universities and such other institutions engaged in general education and examination as may from time to time be approved by the Board. Let the Council select or erect the standard of medical matriculation, and then accept educational certificates of equi-

valent or higher value, for registration as a medical student. This is the practice followed in England by all bodies granting qualifications except the universities.

For our students' matriculation we should fall back on our national educational bodies whose examination should reach a specific uniform or equivalent standard. We can safely entrust this department to our educational institutions which will receive the recognition and endorsement of the Dominion Medical Board. By accepting approved certificates the Dominion Medical Board is not only relieved of responsibility and expense, but more students will avail themselves of Dominion registration than if they are compelled to prepare on a range of subjects out of harmony with the curriculum of the institution in which they are receiving their education. Every university in the Dominion of Canada will receive equivalent certificates from sister institutions; and these universities also will receive partial certificates, granting for example "pro tanto," standing to school teachers holding first and second class certificates. These certificates are accepted by the university in all branches—law, medicine and arts.

Medical examiners in England as well as in Canada are fully convinced that there is some defect in the preliminary education of medical students. The standard is not high enough. Many students pass into the medical colleges utterly unprepared to profit by the education of their medical teachers, their minds not being disciplined that they might be competent to engage in the difficult studies of the profession with advantage.

The question naturally arises: What should be the range of the medical matriculation examination? Should Latin be eliminated and modern languages be substituted? Should an elementary knowledge of chemistry, physiology and comparative anatomy be demanded? I think there should be no special preparation for the study of medicine; that it should be that preparation common to all educated professions. Notwithstanding the advocacy of the elimination of Latin in medical entrance examination by such eminent men as Huxley, Sir Willoughby Wade, Jonathan Hutchinson, Herbert Spencer and Sir John Williams, the weight of argument to my mind is in favor of its retention. I would even go a step farther and advocate the inclusion of Greek.

The justification of the advocacy of Greek lies in the cardinal circumstance that it is *par excellence* the language of science. A very large proportion of technical terms, compound scientific words, and descriptive names used in anatomy and physiology, medicine, and surgery are derived from the Greek. Almost the whole of scientific and medical nomenclature is derived from Latin and Greek, especially the latter.

Permit me to quote two eminent authorities who favor the retaining of classical education as training for professional studies. Dr. Alexander Hill, a member of our own profession who is master of Downing College, Cambridge, says "How to make a competent biologist; how to ob- "tain that proper balance between the development of observation, "the cultivation of the memory and the attainment of the ability to "correlate and compare observations; to draw inferences, and to base "hypotheses. An early training in science is the surest guarantee of "eventual proficiency." To this my experience gives an emphatic denial. Science scholars often cause their tutors the greatest disappointment. Their appearance in the examination before they are nineteen years of age—the limit for the entrance scholarship—means too often that they are the boys who at the earliest possible age have deserted, what we may call, the proper work of the school for the sake of preparing for the science scholarship. They are not "lads of parts," but boys who have been crammed with scientific facts by clever teachers and taught how to show them off in the most impressive way. Their knowledge is often extraordinarily accurate and extensive. They have a magificent test-tube acquaintance with chemistry, they have thoroughly mastered the elementary formulæ of physics; they have acquired the elements of botany and zoology—but they have no mental training. Let them work never so hard during their three years' course at Cambridge, they are quickly overhauled by the youngest boys from the big public schools, who, when they came up, did not know the test-tube from a barometer. The science scholar as turned out by schools "with a successful modern side" is a prodigy of information and difficult to beat on the earlier levels of his subject; but as soon as he reaches that region of information where solid facts are left behind, a region in which is needed a nice appreciation of the relative cogency of arguments, the close following of a train of inferences, he is like a clod-hopper on a glacier without feet to grip or a heart to dare."

This, gentlemen, is the result of the experience of the Master of Downing.

My second authority is Professor Jebb of Berlin who summarises under the five following headings the advantages of classical education.

1. Ignorance of Latin and Greek is a positive obstruction to the pursuit of many branches of study.

2. Ideality of the scientific sense is cultivated by studies which have not an immediate bearing upon daily life.

3. An actual knowledge for its own sake is promoted by them.

4. The power of thinking receives a varied general exercise in these studies.

5. They are of historical value as illustrating the foundations on which so much of modern thought and life has been built."

This subject was discussed in the German Federal Council last year and at the conclusion a resolution was passed affirming that the certificates of a classical education should alone give the right of admission to the medical examinations. A few years ago Berlin University expressed a very decided opinion upon the question and furnished a series of reasons for maintaining classical studies as a basis of professional education. The utilitarian educationalist, who, vandal-like, would exclude classics from the preliminary examination, desires instead a knowledge of science, physiology, anatomy, biology, etc., thus partially relieving the medical curriculum and affording a partial preparation for the professional course.

Others, Professor Schæffer for example, more wisely recommend a year's course in science sandwiched between the passing of the preliminary examination and the student's entrance at a medical college. This is an ideal plan, but is scarcely practicable in Canada. I consider it a great mistake to cram in small elementary scraps of scientific information designated as "science" in the schoolboys' curriculum. Science should not be taught until a sufficient knowledge is acquired of the ordinary subjects of general education; hence it cannot be taken up till the final period of school life. The meagre scientific equipment of our schools and the unfitness of our teachers would render the teaching of science very elementary and most confusing.

Scientific knowledge and education thus produced would be of no appreciable practical value in a medical career. In regard to the subjects embraced in the medical matriculation, the most lamentable defect is in the English paper. This is the most neglected subject in our primary schools. The same defect exists in England. At a recent teachers' examination in England, the majority of those rejected came to grief over the English paper—a composition on the prosaic subject of tramways. The teachers were in revolt and demanded a revision of their papers which confirmed the examiners' verdict.

The majority of rejections at the Conjoint Board in England were attributable to the results of a defective knowledge of English.

Having acted for many years as an examiner at our University, I have concluded that the teaching of English takes a very subordinate position in our schools. Spelling and composition prove that English takes a third or fourth position. Students from all parts of the Dominion present themselves at our University examination, and the same defect exists among the students from other Provinces of the Dominion. It is obvious that English ought to be a prominent subject of the me-

dical matriculation examination. Every student should be able to express his thoughts coherently and intelligently.

In this country of magnificent distances I suppose it is impossible to have a Medical Teacher's Association. Certainly such a competent body could deal with the revision of the medical curriculum as well as define the limits of the medical entrance examination. This important subject could not be delegated to this association which meets once a year for a few days at various points of the Dominion and mainly for the purposes of social recreation. Persistent, consecutive and complete work can never be accomplished by a committee of the Canadian Medical Association. It is rare for the members of any given committee to be in attendance at more than two consecutive meetings.

PROFESSIONAL EDUCATION.

The medical curriculum has subjects difficult to acquire, worthless as mental gymnastics, useless in practice, and speedily forgotten when acquired. The methods of teaching are imperfect and vicious. The student in didactic lectures is not taught—he is over-lectured and undertaught. The lecturer describes rather than demonstrates, and instead of making the student follow him step by step in his methods of observation, collecting, comparing, testing, and recording facts and of reasoning thereon, the didactic lecturer leaves them to be learned by being described, forgetful that they can be learned only by being practiced.

The main tendency of the present method of didactic lectures is to give students smatterings of scientific knowledge at the cost of that thorough knowledge of their art which is essential to its successful exercise. In the curriculum there is overlapping of similar subjects in the didactic and clinical courses. The course of didactic lectures should be entirely abolished or radically modified. Teaching should be bedside work—oral and written examinations with comments by the teacher. In analysing the didactic course, I would like to direct the attention of the Association to several defects and useless wastes of time which could be more profitably employed.

What earthly use is there for a didactic lecture on descriptive anatomy, a subject which can only be mastered in the dissecting room. Professor McAllister of Cambridge states "that anatomy being a practical subject can be learned only in the dissecting room." The line of demarcation between descriptive and practical anatomy is arbitrary and fanciful. In a large class in descriptive anatomy, the favored few near the lecturer and the dissected part derive some instruction, but to all the rest the hour is useless and wasted. Persistent work in the dis-

secting room under the guidance of an experienced demonstrator, who will describe, discuss and constantly orally examine the student, is a rational and effective method of teaching anatomy.

Another useless subject is medical jurisprudence; the interest in it ends after the examination, and to the general practitioner the knowledge thus gained is of no practical value. Few men are called upon to give evidence in criminal cases, and when we do, the knowledge acquired while at College is either useless, fragmentary or forgotten; and in order to cut a respectable figure in Court, we frantically read up Taylor and Reese. All knowledge is useful, but that derived from medical jurisprudence is about as practical to the general practitioner as the geography of Timbuctoo or the philosophy of Confusius.

The object of medical teaching is to turn out good practitioners.

Another subject as at present taught which is a weariness to the flesh is Sanitary Science. Its pretensions are stupendous; it is supposed to teach everything—land surveying, architecture, organic chemistry, agriculture, plumbing, drainage and civil engineering. The student is crammed with this conglomerate stuff which he must intelligently reproduce at the annual examination. In Sanitary science we have a splendid exemplification of the "cram" system and the utter uselessness of the knowledge, the very essence of smattering.

In order to show the uselessness of the hard work expended in Sanitary Science, I will quote a few questions from the examination papers on this subject:

1. What do you understand by the expressions "effective population," "dependent population" and "density of population."

2. Define the word "nuisance" according to law. Show the statutory provisions under which "nuisance" may be dealt with.

3. What impurities of a deleterious character may be found in bread.

4. In the event of typhoid fever occurring in a family what steps should be taken to ascertain that the water supply and sanitary fittings are in proper order? I will answer this question for the benefit of the Association:—"Send for the plumber."

The questions I have quoted are well enough for the candidate for the Science degree, but of no use to the general practitioner.

The burden of the medical student of to-day is very great. More attendance at lectures is demanded; more subjects are being wedged into the curriculum. That conglomerate heap labelled "Materia Medica" might be treated in a bag and baggage fashion. It is impossible to encompass the large mass of dry technical knowledge in the students' course. Materia Medica is a mere tax to the memory; the acquisition largely of bare facts being necessary, and facts that are neither retained

nor applied. Mr. Huxley's views in an address to the students of St. Mary's Hospital are appropriate. He says, "I am quite prepared to admit, and, indeed, I have always had a strong conviction, that there is something absolutely preposterous in the volume and bulk to which some of our treatises on materia medica extend, and the enormous quantity of irrelevant matter with which their pages are crammed." What scraps of information can a didactic lecturer impart to his students which they cannot readily find in the text-book? An occasional quiz class with specimens of drug and their preparation should take the place of the systematic lecture, in fact, let pharmacy and therapeutics takes its elbow out of place.

The careful perusal of the materia medica examination paper convinces one that in this subject there is a great deal of misdirected energy in the acquisition of evanescent knowledge, because it is mere verbal memorising. Let me give a few examples culled from English sources. I would not cull examples from Canadian examinations for reasons that are very obvious.

1. Name the pharmacopœial preparations into which potassii tartras acidi enters, and give doses. Describe the action of this drug.

2. What is lini farina; give its source and enumerate all the preparations into which it enters.

3. Contrast the physical and chemical properties of castor oil and oil of turpentine.

Apropos of these very questions, Mr. T. Prigden Teale says, "This is the kind of rubbish that the elaborate and costly machinery of a pub-examination has to waste its energies on." This, I would say, is the stuff doled out by your didactic lecturer on materia medica and which demands the bodily attendance of our students for the prescribed course.

My sympathy goes out to the overburdened medical student weighed down by an accumulation of courses and annual examinations. His corporeal presence is required at so many lecutres, that he has little time, inclination and energy for hospital work, recreation and private reading.

Sir William Stokes truly says:—"I have satisfied myself over and over again that the failure of a large proportion of candidates to answer up to the required standard was due, not to the want of diligent or conscientious work on their part, but simply to brain exhaustion from an attempt to overload it with facts which were believed to be essential."

The system of imparting instruction by lectures is a mediæval custom originating when text books were few, costly and inaccurate. It is a purely traditional system. Now that there are text books in abundance covering the whole range, and of excellent merit, these lectures should be modified. The chief value of lectures is, that the student is obliged

to hear a certain quantity of a subject every day whether he likes it or not, whilst no authority can compel him to work at a text book except by moral suasion or arguments of a practical character addressed to his self-interest. A restricted number of lectures may be advisable, but the number could be abbreviated with advantage, and confined to the inculcation of principles removing difficulties and obstacles from the student's path, explaining types and divergencies of disease, giving information not within the pages of a text-book. The time hitherto employed in systematic lectures might be devoted to class examination on previously announced subjects in which the teacher should indulge in questions, explanations, corrections and comments. This is the true education—the drawing out instead of the pouring in process.

The lecture system reminds one of the daughters of Danaus, whose destiny was to fill pitchers which could hold no water; the students are percolated receptacles, transitory knowledge.

Mr. Dennis Hovell, in his address to the Hunterian Society, very truly says:—"Education is a subject much misinterpreted in word and abused in deed. It is intended literally to mean a drawing out of the faculties, and by being altered into mere pouring in and puffing up it has often resulted in checking and repressing some of the most valuable of them. Its highly necessary adjuvants, discipline and training, are not only too often but too entirely neglected, and the want of these is much felt because it operates negatively by preventing and neutralizing the good effects of teaching." We might with profit emulate our brethren in the United States in our methods of teaching. In that country there is an approach to the tutorial system. Students in the various subjects are divided into small sub-classes, each presided over by a lecturer; each student receives individual attention in the small group or section instruction. It is simply a means of enabling the individual to see, hear and touch for himself under the best possible scientific guidance. His weakness is discovered; his knowledge tested; his observation is stimulated and cultivated; his attention rivetted; his application of the laws of thought employed and rightly prosecuted. It is the inductive method applied to medicine.

The "case" method advocated by Mr. Cannon, of Harvard University, in March, 1900, has received the endorsation of many teachers in England and the United States. This method is supposed to supplant the dreary, old-fashioned, didactic lecture, and is an imitation of the plan adopted in the Law Department of Harvard. The plan is to secure printed histories of actual cases, which, perhaps, the student may have seen in the hospital. Each student is provisionally supplied with a printed copy of the history for careful perusal sometime prior

to the discussion. The class and teacher meet and discuss the diagnosis, pathology, symptoms and treatment. Text-books and other literature are consulted, and the case is thoroughly threshed out. The student is learning the judgment of clinical data, the estimation and relative value of the various symptoms, distinguishing between the important and the unimportant, the common features and the more unique. He not only receives but acquires knowledge. The Case method may supplant or supplement the didactic and clinical courses. This plan is no experiment, for it has been on successful trial by several professors at Harvard, by Dr. J. White of Philadelphia and Dr. R. E. Riggs of the University of Minnesota. Possibly I may be prejudiced, but, from personal experience, I favor the English system of clinical clerkships and dresserships as the most feasible, practical and thorough for the development of medical teaching. It embraces all the advantages claimed by the advocates of the Case system and the sectional plan. Moreover, the student is brought into direct contact with the patient for whose history he is responsible. By this method the medical student is trained to habits of minute, careful methodised observation and registration of the phenomena of disease. The student observes his cases from the incipient stage to either recovery or the post-mortem room, to the verification or otherwise of his daily recorded observations. Upon this solid foundation of actual personal experience, he builds to fit himself for life's battle.

DOMINION REGISTRATION.

The educational requirements of the proposed Dominion Board will completely determine the nature of the instruction imparted to all students at the medical colleges. If this Board is successful in securing even a modest number of candidates for its qualification, then the mandate of the Board will regulate the whole machinery of medical education, preliminary and professional, and the influence of this body will have far-reaching effects upon the profession in this country. The various medical colleges will be compelled eventually to conform to its regulations, just as is the case between the teaching bodies and the general medical council of Great Britain, and, although not endowed with the supreme prerogative of the Medical Council of Great Britain, its enactments, regulations and requirements will practically have the same beneficial effects. Granting Dr. Roddick's scheme is launched, after some years there will be conflict and confusion between the requirements and curricula of the Dominion Board and those of the licensing bodies of the various provinces of the Dominion, and these opposing requirements will tax the resources of the medical col-

leges to meet the necessities of the two classes of students—those desiring the provincial qualification and the others desiring the national one. Hence it is necessary that all medical colleges should have the same curriculum. The course should be identical but the method of instruction should be left to the wisdom of each.

The alternative requirements suggested for the Dominion qualification may be summarised under the following headings:

1. The candidate must secure provincial registration before presenting himself for the Dominion license, and the Dominion Council would examine him in the intermediate and final subjects, the final examination to be passed five years subsequent to medical matriculation.

2. The second alternative is that the candidate must pass the Dominion Medical Board in all the subjects of the professional course, the primary and intermediate subjects to be taken under the supervision of the Dominion Medical Board at the various centres in which medical colleges are located.

In order that the license of the Dominion Medical Board should obtain a predominant position, I think it should demand examination in all subjects of the professional course. This hybrid examination, part by the Provincial licensing body, and part by the Dominion Medical Board, might prevent us securing reciprocal arrangements with the Medical Council of Great Britain. This proposed joint scheme of examination might frustrate one of the great objects of Dr. Roddick's Bill—registration in Great Britain.

Passing from the purely educational aspects of the question to the practical one, namely—the establishment of a Dominion Medical Board, the subject bristles with many difficulties, legal, financial and representative. The general Government of Canada cannot deprive the provinces of their vested constitutional priveleges, nor can the Provincial legislatures unite and create the Dominion Medical Board. We are, therefore, on the horns of a legal dilemma, and in order to extricate ourselves, are forced to resort to the most extraordinary round-about legislation. It is alleged that under Section 91 of the British North American Act the Dominion Parliament has power to "make laws for the best order and good government of Canada in relation to all matters not coming within the classes of subjects by this Act assigned exclusively to the legislatures of the Province." Under this cause it is proposed to create a Dominion Medical Board and such legislation is alleged to be constitutional, possessing all the elements of permanence, but two essential pre-requisites are necessary before the bill can become law and become operative. One is to secure the consent of the provincial licensing bodies, and the other is

to secure such local legislation as will enable the local councils to legally register the Dominion qualification. Now, let us suppose that the consent of these bodies has been secured and the necessary local legislation obtained. The possessor of the Dominion qualification must register before the local Council of the Province, paying the usual fee were the parties to practice. Should he desire at any future time to locate in another province, registration must again take place. In other words, his Dominion qualification entitles him to inter-professional endorsement.

This complex, elaborate structure of Dominion registration may fall to pieces at any moment when any of the contracting provinces wishes to secede from the bargain. A province with grievances—real or imaginary—by its withdrawal in a moment of petulant irritability may shatter the Dominion Medical Board and cause its complete disintegration. This is one of the weak points of Dr. Roddick's Bill.

Manitoba and Quebec had reciprocal registration, when Quebec, without a single day's notice, withdrew and reciprocity ended. Dr. Roddick states that this weak point can be safeguarded by making secession difficult, intricate and expensive, by forcing the aggrieved province to appeal to the Supreme Court of Canada, or to a court of arbitration, the members of which will be selected by the Dominion Council or defined by statute.

REPRESENTATION ON THE COUNCIL.

Adequate representation of the general profession in the various provinces of the medical colleges and of the universities implies a large, extensive and unwieldly council; still all these elements should be represented. Under section 6, sub-section 21, Dr. Roddick's Bill reads "The Council is to be composed of three members from Each Province—Ontario 3, Quebec 3, Nova Scotia 3, Manitoba 3, New Brunswick 3, British Columbia 3, Northwest Territories 3, Prince Edward Island 3, Homœopathists 3, total 27. If provincial representation be according to population, then this large number is further augmented. Let me here cull an extract from a circular letter addressed to our registrar—Dr. Gray—by Dr. Roddick. Dr. Roddick says by way of suggestion, "The President of each council shall be *ex-officio* a member. The Governor-General-in-Council shall appoint one for each province and the Territories, then the first 100 or fraction of 100 medical practitioners in each province shall be entitled to one representative, that the second 100 or fraction thereof over 50 per cent. shall be entitled to one representative, and for every 600 over that, one representative shall be allowed. This

will give you four representatives in the Council for Manitoba. If university representation on the council be added, and also a representative of the medical colleges, the whole number of members would be at least 48. The General Council of Great Britain and Ireland consisted of 24 persons for many years. At the present date there are 30, the increase being caused by the representation of the general profession. In the Council of Ontario there are 30 members.

There are two serious objections to Dr. Roddick's Bill.

1. The great number of the representatives of the council entailing expense beyond, at least, our immediate resources.

2. The fact that one of the contracting parties to Dominion registration may secede and the elaborate fabric, the work of many years, tumble to the ground. This is the most serious and fundamental defect. Will an expensive legal procedure prevent secession and disintegration? When these problems have been solved, then, and not till then, is medical registration in sight.

THE ADDRESS IN SURGERY.

BY

O. M. JONES, M.D., F.R.C.S., Victoria, B.C.

Delivered before the Canadian Medical Association, Winnipeg, August 29, 1901.

Mr. President and Gentlemen,—

My first duty is to express my appreciation of the honour which you have conferred upon me in selecting me to deliver the "Address on Surgery."

Having undertaken to give this address, I must ask you to forgive me for failing to bring before you anything original. The inhabitants of Western Canada are not afflicted with surgical diseases differing from those in Eastern Canada. There may be this difference—that they are more impatient than the Eastern people when they are afflicted with any disease. They always expect and desire to be treated by the most radical methods—however severe they may be. They have no time for palliative treatment. They become reckless and wish to be relieved of their suffering rapidly. It may be that the life they lead in the mountains, full of hardships and dangers, tends to dispel all fear of death. It has often astonished me to see how little perturbed some of these people are when they are told that they suffer from dangerous conditions, such as cancer of the rectum, tongue, or stomach, which necessitate a severe surgical operation. Without a murmur they consent to anything you suggest. They go to the hospital then and there and face their operation as if it were an ordinary everyday occurrence.

As an example of the strange ideas that the public have on this subject, I might quote the following letter, which is a fact:

"Dear Sir,—I hear that Mr. Briggs, one of my lodgers, is to be "operated upon on Wednesday, and I shall be much obliged if you will "postpone the operation until Friday, as my daughter is to be married "on Thursday, and we do not want the corpse home until after the "wedding."

This fearlessness is often coupled with an ignorance that demands surgical treatment where only medical is justifiable. The treatment is too slow to bring about the desired results, and they frequently ask: "Don't you think an operation will cure me?"

Operative surgery has increased to an enormous extent during the

past few years. The wonderful results which have been achieved since the introduction of aseptic surgery, the improved diagnosis of the early stage of cancer in all parts of the body, the absolute safety with which operations are undertaken for the relief of deformity and disease, have given the public every confidence in surgical treatment.

One of the most useful of the recent advances as a means of diagnosis is the X-ray photography. When first introduced, its use was limited to the finding of bullets, needles and pieces of metal embedded in the body; also to the direction and condition of all varieties of fracture and to the localization of calculi in the kidney and bladder. Its uses are now further increased. It is employed for the detection of tubercular deposits in the lungs, and plural effusions can be distinctly seen with the displaced heart pulsating.

Improved methods of applying this photography have rendered its use so simple that in some hospitals nearly all fractures are looked at both before and after they are put in position.

This is done by placing the patient on an ordinary canvas stretcher, the Crooke's tube is placed under the body, and a picture of the bones is thrown on a ground glass screen held over the patient's affected limb. In many cases this has saved the patient much suffering and valuable time. When the soft parts are interposed between the ends of the bone, or in a riding fracture, the fractures have been cut down upon, the muscles or loose fragment removed, and the bones brought into direct apposition.

Another advance, in the same direction, is Finsen's Phototherapy—the method of treating local superficial skin diseases of bacterial origin by the concentrated chemic rays. It is the blue, violet, and ultra-violet rays of the spectrum that possess the most powerful action. This apparatus—which up to the present time is very costly—is installed at a few of the London Hospitals, and the results in the treatment of lupus vulgaris and lupus erythematosus are said to be most satisfactory, as the scar remaining is soft, white, and healthy-looking.

The toxine treatment of disease has also aided us in surgery. What a difference there is to-day in the results from tracheotomy in laryngal diphtheria when combined with the use of antidiphtheritic serum! In my student days at the hospital it was considered a good record for a house surgeon—who was allowed the privilege of performing tracheotomies when required—if he saved two out of ten cases. But in these days it is not uncommon to hear of six or seven successful cases in succession. A point upon which I lay stress is to perform the operation without administering an anæsthetic. How often have we witnessed the little patient stop breathing before the operation was commenced!

Consequently, I have often thought that many of these died from depressing effects of the anæsthetic upon a patient already saturated with the poison of diphtheria.

I wish to refer to the use of the antistreptococcus serum in the treatment of streptococcus infection of wounds. Although its general use has been adversely reported upon, it does produce a marked beneficial effect upon certain cases.

Only very recently I was called in consultation to see a severe case of septic infection from a scratch over the knuckle of right hand of a patient who had been attending to his child's ear with otorrhœa, and by some means had inoculated his hand. He had been ill four days before I saw him. I found him with his hand in a hot bi-chloride bath, the wound having previously been laid freely open. The temperature ranged between 104° and 105 3-5° for three days. The lymphatics on the inner side of the arm were marked out by red lines, and in three or four places along their course there were black, sloughly-looking patches. The arm was œdematous up over the shoulder, but there was no sign of deep-seated suppuration. The finger-joints, wrist and elbow could be flexed without pain.

The question of amputation was discussed but decided against. Quinine and stimulants were freely given, and we decided to try the antistreptococcus serum. It was injected over the shoulder night and morning, and the first dose seemed to benefit him; but it was not until he had received four doses that his temperature dropped, the swelling and inflammation began to subside, and the other symptoms to improve. From this time forth there was no rise of temperature, and with the exception of opening two small collections of pus in the course of the lymphatics he rapidly recovered.

Its use in some septic puerperal cases has also been attended with very good results. Its administration in mixed infections has been proved to be useless. When first introduced, we had greater hope of its possibilities, for we supposed it would be useful in cases of septic traumatic arthritis and other forms of suppuration.

Surgery, from the general practitioner's point of view, is becoming so vast a subject that it almost reaches beyond the ability of one man to follow up its advancing steps. Cases of cerebral tumour and abscess are operated upon with success. Certain forms of cerebral hæmorrhage are now being treated by surgical means, but so far with a very limited amount of success. The technique in operations upon the mastoid has been improved upon of late, for the mastoid cells and antrum are opened along the roof of the auditory canal into the middle meatus, and the diseased bone and ossicles removed if necessary. I recollect many

troublesome cases of recurring mastoid suppuration that could have been treated once and for all by the present operations. (Stacke and Schwartze).

The removal of large goitres and tumours of the neck can now be safely undertaken, even if the growths involve the internal jugular vein and common carotid artery on one side, as portions of these vessels are removed with the growth, without any ill-effects resulting.

The more radical and extensive operations in the cases of cancer of the breast have resulted in greatly improved statistics. As an illustration of the necessity of these measures, a few years ago I had under my care a case of schirrus of the breast. It was just a small nodule about the size of a hazel-nut, embedded in the breast on the inner side of the nipple. I cut into it and found it to be cancer. I then removed the whole breast and proceeded to clean out the axilla. There I found a chain of cancerous glands running up under the pectoral muscles towards the clavicle. This was a most deceptive case, because the local lesion was so small that one would have been tempted to just remove the nodule out of the breast, whereas the radical operation was really the only proper treatment.

Wounds of the heart have been sewn up; tubercular cavities and abscess of the lung opened and drained successfully. But of the various branches of surgery, none perhaps to-day excites as much interest as abdominal surgery, and more particularly the diseases of the stomach. By its means, many diseased conditions that were considered hopeless can now be cured or benefited. Every part of the alimentary canal, from the œsophagus to the anus, with the exception of the duodenum, can be removed. Dr. Keen, in speaking of complete gastrectomy, says:

"In the hands of surgeons of exceptional skill and wide experience in "abdominal surgery, the operation will be advisable in rare and favour-"able cases. At all events, it is of great interest to know that physio-"logically the stomach, as I may say is the case with almost all of our "internal organs, is a luxury rather than a necessity."

My aim is in this address not to discuss the merits nor to give an historical account of these operations—which have been so ably given by Dr. Keen in his Cartwright Lectures, and by others—but to submit to you the deductions which I have been able to arrive at from my own experience in 28 cases.

Much has been written of late upon the subject both in Europe and America. Mayo Robson, Bennett, Moynihan, and Barker, in England; Keen, Hemmeter, Curtis, Kammerer, and others in America; and it was also thoroughly discussed at the American Surgical Association in May, 1900.

In the early days of all new operations, the rate of mortality is generally very great, but this gradually diminishes as we learn the errors that we have fallen into—which in many cases could have been avoided had we been less timid in handling the particular organ. This I have especially seen in dealing with the stomach. Operators have completed what they thought should be done without thoroughly satisfying themselves as to the exact condition of the organ. Fatal results are sure to follow in cases of hour glass contraction of the stomach, or perforating ulcers.

My first operation upon the stomach was in 1893, upon a case of pyloric obstruction. It was a most suitable case for operation. The patient was a wiry little woman of 60, with well-marked symptoms and a moveable tumour felt a little above and to the right of the umbilicus. Senn's plates were used and an anterior gastro-enterostomy performed. After tying the silk sutures, I introduced a row of Lembert sutures with catgut around the junction. She suffered very much from vomiting after the operation, and quite suddenly on the third day she was seized with a violent pain in the epigastrium, and died a few hours later. The result was not encouraging. I was unable to procure a post-mortem, and I attributed the failure of the operation to the use of catgut instead of silk ligatures, as I suppose they gave way or were absorbed too readily for the adhesions to have properly formed.

In December, 1892, Dr. Murphy invented his button. It was not brought prominently before the profession in England till 1895. This ingenious device certainly afforded a rapid means of performing an anastomosis, which formerly in inexperienced hands took an unduly long time to perform. The many uses to which it could be applied appeared to make gastric and intestinal surgery simple. The time occupied in performing an anastomosis by the older methods was often considerable, and added greatly to the shock that followed the necessary handling in operations upon the stomach. Unless the surgeon was unusually dexterous, his patient died before or soon after the operation was completed.

As a student up to 1889, I witnessed several operations upon the intestines, such as re-section, performed by experienced, dexterous and well-known surgeons; but seldom did a case recover from the operation. The only operation I recollect performed for pylorectomy was done in 1883: that was a year or two after Billroth's successful case. Although the operation was skilfully done, the patient died of shock some hours later. For the remainder of my time at the hospital, up to 1889, I do not recollect hearing of or seeing a similar operation performed.

The introduction of Senn's bone plates and the Murphy button gave a great impetus to gastric and intestinal surgery. Between 1875, when

Langenbeck successfully performed re-section of the intestine, and 1890, when Senn introduced his decalcified bone plates, operations upon the intestines were rare. Since that date, the number has multiplied a hundredfold.

The cases I have been able to collect from my notes include examples of nearly all of the diseases of the stomach amenable to surgical treatment:

List of cases:—

Gastrostomy.—All for relief of malignant disease of the œsophagus: five cases.

Gastrotomy.—For exploration of the stomach when no positive diagnosis could be made and prolonged treatment had failed to afford relief: four cases.

Gastro-enterostomy.—For pyloric cancer, malignant ulceration of pylorus, gastric ulcer, and for extreme gastric dilatation: thirteen cases.

Pylorectomy.—For pyloric cancer: three cases.

Gastro-plication.—For dilatation of stomach and hyper-chlorhydria: one case.

Gastrolysis.—For adhesion around pylorus: one case.

Perforating gastric ulcer.— Hour glass contraction: one case.

Perforating duodenal ulcer.—One case.

I have included the latter in my list from its close proximity and from the similarity of its symptoms to acute perforating gastric ulcer.

Preparations for operation.—In all cases the usual aseptic precautions are carried out; the skin shaved, scrubbed, and antiseptic compresses applied for 12 hours, if the nature of the case permit.

If the conditions are favourable and the patient not too feeble, a purgative is given to clear out the intestinal tract the night previous to the operation; while, if the patient is emaciated and weak, he is fed by nutritive enemata, as well as by the mouth, for 48 hours previous to the operation. The stomach is washed out two hours before anæsthetization. About one hour before the operation, 1-30th gr. strych. is given, and half an hour later 1-6th gr. codeia, as this diminishes the amount of anæsthetic required to produce narcosis.

Gastrostomy.—In all five cases, the operation was performed for cancer of the œsophagus. Witzel's operation was performed in four of the cases with very excellent results.

The Ssabenejew-Frank's operation was done upon one of the patients, who had a more than usually large stomach. It was equally successful; the patient could attend to himself with ease, and at no time was there any discomfort experienced from leakage—the oblique direction of the canal into the stomach preventing this occurrence in both operations.

In most of the Witzel's operations, the patients wore the tube in the canal more from the dread of the canal closing than from the real contraction that took place.

Gastrostomy was, in four of these cases, done only to give the sufferers temporary relief, which it certainly did accomplish. Unless the patient is moribund before the operation is undertaken, there is little risk in performing it.

These operations are easy of performance, and I have no doubt will be further simplified. In fact, a modification by Mayo Robson of Ssabencjew-Frank's operation is completed by four stitches and the insertion of two hairlip pins.

In Marwedel's operation, which is a further modification of Witzel's, the canal for the tube lies between the muscular and mucous layers of the stomach, and is said to give still better results; the canal shews less tendency to contract, and the operation can be more safely performed.

In one of the cases it was done for a stricture following a gumma that had destroyed a portion of the œsophagus, leaving a fistula in the neck. At a later date I had intended performing a plastic operation to close it, but unfortunately malignant disease supervened upon the original trouble.

The prolongation of life in malignant disease ranged from 9 days to 8 months. The other case, which could not be classed as malignant from the first, lived 31 months (2½ years).

This operation I am convinced is justifiable in malignant disease, if for no other reason than for the relief of the distressing symptoms of hunger and thirst.

Gastrotomy.—The four cases I have recorded are cases of exploratory gastrotomy to determine the cause, if any, of the symptoms complained of.

The peritoneal cavity is opened above the umbilicus, and the contents of the stomach squeezed into the duodenum. The incision into the stomach I find most useful is a free opening, 2 to 3 inches long, over its middle third and parallel with its long axis. Through this, when the edges are held well apart, with the aid of a small electric exploratory lamp, nearly all the surface of the stomach can be seen. The finger can from this point reach almost any part of the cavity.

In my first case, I expected to find ulceration on account of the prolonged and intractable vomiting. We found no indication of disease, and in great disgust sewed up the wounds. Vomiting ceased the next day and has never recurred—now several years since the operation. She was a highly neurotic woman and had actually acquired

the habit of being able to vomit at will, when the doctor or nurse was present.

In the second case, a cancerous, nodular tumour growing from the cardiac end of the posterior wall of the stomach, that could not be felt by palpation, was easily felt and found to be inoperable.

In the third case, adhesions caused great pain, and rendered the patient absolutely incapable of work.

In the fourth case, the symptoms were due to the constriction produced by two puckered scars on the pyloric end of the stomach, the result of former ulceration. The interior of the stomach was healthy. Gastroplasty was performed by sewing the incision up transversely to its long axis.

The result in cases 1 and 4 was good; in case 2, it did not shorten life. Case 3 developed bronchitis and died, which is a risk every patient is subject to if he undergoes such an operation. From a post-mortem made in this case I found two small cicatrices—with otherwise healthy conditions of the stomach—which tends to the supposition that the breaking down of the adhesions would have resulted in a cure.

Pylorectomy.—Performed in the manner described by Murphy, this is without doubt the simplest and most rapid method. It is a modification of Kocher's, differing from it by inserting one half of the button in the open end of the divided duodenum (the other half being inserted into a fresh incision made in the posterior wall of the stomach).

Rapidity of operation in these cases is a very important factor as regards their success; prolonged operations generally prove fatal.

Suitable cases for pylorectomy require that the cause should be cancer of the pylorus, when the growth is not too extensive and is free from involvement of contiguous structures, and the condition of the patient is not feeble and cachectic. In these cases the shock received and the time occupied in performing the operation is not great. It was astonishing how rapidly the patients recovered from the operation.

All these cases were operated upon for cancer. My first—which lived only 12 hours—should never have been attempted. The man was too weak to survive any abdominal operation. He had practically been starved for weeks before admission and had not even strength enough to stand without assistance. Since my experience with this case, and two other cases of the same kind that I performed gastro-enterostomy for, and which terminated fatally, I have made it a rule that the patients must be able to stand up and walk without help; otherwise they cannot possibly survive the shock.

The other two cases lived on an average over 11 months, and in both the growths returned in other organs. The duration of life in some

of the recorded cases of pylorectomy reaches eight years and over. It is possible that some of these were really cases of pyloric ulceration with extensive infiltration of the adjoining parts. In one of my own, which I shall refer to later on, I performed posterior gastro-enterostomy, because the adjoining structures were involved and a radical operation was out of the question. She is still alive, now three years since the operation, and the large mass felt previous to the operation has disappeared. This case at the time of the operation was thought to be pyloric cancer.

Gastro-enterostomy.—Is the most frequent, most useful, and most simple of all the operations performed upon the stomach. The frequency of the operation is evident when we think of the number of conditions under which it is done—pyloric cancer, pyloric ulceration and stenosis (non-malignant), gastric ulcer, dilatation of the stomach, and for intractable chronic dyspepsia and hyperchlorhydria.

Its usefulness is beyond question; the relief it affords in all these conditions is striking, and in some absolute. Nothing can be simpler than this operation, performed with a Murphy button; and considering the relief it gives it should be more frequently and earlier resorted to. Personally, I have used this method in 14 cases, and in only one of these was there any drawback to its employment—and that was in a case where the button fell back into the stomach. In my two cases that died from the shock, I examined the union (?) and found it perfect.

In intestinal anastomosis I have not found the button so successful. As in one case, the lumen of the button became completely plugged with fæces, which produced great dilatation of the proximal portion of the intestine, leakage, and death. In several other cases I have had leakage, but as I generally make a point of bringing the anastomosed gut into one or other loin and place a drain on both sides of the gut, the general peritoneal cavity becomes walled off in three or four days, by which time a fistula will have formed. This fistula closes without operation in a week or two. Contraction of the orifice has not followed any of the operations up to the present.

In the earlier operations, the intestine was united to the anterior wall of the stomach (Wolfler); but, unfortunately, by this method the button is more liable to fall back into the stomach, as I have previously mentioned.

As to the other difficulties which are likely to arise from an anterior gastro-enterostomy, such as regurgitation of the contents of the stomach back through the jejunum and duodenum, carrying with them the contents of the common bile duct, producing fatal vomiting, and the jejunum pressing on the transverse colon, causing intestinal obstruc-

tion; I have, fortunately not met with any. Mr. Mayo Robson, in his "Address on the Surgery of the Stomach," still prefers anterior gastro-enterostomy either by simple suture or by the aid of his bone bobbins.

Posterior gastro-enterostomy (Van Hacker) has undoubtedly been the better operation; the position of the patient in bed favours the passage of the button, which is not so liable to fall back into the stomach, and allows the more ready escape of the contents of the stomach. This operation is as easy to perform as the anterior gastro-enterostomy. The danger of infection is greatly minimized if the purse-string sutures are inserted both in the stomach and intestine before making any opening into either of them (according to the rules laid down by Dr. Murphy). This operation is so well described in any book treating upon this branch of surgery that it would be superfluous for me to do so in this address.

Finding the jejunum does not present the difficulties that some surgeons would have us believe. It is readily found after pulling up the omentum and transverse colon; then, by passing the hand along the meso-colon to the left of the spine, find the upper border of the mesentery of the small intestine, and close by the jejunum can be felt, or to make sure, seen, emerging from the side of the spinal column. If you rely upon touch, follow it forward for 10 or 12 inches, and then back again to the spine.

Should the opening made in the meso-colon be too large, close it with a few stitches to avoid a loop of intestine slipping through it, as Dr. Keen suggests.

The passage of the button has taken from 11 days to four months. The delay in its travel has not given rise to any unpleasant symptoms in any of my cases.

For inoperable pyloric cancer this operation only prolongs the patient's life and makes it more endurable by relieving him from constant pain and vomiting. They eat and sleep well after the operation. Some surgeons have gone so far as to say that unless pylorectomy can be done, gastro-enterostomy is not justifiable. This, happily, is not the opinion of the majority of surgeons; for the relief, although only temporary, justifies the procedure. And if when we open the abdomen, we see that by very little additional risk we can place the sufferer in a more comfortable state, I think we should do so.

Again, in some cases we may be mistaken as to the character of the growth, as in this case referred to in pylorectomy.

A woman aged 63 with almost complete pyloric obstruction, the pylorus was found involved in a large mass the size of my closed fist, moveable above but below extended into the head of the pancreas. There

were enlarged glands in the gastro-hepatic omentum and great omentum, and, owing to the extent of the disease in the pancreas, I decided to content myself with posterior gastro-enterostomy. This was done two and half years ago, and the patient is still alive and in excellent health. From the result, it looks like a case of non-malignant ulceration of the pylorus, although the pathologist who examined a gland that I removed at the time reported it to be malignant.

In cases of pyloric ulceration the relief it gives is absolute. By the rapid emptying of the stomach it removes the source of irritation, the food escapes by the new opening, as the spasm of the pylorus that is supposed to exist in these cases is sufficient to prevent its passage over the ulcerated pylorus, and allows the ulceration to heal.

I saw an excellent example of this in a miner, aged 61. The ulcer was situated upon the posterior half of the pylorus, and a scar marked the position on the surface of the stomach. Although the lumen allowed the forefinger to pass, the disease produced considerable dilatation of the stomach from the resistance to the passing of the food.

For simple gastric ulcers which are intractable to medical treatment, where there have been recurring attacks and the patients are rendered unable to follow their employment or enjoy life, and are in constant misery, gastro-enterostomy is justifiable and the only treatment likely to cure them.

A most interesting case of gastro-ulceration with acute hæmorrhage occurred in a patient aged 41. The symptoms dated back 15 years. For all these years she had suffered great pain after food, with the other accompanying symptoms, and had to be cautious to eat only the most easily digested articles of diet; and for the last two years only liquid food. In 1898, in the course of four days, five attacks of acute and profuse hæmorrhage occurred which nearly proved fatal, and from this she was several months recovering; and ever since, stabbing, pricking pains under the left breast and shoulder blade never left her. When she had sufficiently recovered, on more than one occasion I tried to prevail upon her to let me operate, but she would not hear of it. My object was to examine the stomach, break down adhesions and perform posterior gastro-enterostomy. However, on Dec. 27th, 1900, she had two more profuse hæmorrhages that rendered her blanched and pulseless, and on the following day had three more smaller hæmorrhages of a brighter red colour. This indicated that the bleeding was still going on. An ice-bag over the stomach and the usual treatment was pursued. The question to be decided was whether or not to cut down upon the bleeding-point. The patient and her friends were anxious for me to do so, knowing the serious condition it had reduced her to on the former

occasions; and as the bleeding continued I thought it justifiable to operate. Another reason that helped me to arrive at this decision was the fact that only a few months previously I had witnessed the death of one of my patients from hæmorrhage resulting from a gastric ulcer. The percentage of deaths from this cause is low; it is said to be only 5 per cent.

Before beginning the operation, she was transfused with three pints of saline solution and a 1-30 gr. of strych. given. On opening the abdomen, the stomach was bound by adhesions to the under surface of the liver and anterior abdominal wall. The adhesions were carefully broken down in all directions; then the stomach was examined externally, but there was no thickening to be felt in any part of the organ.

A horizontal incision was made over the centre of the stomach; it contained about a pint of mucous and bright blood. After wiping this up with sponges on holders, a careful examination of the interior of the stomach was made. A clean sponge on a holder would return unstained from the cardiac end, but whenever it was passed towards the pylorus it was always bloodstained. A careful search was made in the suspected region, but I could not locate the bleeding-point. I was just about to close up my opening when I found the bleeding had increased. As I pulled down the lower edge of the incision, I saw the blood flowing freely from two points in the opposite sides of a small, oblong ulcer one-half inch by one-third inch. These two points were tied and the bleeding ceased. The ulceration was not deep, and did not extend through the mucous coat. About two inches from it there was another ulcer, but there had been no hæmorrhage from it. The stomach was quickly sewn up and the operation completed by performing a posterior gastro-enterostomy. As the patient shewed signs of failing, she was transfused with 60 oz. of saline solution. Respiration also became so very shallow and weak that before the operation was completed a temporary tracheotomy had to be done. The after history of the case was slow but uneventful. Her condition has gone on improving, and at the present time her sister tells me she can enjoy any ordinary food that is put before her.

Operative treatment in this case fortunately turned out successfully, and the history of the former hæmorrhages justified the extreme measures; but, as a routine practice, I think it a doubtful procedure.

Mayo Robson in his Hunterian Lectures gives the mortality in operative treatment as 64 per cent. as compared with 5 to 10 per cent. in cases treated medically. Still, every case has to be treated on its own merits.

Gastro-enterostomy combined with gastro-plication.—In cases of dilata-

tion of the stomach where medical treatment has been carried out for months or even years, and only affords temporary relief, the patient gradually losing weight and strength, gastro-enterostomy should be resorted to. One of the most interesting and satisfactory cases of the series was one of gastrectasis—an enlargement of the stomach with motor insufficiency. (Dr. B. F. Curtis, *Annals of Surgery*, July, 1900).

G. G., a tall and delicate-looking young man, 21 years of age, consulted me in July, 1900. For six years he followed the occupation of waiter; family history good; had measles when a youth, and four years ago was in a coach accident and rendered unconscious for 12 hours after. He was also severely bruised all over the front of the abdomen. A year later he began to be troubled with a feeling of fullness and a pain of a drawing, cramping character after food. The cramps at first would only come on after going to bed, and be relieved when the flatus—which caused terrible rumbling and noise in the stomach—came up. At first, there were intervals of two or three weeks between the attacks. He had a great thirst, and used to drink large quantities of fluid, a quart or more of milk or buttermilk at a time, and would often throw it up whilst still cold. Six months after the first onset of his symptoms, vomiting came on and kept up for months, usually about twice a day—which always relieved the discomfort. The vomit was of a thick, frothy, mucous character, but there was never any trace of blood. When the vomiting ceased, it was followed by troublesome pyrosis. Always on waking in the morning he would be "blown up like a poisoned pup," as he put it, with gas, but after walking about it dispersed; losing weight and strength gradually and continuously. He told me: "I have taken medicines all the time, both for my digestion and for my bowels, which have been very constipated; washed out my stomach for the last eight months, sometimes daily or every other day. At first, I felt relief from it, but very little latterly. I could pour a gallon of warm water into it. I was very fond of ham, and would sometimes try a very thin slice of it; if the stomach retained it, pieces could be seen in the washings 24 or 36 hours later." For the last year he had been obliged to restrict himself to milk and soups, and these would often come up six or eight hours after. A severe water-brash was constant. On examination, the body was poorly nourished, but the abdomen was prominent as if he were suffering from an abdominal tumour. The prominence was more evident on the left side and extending from above the umbilicus to the symphysis pubes, resembling the outline of the stomach. The percussion note over this area was of the same character and pitch and the loud succussion sound could be easily obtained—and in fact heard when he moved about. There was no

pain on palpation, nor could I feel any tumour. Inflation of the stomach with carbon dioxide rendered the outlines still more evident, and when the stomach-tube was passed well down the patient said he could feel the end of it just above the pubes. His stomach was washed out daily for a week, with very little relief, and then fed on peptonized foods. Operation was decided upon and the usual preparations gone through. An incision 3½ inches long was made in the middle line above the umbilicus. On opening the peritoneal cavity I lifted up each edge of the wound and could readily see the upper border of the stomach opposite the centre of my wound. The pylorus was first examined. Its position was somewhat lower than it should normally be, but it felt soft, healthy and free from thickness, and the stomach wall could be invaginated into it. The organ was then delivered through the incision on to the abdominal wall. It was immensely enlarged. Unfortunately it never occurred to me to measure it whilst it was outside. The largest size œsophageal bougie was laid over the centre of the stomach parallel with the greater curvature, and the walls sewn over it, as in Witzel's operation. About 20 interrupted silk sutures were inserted and tied, and then the bougie withdrawn. This procedure diminished the area of the anterior wall by at least one-third. It is impossible to apply the same method to the posterior surface, so that I completed the operation by performing a posterior gastro-enterostomy.

The resulting shock was not great and the patient made a good recovery. In three weeks he was allowed out of bed and was able to eat white fish, chicken, baked potatoes, bread and toast, feeling quite comfortable after his meals. It is now a year since the operation; he has been working as a cook at a restaurant for the last eight months. In reply to enquiries, he writes that he feels quite well, can eat anything except salt corned beef and cabbage, and has gained 35 pounds, and says he can take as long a bicycle ride as any man.

Ewald gives as the etiology of dilatation of the stomach two causes: 1st, mechanical contraction of the pyloric opening; 2nd, absolute or relative weakness of the expulsive power—that is to say, an atonic condition of the muscular wall. The case evidently comes under the second cause, because there was no thickening of the pylorus or narrowing of its lumen. The history points to impaired muscular tone, probably brought on by the bruising of the abdomen injuring the muscular fibres of the wall of the stomach at the time.

The indications for operation in this case were the very dilated state of the stomach, the absence of any relief from lavage and strict diet, the patient rendered unfit for work, gradually losing his strength, and having to be supported by the other members of his family.

Whether the relief could be obtained by posterior gastro-enterostomy alone, I am not prepared to say, but I firmly believe that the gastro-plication assisted in the rapidity of the relief obtained, though I feel sure that the latter alone would not have brought about the same successful result. For gastro-plication there are a variety of operations—Bircher's, Weir's, Brandt's, Bennett's—but performed in the manner that I have described it is easier of performance, rapid, effectual, and neat in appearance.

Mr. Bennett, in an article in the *British Medical Journal*, February, 1900, speaks of gastro-plication as an unscientific operation, but one which it was stated had been performed with benefit in two cases on the Continent. He also refers to it as a useless measure in a case that was not relieved and eventually terminated fatally. He says: "Had I "opened the stomach and examined the pylorus, as I now should do, "there is, I submit, no room for doubt that I would have detected the "unnatural condition and a curative operation have been performed "instead of the useless measure adopted."

I may here mention a case of gastro-plication only where I found the stomach dilated and prolapsed, the patient suffering from the most troublesome hyperchlorhydria. I found no thickening of the pylorus and therefore contented myself with gastro-plication after Bennett's plan, and in addition uniting the stomach to the anterior abdominal wall by three silk sutures. As long as the patient remained in bed he felt comfortable, but soon after getting up and moving about his symptoms returned. Had I performed posterior gastro-enterostomy I do believe this patient would have been cured.

Gastro-enterostomy combined with gastrolysis.—This patient was operated on 4½ years ago for double salpyngitis with adhesions. For 2½ years afterwards she enjoyed good health; then symptoms of dyspepsia followed and grew worse and worse. Pain was of a dragging, contracting feeling in the pit of the stomach, relieved by lying down but immediately brought on should she stoop to lift anything from the ground. Never suffered from acidity, nor did she vomit as long as she lived upon liquid food, but often experienced discomfort. Washing out the stomach relieved this, and food-like germia was often washed out four hours after taking it. For 11 months she was under the care of several well-known specialists in the States, treated for achlorhydria. She was temporarily improved by the treatment, but a few months after her return home she became as miserable as ever. An exploratory operation was decided upon. The stomach was found slightly dilated and pouched, this condition being produced by a few gastric adhesions, but principally by the adherent condition of the great omentum to the scar

of the wound of the former operation. After separation of the adhesion, the stomach returned to its natural shape. The pylorus felt natural and as the symptoms pointed to a condition of gastrectasia I concluded that it was also safer to perform a posterior gastro-enterostomy. She stood the operation well, her symptoms have completely disappeared. She is fast recovering her former health.

These are the cases for which I performed gastro-enterostomy with permanent and uniform relief in all, except the cases of pyloric cancer, which were only temporarily relieved. This result is encouraging and this form of treatment is undoubtedly applicable to a large class of cases the subjects of which go through life at present in the utmost misery.

Gastrolysis, freeing the stomach from adhesions has been performed in several of the previous cases as numerous conditions both inside and outside of the stomach give rise to them.

Perforating gastric ulcer.—The only case that has occurred in my practice was a case of hour-glass contraction of the stomach in a lady 39 years of age. The history briefly was as follows:—

Symptoms of gastric ulcer began 20 years ago; at one time the pain resembled spinal caries and was diagnosed as such; her medical attendant had the courage of his convictions and put her up in plaster jackets and spinal supports for two years. On a Sunday evening she ate a dinner of roast lamb and vegetables and at midnight was seized with severe, tearing pain in the epigastrium. She could not keep still, but screamed and rolled about the bed. A hypodermic injection of morphia to ease the pain and a dose of castor oil were given. The pain was lulled but never entirely ceased. A morphia tablet was given on the following day. On Tuesday 36 hours after the first sign, she went to the hospital and walked from the door to the elevator a distance of 50 yards. I was asked to see the patient 36 hours after the first onset of pain and from the symptoms it was evident that we had to deal with a case of acute peritonitis. The differential diagnosis was between general peritonitis from a perforated appendix and a perforated gastric ulcer. The patient was in no condition to go into her previous history, but she was able to tell us that the severe pain started in the epigastrium, after which she attempted to vomit but did not succeed in bringing up anything. On palpation, the most painful area was over the right iliac region.

An incision was made over the region of the appendix, according to McBurney's method, this being the point of greatest tenderness, but the appendix was found to be healthy looking. The peritoneal cavity was found full of a greenish, opaque fluid, which I washed out with

several gallons of hot water. Another incision was then made in the middle line above the umbilicus. The stomach and omentum were matted to the anterior abdominal wall. After loosening the stomach, the hour-glass condition was evident and above the middle of the lesser curvature there was a round hole through the gastro-hepatic omentum which would admit the tip of the little finger. This opening, I found, led into the lesser omental cavity, and from it some milky fluid escaped.

By lifting the omentum and colon up, and tearing through the meso-colon, the posterior surface could be examined, and a valvelike perforation in the constricted portion of the stomach was found. Squeezing upon the cardiac portion of the stomach, its contents could be seen escaping through it. Seven or eight sutures were inserted across its long axis performing a gastroplasty.

The abdomen was thoroughly washed out, drains were inserted—one above the stomach under the liver, and another into the lesser omental cavity below the stomach, and from a lower incision another drain into the pelvis. These drains were removed within 48 hours, and but for a phlebitis in one leg her recovery was uneventful. It is now three years since the operation was performed and she has been steadily improving in health ever since, being able to ride a bicycle or walk 5 or 6 miles without being fatigued. The difficulty in this case was to make out the exact condition of the parts. This has led to several fatal mistakes, within the last year, 3 cases have been reported in the *British Medical Journal* where the cardiac division of the stomach was not found until at the post-mortem, and an operation completed by dealing with the distal or pyloric portion of the stomach.

In the first place one should bear in mind that such a condition does exist, and in the second place one must not be satisfied until the outline of the stomach is clearly defined.

In my own case after examining the pyloric end and in proceeding towards the cardiac end I found it terminating in a narrow neck which I knew could not be the œsophagus reaching down to the middle line, and therefore it was quite evident what I had to deal with.

The cause of the constriction was a cicatrization of an old ulcer. The constriction in the majority of cases is found as in this case near the middle of the stomach. For an able and exhaustive account of the surgical treatment of hour-glass contraction of the stomach I refer you to a paper by Dr. Watson of Boston, read before the American Surgical Association, in May, 1900. This condition of the stomach presents itself in two forms—congenital and acquired. In several recorded cases of the former, the patients were free from any gastric symptoms.

but there is no example on the other hand in the acquired cases that gastric symptoms were not also present. This condition of the stomach has been frequently correctly diagnosed and operated upon. Distending the stomach with carbon dioxide, or with water, the water is heard rushing through the contracted portion; and again by introducing bismuth in solution and taking an X-ray photograph of the stomach. The operations that may be resorted to for the relief of this condition of the stomach and gastric-plasty, gastro-gastrostomy, gastro-enterostomy.

Perforating duodenal ulcer.—This case I saw 24 hours after the perforation occurred. The history resembled that of perforation of the stomach. The peritoneal cavity was full of purulent fluid. The seat of the perforation was found by the sudden liberation of a collection of dirty fluid intermixed with particles of food from the right hypochondriac region. The opening, which was close to the pylorus, was closed with a few Lembert sutures. The toilet of the peritoneum was attended to in the same manner as in the preceding case. The patient lived only 14 hours after the operation.

Early operation in these cases gives the only chance of recovery. There were only a few cases of recovery from perforating duodenal ulcer until recently. Now that the diagnosis is thoroughly understood. and the signs of perforation are more readily recognized and operation resorted to without delay, the records are fast improving. In all cases it is best to simply suture the ulcer and not try and excise it.

In the early days of abdominal surgery the surgeon occasionally closed his abdomen with draining the peritoneal cavity, having failed to find the perforated organ. But I venture to say that the average surgeon who practices this branch of his profession these days seldom fails. The common sites of perforation and causes which give rise to peritonitis are so familiar to them, that they run over all the likely starting points without loss of time and soon arrive at the seat of the trouble. Some able and well-known surgeons of the day tell you that if you open the peritoneal cavity for any operation, such as ventral fixation. appendicitis or any other intra-abdominal operation, that you should pass your hand over and examine all the other organs. This I consider is too heroic and sweeping—unless you are doubtful as to the diagnosis.

Mr President and Gentlemen I have touched only in a very fragmentary manner upon certain points in this very interesting field of surgery, which, with improved means for the correct diagnosis of the conditions of the interior of the stomach, will enable us to relieve many more unfortunate sufferers.

INFECTIOUS PNEUMONIA.*

BY

W. S. Muir, M.D., C.M., L.R.C.P. & S. Ed., Truro, Nova Scotia.

For any man to have got up a few years ago and advocated the infectious character of pneumonia would have been disputed; epidemics have been described but questioned; but now we have bacteriology lending the weight of its evidence in support of clinical observation. Articles written under this heading are very scarce, and it is a difficult matter to find enough written upon this subject to enable one to come to a definite conclusion upon any one point. Most writers will convince you that influenza has an undoubted influence upon the infectious character of pneumonia.

Since beginning practice I have seen two epidemics of pneumonia that I am positive were not associated with influenza. In the pneumonia of influenza, in my practice, the onset has been very insidious, in fact so much so, that in a few cases the character of the sputum has been the first intimation that pneumonia was present. This has not been the history of the cases that I have placed under the class infectious pneumonia; in the latter the onset is very different; severe rigors followed by fever and pain on one side or other has been noted in most of these cases.

Case I.—On Sunday, April 7th, 1901, I was called to see E. M., aged 10 years. Found the child crying with pain in left side. The mother informed me that she had just got her "heated up" after a severe chill. Temperature 105°, pulse 130, respiration 42, slight hacking cough, no expectoration, marked pleuritic friction sounds. The following day there were signs of pneumonia consolidation, cough somewhat loose, expectoration scant, but bloody. The case ran through a usual course and on the sixth day terminated by a crisis. The child made a good recovery.

Case II.—On Monday, April 8th, L. M., sister, aged 14 years, was seized with severe chills and high fever, and developed a right-sided pneumonia, which terminated by a crisis on the ninth day, only to be followed two days after with a left-sided pleuro-pneumonia, which proved fatal on the 23rd day of April, the seventeenth day of the disease.

Case III.—On Thursday, April 11th, Alice M., sister, aged 15, was seized with chills, fever, cough and pain in left side. Ran through a

* Read before the Canadian Medical Association, August 28th, 1901.

typical course of pleuro-pneumonia, which terminated by a crisis on the tenth day of her illness, and made a good recovery.

Case IV.—H. M., aged 12 years, brother, developed a pneumonia on the 13th of April. In his case there was no decided chill. The usual pleuritic sounds were present early, the case assuming more of a pleuritic character. The recovery was quick. The patient was ill about two weeks.

Let me draw your attention to a few facts in connection with these cases before going into the bacteriology of pneumonia.

First, there was no influenza in our town at the time, nor had there been for some months. They were all children of the same family, and occupied the same rooms for the most part. The onset in each case was quick and the termination marked. Last March and the early part of April with us was remarkably dry and cold, and where the house was situated there was a very low level of subsoil water, two points noted by Dr. Whitelegge as favourable conditions for the production of this disease.

Bacteriology of Pneumonia.

The first organism to be described was by Friedlander. He described it as an organism with a capsule and got growths outside the body. He considered that this was the cause of the disease.

A short time afterwards Frankel described another which is shorter and thinner and also with a capsule, but difficult to cultivate outside the body.

Friedlander's organism is known as the pneumobacillus, Frankel's, as the pneumococcus. The latter is the important one; and while the pneumobacillus is *easily* cultivated, the pneumococcus is with *difficulty*. There is very little doubt that many organisms which Friedlander described as his were those of Frankel, but he got the two confused.

Frankel's pneumococcus.—This organism can be readily found in the sputum in pneumonia and also in the lung after death. The following are its characters:

It is rather a minute organism, 1 micron (1-25,000 in.) in length, and a little less in thickness. It usually occurs in pairs, which are arranged so that the adjacent ends are blunted and the distal pointed. It is thus called the Diplococcus Lanceolatus. Then it has a distinct capsule, which is a gelatinous swelling of the envelope. It may occasionally be found in numbers of more than two together, *e.g.*, in short chains; but in the chains the diplococcus arrangement can be seen. It stains readily and *holds the colour with Gram's method.*

The cultures closely resemble those of the streptococcus in character,

but the colonies and growths are even less abundant and it dies out easily and is very delicate. The colonies tend to remain separate. It does not liquefy gelatin, but the best medium for growth is agar serum. It grows best at 37° C. (99.5° F.), but also grows as low as from 21°-22° C.

Pneumobacillus.—This organism is larger and pleomorphous, short and more like a bacillus. It also has a capsule. It stains easily, but *does not stain by Gram's method.* This organism grows easily on ordinary media, rapidly on gelatin, and forms a characteristic growth in tube cultures. The disc of the growth on the surface is somewhat heaped up and there is a growth along the needle track. The growth has been compared to a nail driven into the medium. Its colour is whitish yellow. It does not liquefy gelatin, but sometimes develops gas bubbles. On agar it forms an abundant viscid, mucoid-looking growth. On potato it grows and forms a white layer. The pneumococcus has thus more the characteristics of a true parasite than the pneumobacillus, which flourishes readily outside the body.

Relation of these Organisms to Pneumonia.

Pneumococcus.—This organism is found in large numbers in the sputum and throughout the hepatized lung, but *in largest numbers where the inflammation is spreading.* It is also abundant in pleural exudations and in complications. There is little doubt that the pneumococcus is practically *always* present in typical pneumonic conditions.

Pneumonia is not a specific disease, and may be caused by other organisms, but, nevertheless, in typical croupous pneumonia the pneumococcus is always present. It occurs in a number of other conditions. In children it is common in otitis media. It is also found in many cases of meningitis, both those secondary to ear disease and those in epidemic cerebro-spinal meningitis. It also occurs in ulcerative endocarditis, pericarditis, and in empyema. It is very commonly the causative organism in empyema in children and also in adults after pneumonia. It may even be found in suppurative periostitis and peritonitis. In this we have an analogy to the distribution of the streptococcus. The variability of its effect is probably due to the virulence of the organism. Acute croupous pneumonia is the condition analogous to erysipelas. In both conditions there is an acute inflammatory state, which spreads by direct continuity of tissue, and in both, after a time, the disease spontaneously comes to an end. The pneumococcus is present in the sputum of a certain proportion of healthy individuals, although here it usually has a low degree of virulence. This circumstance was supposed to be evidence that it could not cause the disease, and was looked on as a

sputum bacillus. But we now interpret the facts differently. We see that in health it may be in the sputum, but in conditions of depression of vitality the organism can invade the lung and produce the disease. It has also been found in some forms of broncho-pneumonia. In hypostatic pneumonia it is usually associated with pyogenic organisms.

In influenza pneumonia the influenza bacillus may be present alone or with the pneumococcus. This is correspondingly true of diphtheria. Sometimes the diphtheria bacillus is found in broncho-pneumonic patches and sometimes with the pneumococcus.

In typhoid pneumonia the typhoid bacillus may be present along with the pneumococcus and occasionally the bacillus coli also. It will thus be seen that a close analogy exists between the behaviour of this organism and that of the streptococcus, viz. :—

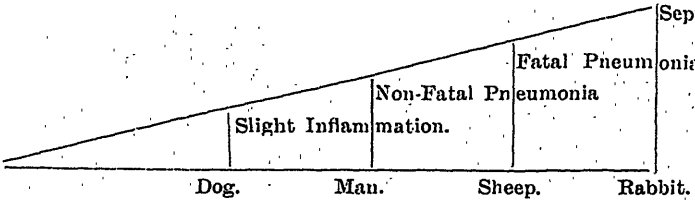
(*a*) Both may produce a rapid inflammatory condition.

(*b*) Both may produce inflammatory conditions of different characters.

(*c*) Both may produce suppuration.

Experimental.—It is found that different animals have a varying degree of resistance. Rabbits and white mice are among the most susceptible. In them the disease produced is not pneumonia, but septicæmia. The organisms multiply in large numbers in the blood. Sheep are not so susceptible, and if the pneumococcus be injected in the lung, a pneumonic condition is set up, which is usually fatal. Dogs are still more resistant. The human subject is between the sheep and the dog as regards susceptibility.

As the result of innoculation different results are got in different animals. It may be represented thus:—



Septicæmia indicates the highest susceptibility. In the case of the pneumococcus the rabbit is the most affected.

The organism, then, is one whose virulence can be varied, and if attenuated it may produce even in the rabbit a slight inflammation; whereas if it passed rapidly through a series of susceptible subjects it has its virulence rapidly exalted and may produce not only a fatal pneumonia, but an acute septicæmia.

Friedlander's Bacillus.—It is present in a small proportion of cases

of pneumonia and as a result to be expected he mistook the pneumobacillus for the pneumococcus.

Occasionally the pneumobacillus is present in inflammatory complications, *e.g.*, in empyema, and no doubt has a certain action in producing inflammation and suppuration, but its exact part in pneumonia is subsidiary.

Staining by Gram's Method.

1. Cover glass specimens stained five to ten minutes in anilin gentian-violet.
2. Drain off superfluous stain and immerse a-half to two minutes in:

Iodine	1 part.
Pot. Iodid.	2 parts.
Water	300 parts.

3. The purple colour of gentian violet changes to dirty yellowish brown.
4. Wash in alcohol,—purple colour returns.
5. Continue with alcohol till no more colour runs off the coverslip.
6. Wash in water, dry, and mount.

SYPHILIS AS SEEN BY THE OPHTHALMIC SURGEON.

BY

FRANK BULLER, M.D.,

Professor of Ophthalmology, McGill University; Ophthalmologist to the Royal Victoria Hospital, Montreal.

Owing to the manifold types of tissue and the delicate functions involved in pathological conditions affecting the visual apparatus, we have a combination which is capable of developing well-marked symptoms from trivial lesions, such as would almost certainly escape the notice of the most astute observer when occurring in any other part of the economy. For this reason it falls to the lot of the ophthalmic surgeon very often to discover the presence of active syphilitic virus where the disease had long been considered cured, or where it had been so long latent that the subject thereof cherished the belief that he had nothing more to fear from his constitutional affection; and it often happens that the illusion has been strengthened by flattering assurances on the part of hopeful medical counsel. Although gross lesions such as acute iritis, gummatous growths in the uveal tract, retinitis with profound changes in the vitrious chamber and great disturbance of vision, paralysis of the third nerve, optic neuritis with palpable signs of intercranial mischief, may point so obviously to the nature of the trouble that even the inexperienced physician can hardly make an error of diagnosis, there are many other less conspicuous evidences of the imperfectly controlled constitutional fault, which enable an expert in ophthalmology to read between the lines—so to speak—and throw light upon what is going on by a skilful interpretation of obscure and often unsuspected signs. The subject is too wide to treat in detail. I shall therefore limit myself to some clinical facts and personal observations which I hope may prove interesting and perhaps instructive to all who care to follow my remarks.

With the exception of rare cases in which primary syphilis makes its appearance in the eyelid or conjunctiva, the ophthalmic surgeon is never called upon to treat the disease in this stage. In the secondary stage iritis is sufficiently common to bring a good many cases under his notice. Hereditary spyhilis contributes a fair amount of material to his clientelle, but by far the largest share of his experience is in connection with the tertiary period. In this class of cases the disease has often been latent or apparently cured for a long period, when some ocular

* Read before the Canadian Medical Association, Winnipeg, August 29, 1901.

disturbance makes its appearance and demonstrates that the routine treatment thus far employed has only sufficed to mask the progress of the disease. I do not intend to raise the question as to the absolute curability of syphilis, and I am not in a position to estimate even approximately the chances of cure when the most approved methods of treatment have been faithfully followed from the outset. It may be that there are multitudes of cases in which fortunate results are attained, but my own observations have sufficed to establish the fact beyond all controversy, that a great many syphilities, who have undergone routine treatment for months, or years, have not become free of the virus, as they present from time to time unmistakable evidences of its continued presence in such ocular lesions as come within the ken of ophthalmic surgeons. A brief general statement of the various syphilitic ocular lesions which have come under my own observation in the past 30 years may be in place. I shall omit syphilitic affections of the orbital walls and lacrimal sac.

Lesions of the eyelids and conjunctiva are decidedly rare and have been represented by a few cases of conjunctivitis during the course of muscular and papular syphilides of the skin. As later manifestations, I have also seen a few ulcerations of the palpebral conjunctiva, probably of syphilitic origin, and two or three of gummatous infiltrations of the eyelid, which have disappeared under the use of inunctions followed by large doses of potassium iodide.

The interstitial keratitis often associated with hereditary syphilis is an affection so common and so characteristic that every ophthalmic surgeon has many records of it in his case-books. It is usually, though by no means always, associated with certain dental peculiarities, first pointed out and correctly described by Jonathan Hutchinson. I have here a good plaster cast specimen of the "Hutchinson teeth" recently taken from a child presenting the characteristics of intertitial keratitis, and I take the opportunity of showing this specimen because I have found that a clear understanding of what constitutes the dental defects due to heredity syphilis is too often wanting, where we might reasonably expect an accurate knowledge of this subject. This form of interstitial keratitis is chiefly remarkable from the fact that its nature is seldom properly recognized by general practitioners, and consequently unsuitable, and too often harmful, treatment is pursued, the result being that many such eyes are practically ruined before they come to the ophthalmologist.

A true interstitial keratitis similarly characterized by grey infiltration and deep vascularity, I have seen occasionally as a tertiary manifestation of syphilis, which occurs as far as I am aware from my own observa-

tions not earlier than one year, nor later than three years, after the original infection.

There is still another variety of keratitis, characterized by superficial as well as deep, circumscribed, densely white opacities, varying in size from mere dots to infiltrations as large as two millimetres or more in diameter, not tending to ulcerate or become vascular, and attended with active signs of irritation, which I believe is distinctly a syphilitic lesion, though a very rare one.

As is well known, the interstitial keratitis of hereditary syphilis is apt to be associated with peripheral and perhaps a general choroiditis, and we must bear in mind that every form of syphilitic keratitis is attended with a tendency to iritis. A recognition of this fact gives us the key to the rational treatment of this class of cases, which should be soothing rather than stimulating; and some suitable mydriatic must be constantly used so long as the irritative symptoms are still conspicuous.

Of equal, and perhaps still greater, importance, are the syphilitic lesions presented by the iris. These are:—

1. Simple plastic iritis (or, sometimes a sero-plastic if I may be allowed the expression), by far the most frequent form of syphilitic iritis and occurring as an early secondary symptom.

2. Nodular iritis, sometimes called gummatous iritis, which I believe nearly always makes its appearance between six and nine months after the original infection, and very often when there is no other sign of syphilis present. The typical form of nodular iritis is, I believe, absolutely pathognomonic of syphilitic infection and requires neither history nor any other sign or symptom to establish the diagnosis. A more diffuse but rusty-looking thickening or infiltration of the sphincter portion of the iris sometimes occurs under similar circumstances and is almost equally characteristic as a sign of syphilitic contamination, belonging to about the same period as the more definite nodular variety.

3. A mild form of iritis associated with opacity of the vitreous and other signs which justify a diagnosis of choroido-retinitis to which the iritis is secondary. I am under the impression that this complex lesion belongs between the first and third years after the primary infection, but have not sufficient data to establish definitely the time limits. An ordinary iritis occurring in a syphilized person several years after infection is not necessarily to be regarded as a syphilitic lesion.

4. Scleritis, resembling the ordinary rheumatic form of this affection, and the much more formidable, though fortunately rare gummatous cyclitis, are met with as distinctly tertiary syphilitic lesions.

5. A violent from of retinitis attended with much opacity of vitreous

and great depression of vision usually affecting both eyes, sometimes occurs as one of the earlier tertiary symptoms.

6. A milder, more chronic, and often relapsing form of retinitis is also not uncommon but is of later development.

7. Optic neuritis, when due to syphilis, I have only seen as a tertiary lesion. It may be either local, affecting the ocular and orbital portions of the nerve, but much more frequently occurs as a descending neuritis due to some coarse intercranial lesion and in connection with other signs of brain disease.

8. Finally we meet with disturbances of mobility due to syphilitic lesions of the nervous apparatus presiding over the muscular functions of the organs of vision. Considering the small size, isolated and thoroughly protected position of the ciliary ganglion, it has always seemed to me that this little mite of nerve tissue comes in for more than its share of the syphilitic poison. Nearly always monocular, irido-cyclo-plegia, due to disease definitely localized in the ciliary ganglion, is by no means a rare affection, and I believe in more than half of all such cases is the result of syphilis.

It is quite certain that a large proportion of paralytic affections limited to one or more of the extrinsic ocular muscles is due to syphilitic lesions occurring in the course of the several oculo-motor nerves, and besides these peripheral paralyses we also meet with many cases of central or nuclear origin incident to vascular or other degenerative changes in the central nervous system.

A somewhat formidable list truly, but I will venture to say that no ophthalmologist of ordinary experience has not had opportunities for observing the entire series; from which it follows that a large percentage of constitutional syphilis is not cured by the treatment in vogue. Therefore, assuming that syphilis is curable if properly treated, there must be something wrong with the ordinary methods of treatment. The fault may lie in the remedies employed or in the manner in which they are used. No doubt a certain proportion of cases are practically untreated from the first, or, through individual negligence beyond the control of medical advisers, the treatment is wholly insufficient; but even this will not account for many failures in cases where both patient and physician have made every reasonable effort to get rid of the disease. There is one significant fact to which I would direct particular attention. With the exception of a few instances in which no particular treatment had been followed, I do not remember having met with any case of recurring syphilitic lesions in which there had not been a long course of what I call the ordinary routine treatment by proto-iodide of mercury. This routine treatment appears to consist of proto-iodide in

pill form gr. $\frac{1}{6}$ to $\frac{1}{4}$ three or four times daily, varied at times by intervals during which potassium iodide is more or less vigorously administered. If this treatment occasionally permitted the development of fresh lesions during its progress such an occurrence might be explained as due to some idiosyncrasy of the patient or some fault in the quality of the preparation used; but, if one sees the most typical of all syphilitic lesions, viz., nodular iritis time and again occurring in persons who were actually then, and had been for a long time previously, saturated with proto-iodide, who would not be forced to the conclusion that proto-iodide of mercury, at least as ordinarily administered, is not a reliable antisyphilitic. This, as a matter of fact, is just what we have seen over and over again.

More than this, in this class of cases, so soon as these very patients are put in a fit condition to take mercury in some efficient form, the lesions, which actually come on under the full influence of the proto-iodide, can be made to disappear like magic by other methods of administering the drug. Precisely the same thing holds good in regard to lesions which cause disturbance of motility; and they too can be cured with equal facility by the proper exhibition of mercury. In view of innumerable cases of temporary relief, if you like, but imperfect cure, whether you like it or not, I contend that ophthalmologists and perhaps specialists in other departments of medicine and surgery are justified in affirming that the proto-iodide treatment of syphilis, if not altogether a failure, still falls far short of possessing the merit its widespread use would seem to imply. I have often heard it said that one of the chief merits of proto-iodide as an antisyphilitic is that when it does produce mercurialization, this is more readily controlled and more easily passes off than is the case with other preparations of mercury. My interpretation of this fact, if it be a fact, is that this drug has a proportionately less profound influence, and is therefore just so much less capable of exercising a curative effect. If I am correct in assuming that the numerous cases of constitutional syphilis coming under the observation of ophthalmologists are a proof that the treatment administered by those who have the management of the primary and secondary stages, or in a general way of the patient from the outset of his disease, is not as efficient as it should be, it will further be acknowledged that an imperfect method of treating constitutional syphilis is responsible for the subtle connective tissue and vascular degenerations which are well known to destroy the lives of, or relegate to the insane asylums, so many syphilitics at a time when they should still be in the enjoyment of perfect health and unimpaired vigor of mind and body.

If I am correct in my assumption, it is evident that the routine treatment of the present day has much to answer for, and there is urgent need of some other and better means of combating the infection.

Discussion.

In the discussion which followed, Dr. Lafferty asked what treatment Dr. Buller had found most efficient in such manifestations of syphilis as he had described. If it were necessary to give mercury he would like to hear some expression of opinion with regard to the way of giving it. Dr. Shepherd agreed in the main with Dr. Buller as to the inefficacy of proto-iodide of mercury in syphilis and had long ago ceased using it in his practice. He relied chiefly on the old well-tried remedy, grey powder, and in later syphilitic lesions on potassium iodide in large doses.

Dr. Buller, in reply, said: The treatment in all cases coming under the care of the ophthalmologist is based on the belief that mercury in some form, administered in such a way as to cause the least possible disturbance to the digestive organs is essential. I have tried and thought well of grey powder and certainly prefer it to the proto-iodide, but I believe that the skin is the proper channel for introducing this drug into the system. Vapour baths are perhaps very suitable in some cases and in others hypodermic injections of mercury, but the most reliable and most efficient method is by the old-fashioned blue ointment, half a drachm or more thoroughly rubbed in morning and evening, and continued for a month or six weeks. At the same time the patient requires tonics and good food. Quinine in tonic doses is very helpful. The greatest care must be taken not to induce mercurial stomatitis. Patients who have been already over dosed with proto-iodide may require a period of rest during which the mouth and gums are to be made as clean and healthy as possible, before the inunctions can be used. After a course of several weeks' mercurial treatment, the patient is put upon increasing doses of potassium iodide, which must be well diluted. Two or three months of this treatment will suffice, and afterwards the so-called mixed treatment, mercury in very small doses combined with potassium iodide and continued for a long time, apparently suffices to protect these patients from future outbreaks of the disease.

CLINICAL NOTES.*

BY

GEO. T. ROSS, M.D., D.C.L.,

Fellow, American Laryngological Society; Laryngologist, Western Hospital; Lecturer on Laryngology, Bishop's College, etc.

Congenital Stenosis of the Larynx.

A. B., aged 3 years, child of Hebrew parents, living in the Maritime Provinces, in good circumstances, was brought to me for difficulty of phonation. The child had never cried since she was born. When irritated or forbidden to have her own way, instead of showing her resentment by loud crying, she would give vent to a muffled sound as if a gag were held over her mouth. No other sound was ever uttered by the child. Deglutition was perfect and the nourishment of the body was natural, so that when I saw her she was a healthy, even a robust, child. The growth and health of the patient from infancy being normal, the parents did not seek other advice than that of the local practitioner until she reached the age of three years. I made special enquiries regarding syphilitic heredity or other dyscrasia occurring in the family connections near or remote, but failed to elicit any testimony sufficient to establish the origin of the malformation. No family history of similar growths could be obtained.

The whole difficulty being referable to the larynx, I proceeded to examine that organ, a rather troublesome matter with a fractious child, the parents of which had by over-indulgence rendered her disobedient and ill-tempered. Being very anxious to ascertain if possible the nature of the stenosis, after much effort I succeeded in obtaining a glimpse of the following condition:—

Mucous membrane of the larynx apparently healthy throughout. A web or band was seen stretching across the glottis, which bound the vocal cords together. The color of this band was lighter than the surrounding mucous membrane generally. Inspiration and expiration was conducted through an oval opening in the web, large enough to admit of the aëration of the blood when the child was not excited, but any excitement at once produced a cyanotic state.

The term stenosis is rather ambiguous, since nearly every deviation from the normal in this region is apt to obstruct the calibre of the laryngeal tube to a greater or lesser degree, but congenital stenosis is not an ordinary state, and thus I have thought it worth while to bring it before

* Read before the American Laryngological Society, Buffalo, June 21, 1901.

your attention for the purpose of discussion as to the line of treatment which is likely to give best results.

Arrested development of the larynx is sometimes found along with imperfection of the genital tract; and the respiratory apparatus being formed from the same source as the larynx, it is rare to find that organ mal-developed without some want of complete formation in the lungs, trachea, or bronchi. In this case no trace could be found of any divergence from the normal; indeed, the entire bodily development was otherwise perfect.

The case having been explained to the parents and the necessity for operative treatment set forth, very strong objection was made to any measures of an operative character, and the child was taken home until the parents could decide the matter.

Papilloma of the Epiglottis.

J. D., aged 39, plumber, seen in Nov., 1900, complained of cough and pain upon swallowing, but the latter symptom was not severe and more like the sensation as of the presence of a foreign body. Empty swallowing caused more discomfort than in taking food.

Patient is a medium-sized man of good development and well nourished. Has lost weight recently and his work fatigues him more than usual. Cough was thought by patient to be due entirely to the throat trouble, but examination showed loss of resonance in the apex of left lung. Family history is decidedly tubercular, two brothers having died of phthisis pulmonalis.

On examination of larynx, it appeared generally anæmic. Epiglottis is red, tumified, and somewhat puckered over two-thirds of its area, beginning at the right aryepiglottic fold. To this extent it was double the ordinary thickness and its mobility was greatly diminished. The tumour was mostly smooth, but some elevated patches were noticeable here and there, while it was covered throughout with hyperæmic mucous membrane. No warty excrescences were present. The inter-arytænoid space was somewhat puckered and infiltrated. The ventricular bands, trachea and œsophagus were generally anæmic, but no ulceration was anywhere visible. Tubercle bacilli were found in the sputum. Prof. Brucre, of Bishop's College, kindly examined a piece of the tumour which I sent him, and reported that it was a true papilloma.

Under treatment, cough subsided and bacilli disappeared, with a distinct gain in weight of 10 lbs. in two months. The tumour meantime has steadily grown without causing much increased discomfort; it has a greater thickening at the ary-epiglottic fold on the right side, while two more distinct lobules are in evidence apparently by a con-

striction in the centre of the tumour. The general surface of the larynx is unchanged in colour, while more immobility of the epiglottis is plainly seen. There is no ulceration or increase of dysphagia, and no increased obstruction to respiration.

The improved strength and constitutional gain during the past couple of months were such that patient desired operation to relieve the sensation of a foreign body in his throat. He has been persuaded to go to the country for the summer with nothing but a cleansing spray and constitutional remedies.

My object in bringing this case before the Society is somewhat the same as last, viz., to discuss the advisability of removing such a tumour in the face of a marked tuberculous condition. Suppose the patient to return home distinctly improved in health, and no bacilli to be found, while the tumour continues to grow, or even remains quiescent, with no increased discomfort in swallowing or breathing; would an operation which would take away half the epiglottis be warranted? I am aware that many would decide against operating, but some others may be present who have done such an operation successfully under similar circumstances. I may say that the wound made by excision of the specimen for examination healed perfectly, and that no bacilli were found in the tumour; while the possibility of such a tumour becoming malignant must be considered.

ERRATUM.

The title of the article by Dr. A. Lapthorn Smith on page 647 of the August number should read:—Case of Interstitial Tubal Pregnancy, etc.

RETROSPECT

OF

CURRENT LITERATURE.

Surgery.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

Deaths from Malignant Disease.

MASON.—"Some Remarks upon an Analysis of Five Thousand Cases of Death from Malignant Disease."—*British Medical Journal, May 18, 1901.*

Dr. E. N. Mason, who was one of the committee appointed by the Birmingham and Midland Counties Branch of the British Medical Association to enquire into the influence of locality on the prevalence of malignant disease, gives an interesting account of the analysis of 5,000 deaths due to the various forms of cancer. Of these 5,000 cases, 1,837 were males, 3,018 were females, and in 145 the sex was not stated. These figures show that 62 per cent. of the cases occurred in females, as compared with 38 per cent. in males. If, however, all cases of malignant disease occurring in organs peculiar to either sex be excluded, we find that 53 per cent. of the cases are males and 47 per cent. females. This preponderance of cases among males might be attributed to the fact that men are more liable to causes which are considered as predisposing to cancer than are women, but any such consideration does not explain the fact that the mortality from cancer during the past thirty years has been much more marked among males, amounting as it does to 78 per cent., as compared with an increase in females of 42 per cent., almost double.

While these figures would point to a greatly increased mortality from malignant disease in both sexes, there are facts which go to show that the increase is perhaps more apparent than real. As far as women are concerned, 40 per cent. of deaths due to cancer are found to have been cases in which the disease had its seat in either the uterus or the breast. Such cases were as easily recognized in their advanced stages, thirty years ago, as they are now; but it is not improbable that there were many cases also whose nature was not appreciated.

In the male cases we find that the most marked increase has been due to malignant disease of the stomach and pylorus; in fact these regions are responsible for more than a quarter of the male cases, and it is in just such that increased skill in diagnosis would tend to influence the number of cases which would be certified as cancer.

Another point which would tend to diminish the number of female cases as compared with males, is the great advance made in recent years in the surgical treatment of malignant disease of the uterus and mamma, leading to the saving of many lives which would have been sacrificed thirty years ago.

The analysis of these 5,000 cases shows that malignant disease of the tongue, œsophagus, stomach, jaws, face, mouth, lips, limbs, and bladder, is far more common in men than in women ; *e.g.*, stomach and pylorus, 28 per cent. in males, as compared with 11 per cent. in females: bladder, males, 4.25 per cent., females, 0.7 per cent.; œsophagus, males, 5.8 per cent., females, 1 per cent.; tongue, males, 4.4 per cent., females, 0.5 per cent. In disease of the liver and gall-bladder there is less difference between the sexes, males being affected in 16.7 per cent., as compared with 13 per cent. in women.

It is noticeable that if we include disease of the liver most probably secondary to disease in the stomach or intestine, about three-fourths of all cases of cancer in the male occur in some portion of the alimentary tract.

The conclusions of the committee concerning the influence of locality upon the prevalence of malignant disease, based as they are upon the consideration of so large a number of cases, are important, and among others include the following:—

The great difficulty of diagnosis in many cases of cancer makes it probable that the present death rate from cancer is underestimated.

A damp, ill-drained, water-logged soil, of whatever geological formation, is more frequently associated with a high cancer death rate than is a dry, well-drained soil. There is abundant evidence of the existence of groups of houses in which cancer is found with marked frequency; and some evidence which tends to show that second and third cases occur in the same house with greater frequency than can be accounted for by mere coincidence. Cancer occurs more frequently in old than in new houses and districts.

Spinal Anæsthesia.

Angus McLean.—"Spinal Anæsthesia."—*Philadelphia Medical Journal, July, 1901.*

Attention was first called to this method by Dr. Seward Corning who, in 1885, employed it in his experimental work. The method was re-

suscitated by Professor Bier in Germany some two years ago, and he was followed by Professor Tuffier of Paris, who demonstrated its applicability to all operations below the diaphragm. Since August, 1900, it has been widely used in all parts of the United States.

The method of its use consists in the injection into the spinal canal of 1-5 to 1-3 of a grain of cocaine, preferably in a two per cent. solution. The needle is inserted through the lamellar space, between the fourth and fifth lumbar vertebræ. The tip of the spinous process of the fourth lumbar vertebra, which is on a level with the crests of the ilia, is taken as a guide, and the needle is inserted one-third of an inch laterally from the spine, and is directed inwards until it enters the canal. The escape of cerebro-spinal fluid will indicate when the needle has entered the space. During the injection the patient should be in a stooping posture so as to widen the space between the lamellæ.

Sterilization of the cocaine may be affected by means of a water bath, filtration through a Chamberlain filter, or by dry sterilization in small envelopes, the drug being subsequently dissolved when required in sterilized water. The syringe must be carefully rendered aseptic.

The affects of the injection vary in different patients. Some will succumb to its analgesic effects in eight minutes, while it will require thirty minutes in others. As a rule the analgesia begins in the soles of the feet and extends upwards, even as high as the clavicle. The injection may cause nausea and vomiting, but other patients will show no ill effects. The most constant and annoying distress following the injection is severe headache, usually of the occipito-cervical region. It may last three or four days. This headache may be somewhat relieved by the use of bromide, codeia, hyosine, hydrobromate and nitroglycerine.

Mikulicz has reported forty cases of spinal anæsthesia with satisfactory results. Bier has collected records of 1,200 cases, and points out that the amount of cocaine required in different persons to produce analgesia varies considerably, from one to three centigrammes. He also notes the occurrence of symptoms of cocaine poisoning, such as nausea, dizziness, vomiting, chills, rise of temperature, circulatory disturbances, paresis, and in a few cases, collapse and death.

Dr. McLean has operated by this method twenty-five times. He has found it difficult to select patients who will act favourably under its use, for he has seen the strongest men suffer most severely from its after effects. All his cases made good recoveries.

Report of a Lipoma Removed from the Cheek under Medullary Narcosis.

MORTON, *Philadelphia Medical Journal, July 6, 1901.*

The patient, a man aged 65, had a large lipoma of the cheek of

twenty-five years standing. Owing to the diseased condition of the heart (aortic insufficiency with dilatation) and chronic nephritis, a general anæsthetic was contra-indicated. The tumour during the past year had caused much trouble from its weight and throbbing, as well as from its appearance.

Half an hour before the cocaine injection the patient received 1-4 grain of morphine and 1-30 grain of strychnine hypodermically. Twenty drops of a two per cent. solution of cocaine were injected into the second lumbar space. Analgesia was complete in the lower extremities in three minutes, in the fingers in ten minutes, over the head in twelve minutes. The patient felt no pain during the operation. Hæmorrhoids were removed by cautery at the same sitting. There was slight nausea but no emesis just before the operation, and the patient did not suffer from shock. At the time of the cocaine injection the pulse was 128, respirations 22; fifteen minutes after the injection the pulse rate was 60 to 64, respirations 24. The patient took some whisky during the operation and expressed himself as feeling well.

E. J. Semple.

Reviews and Notices of Books.

SAUNDERS' QUESTION-COMPENDS. ESSENTIALS OF DISEASES OF CHILDREN. By WILLIAM M. POWELL, M.D. Third Edition. Thoroughly Revised by ALFRED HAND, Jr., M.D., Dispensary Physician and Pathologist to the Children's Hospital, Philadelphia. Philadelphia and London. W. B. Saunders & Company, 1901. Canadian Agents, J. A. Carveth & Co., Toronto. Price, $1.00.

The quiz on diseases of children has been revised by Dr. Alfred Hand, who, however, has made but little alteration in the contents. A chapter on infant feeding has been added but it fails to give a very clear conception of the subject, and if this is all the student of pediatrics is expected to know concerning the artificial feeding of infants, we pity the infants committed to his care. The part devoted to infectious diseases has been rewritten and forms about the best chapter in the book.

SAUNDERS' QUESTION-COMPENDS. ESSENTIALS OF REFRACTION AND DISEASES OF THE EYE. By EDWARD JACKSON, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic. Third Edition, Revised and Enlarged. Philadelphia and London W. B. Saunders & Co., 1901. Canadian Agents, J. A. Carveth & Co., Toronto. Price, $1.00.

In this edition the work has been carefully revised and very much enlarged, and a more symmetrical arrangement made of the contents. A chapter has been added on the tests and requirements of vision for schools, railroads and public services. The book compares favourably with others of the series.

SAUNDERS' MEDICAL POCKET FORMULARY, with an Appendix. By WILLIAM M. POWELL, M.D., Author of "Essentials of Diseases of Children," etc. Sixth Edition. Thoroughly Revised. Philadelphia, W. B. Saunders & Company, 1900. Canadian Agents, J. A. Carveth & Co., Toronto. Price, $2.00.

To this well-known formulary some two hundred valuable additions have been added in the present edition. The book, although of small size convenient for the pocket, contains over 1,800 formulæ as well as much useful information in the form of tables of doses, poisons and their antidotes, obstetrical table, diet list, and what is entitled a "sur-

gical remembrancer," etc., etc. One advantage which it possesses is in crediting the various prescriptions to the source from which they were obtained. The book is bound in leather with a flap and pocket, and contains numerous blank leaves at short intervals in order that additional formulæ may be inserted under the proper alphabetical heading. A thumb index adds to its value for rapid reference.

SAUNDERS' QUESTION-COMPENDS, No. 25. ESSENTIALS OF HISTOLOGY. By LOUIS LEROY, B.S., M.D., Professor of Histology in Vanderbilt University, etc., etc. Arranged with questions following each chapter. 72 Illustrations. Philadelphia, W. B. Saunders & Company, 1900. Canadian Agents, J. A. Carveth & Co., Toronto. Price, $1.00.

This volume is arranged on a plan somewhat different from that usually followed in this set of compends, and one which we think is a distinct improvement over the older numbers of the series. Instead of having what one might call the catechism arrangement of questions and answers, the book is a short concise treatise on histology, and contains besides at the end of each chapter a number of questions, by attempting to answer which the student can determine whether he has mastered the contents of the chapter. The text is very good, the microscopical structure of the various organs being explained in a clear manner, and the illustrations, which are numerous, consist both of diagramatic representations of the relation of parts and of drawings from microscopical preparations. The last chapter is descriptive of the technique employed in preparing and mounting specimens.

POINTS OF PRACTICAL INTEREST IN GYNÆCOLOGY. By H. MACNAUGHTON-JONES, M.D., M.Ch., Q.U.I., Master of Obstetrics (Honoris Causa), University of Ireland, etc., etc. Reprinted from the "Edinburgh Medical Journal," 1900. London, Baillaire, Tyndall, and Cox, 1901.

This is a collection of articles which have previously appeared in the *Edinburgh Medical Journal*, which are here produced in book form. There are seven chapters and an appendix, which contains the reports of a few cases. It is clearly and concisely written and the illustrations are good. While the work may be of some value to the general practitioner, it will be of special interest to the gynæcological surgeon, as containing a résumé of the present views of gynæcologists upon several questions of the day.

F. L.

THE MEDICAL NEWS POCKET FORMULARY FOR 1901. By E. QUIN THORNTON, M.D., Demonstrator in Therapeutics, Pharmacy and Materia Medica in Jefferson Medical College, Philadelphia. Third Edition, Revised and Enlarged. Lea Brothers & Co., Philadelphia and New York.

This edition of Thornton's Pocket Formulary has been brought up to date, if such an expression can be used with regard to prescriptions, by the addition of a number of combinations of the more recently introduced drugs in such a form as will be found useful to those who as yet have not made trial of them. The book also contains the many helps to the physician found in former editions, such as a readily read comparative scale of the metric and ordinary systems of weights, a list of incompatibles, a table of poisons and their antidotes, and an alphabetical list of remedies with their dosage. The diseases are arranged alphabetically with a list of appropriate prescriptions under each disease. The indications for the use of the individual prescriptions are also given, and form a valuable feature of the book.

The volume is bound in good leather with a flap and pocket, and is of convenient size for the pocket.

DISEASES OF WOMEN. By H. J. GARRIGUES, M.D., Third Edition Revised. 367 Illustrations. W. B. Saunders & Company, Philadelphia and New York. Canadian Agents, J. A. Carveth & Co., Toronto.

The esteem in which the second edition of this book is held by the general medical reader is proved by the exhaustion of it in the short space of two years. This last edition, the third, has been thoroughly revised and brought up to date by the author. While, perhaps, there is more anatomy than is actually necessary for the undergraduate, this will be of use to the general practitioner, who may wish to brush up his knowledge of this subject. This part is followed by most excellent chapters on etiology in general, and upon the modes of examining patients, the instruments and different positions being clearly described and illustrated. The different gynæcological diseases are taken up in detail and handled in a masterly manner.

The teaching throughout is sound and, taking it as a whole, the book is to be highly recommended. *F. L.*

Society Proceedings.

CANADIAN MEDICAL ASSOCIATION.

The thirty-fourth annual meeting of the Canadian Medical Association opened at Winnipeg, Manitoba, on the morning of the 28th of August, and continued for the two following days. There were in attendance over 175 members from all parts of the Dominion, the second largest gathering in the history of the Association; and the meeting itself has been pronounced the most successful of any yet held under the auspices of this Association. There were several visiting doctors from the United States.

Dr. H. H. Chown, of Winnipeg, the President, occupied the chair, while Dr. F. N. C. Starr, of Toronto, discharged the duties of secretary.

In the absence of Chief Justice Killam, Dr. J. H. O'Donnell, one of the oldest practitioners in the West, delivered the address of welcome. He referred to the conditions present in 1869, when Winnipeg was an outpost of civilization, and gave interesting references to Drs. Cowan, Curtis J. Bird, Beddom and Bund, who was already in the West when Dr. O'Donnell moved there in 1869. His address was very much appreciated by the members of the Association.

Dr. R. W. Powell, of Ottawa, the past-President of the Association, then introduced Dr. H. H. Chown, the President-elect, to the Association.

Dr. Chown, on rising to reply, was received with hearty cheers, testifying to the high esteem in which he is held by his fellow-practitioners throughout the Dominion. He briefly thanked the Association for the honour they had conferred upon him at the meeting in Ottawa one year ago.

Dr. Starr, the Secretary, presented his annual report. It referred to the meeting at Ottawa last year, to the attendance of 153 members, which was an increase over former meetings in that city, to Dominion Registration and to the formation of a Physicians' Protective Association.

Dr. Edebohls, of New York, and Dr. Sutton, of Pittsburg, were welcomed to the meeting, and requested to participate in the discussions.

The Question of Medical Defence.

This was introduced by Dr. Russell Thomas, of Lennoxville, Que., who had been delegated by the St. Francis District Association, to pre-

sent this subject to the Canadian Medical Association. He made a strong plea for the formation of a Medical Defence Union and thought that all were agreed of the necessity for such. He supported his contentions by citing two or three cases already well known to medical practitioners in Canada, and after showing that such defence unions were a success in England, he concluded by outlining the plan of medical defence already in vogue and supported by the St. Francis District Medical Association which he was authorized and prepared to hand over entire to the Canadian Medical Association. The discussion of this important matter was deferred until later on in the session.

Address in Medicine, "The Question of Medical Education."

DR. J. R. JONES, of Winnipeg, delivered this address. See page 664 of the present number.

Dominion Registration.

DR. T. G. RODDICK, of Montreal, who had so long and so ably advocated this much-to-be-desired measure, delivered a stirring address on the subject, ably reviewing the subject of inter-provincial registration from the time of its inception to the introduction of his bill at the last session of the House of Commons. The special committee appointed on this subject had not yet reported, so the discussion was postponed until the committee had a chance to meet and report later on in the session. Dr. Roddick now seems to hold to the opinion that the suggestion of Dr. Britton, of Toronto, that representation by population, for Ontario at least, would be advisable.

Infectious Pneumonia.

DR. W. S. MUIR, Truro, Nova Scotia, read this paper. See page 694.

First Day—Afternoon Session.

President's Address.

DR. CHOWN then delivered his address. See page 657.

SIR JAMES GRANT, of Ottawa, moved a vote of thanks to the President, and characterized the address as extremely interesting and instructive. DR. J. L. BRAY, of Chatham, seconded the motion.

Epidemic of Spinal Meningitis.

DR. JAMES MCKENTY, Gretna, Manitoba, presented this paper, which gave an account of an epidemic occurring in North Dakota during the winter and spring of 1893. It occurred within an area extending fifty miles from east to west and twenty miles from north to south, and was comparatively definitely limited. About seventy persons were seriously ill and almost as many others suffered from mild manifestations of the disease. Of the seventy cases, twenty-five ended fatally, a mortality of

about 35 per cent. In the practice of Dr. McKenty there occurred some thirty cases, a brief record of twenty-two of these being kept. The average age was seventeen years; the youngest fifteen months; the oldest thirty-eight years. The duration of the disease extended from twelve hours to fifteen weeks. No post-mortem was made in any case. Dr. McKenty then described in detail the clinical aspects of several cases.

Splenic Anæmia, with Case.

Dr. A. J. Macdonnell, Winnipeg, contributed this paper with the history of the case. This was an exceedingly rare disease. In 1898 the number of cases recorded did not exceed thirty, but since that time there has been fifty additional cases reported. R. N., aged 27 years; environment good; has never had malaria; habits and mode of life good; positively never had syphilis. The present illness began in August, 1899. Felt heavy on the right side with a feeling of fullness and weight. In January, 1900, gave up work on account of muscular weakness. There was no vomiting. The patient consulted Dr. Macdonnell in March, 1900, walking into his office with considerable difficulty. There was no enlargement of lymphatic glands. Enlargement of the stomach could never be percussed or palpated. Liver dulness was practically normal. There was no jaundice or pain in the liver region. The patient succumbed to the disease, but no post-mortem was held. Another case occurring in a patient aged seventeen was reported. Dr. Bell made a blood-count in this case which at different times ranged 3,540,000, then 3,600,000, then 3,400,000, with 7,602 white-blood cells. In this case all the other organs were normal, and there seems to be no pre-disposing cause in this case. Dr. Macdonnell stated that only ten autopsies had been made on people dying from the disease. He referred to the conditions found post-mortem in these cases. The treatment was stated to be rest, diet, and vigorous doses of arsenic. The mortality is set down at 20 per cent. As far as operation is concerned, physicians will not be satisfied until it is clear that the patient recovers from the operation as well as from the disease. If we are sure of our diagnosis, then surgical intervention is deemed advisable.

Physical Development.

Dr. J. N. Hutchison, of Winnipeg, read a carefully prepared paper on "Physical Development." The paper did not deal with anything new, but called attention to and emphasized certain facts of considerable importance. He considered that children were sent to school at too early an age, and as a result there was danger of brain over-work. He insisted upon the necessity of having healthy parents, and deplored the system of education which developed the mind at the expense of the

body. He was an advocate of periodical lectures by duly qualified physicians to separate classes of boys and girls on the subject of sex; but the primary responsibility in this matter, he placed upon the parents. There would be real progress in the prevention of tuberculosis when people the subject of the disease recognize that they should not marry. The paper, which was listened to with close attention, closed with a reference to the problems of those unfortunates who are neither mentally nor physically qualified for the duties of life.

Report of Cases Treated with Super-Heated Dry Air.

Dr. W. H. Pepler, of Toronto, introduced this subject in a paper which cited his experience and observations in the treatment of certain cases by this plan or process. He briefly described the apparatus and the method of treatment. It only takes twenty minutes to reach a heat of 300 degrees F. The average duration of the application of the heat is forty-five minutes. The physiological and therapeutical effects noticed were referred to, as dilation of blood-vessels, etc. He administers the treatment one hour after meal time with due regard that there shall be as little as possible excitement and exertion. He has not seen any ill-effects from the treatment. He first gave notes of the case of a patient, a man aged thirty-five years, who had suffered for some time from varicose ulcer of the right leg, with considerable pain. This patient had a treatment of 35 minutes' duration and was able to walk home with very little discomfort. After three times, in ten days, the ulcer was very much reduced in size. The second case was a patient twenty-two years of age who had been troubled with rheumatism for two years. A temperature of 320 degrees was employed with good satisfaction. Several other cases of rheumatism and eczema were reported. The treatment in each case proved highly satisfactory, patients never complaining of any discomforts and all expressing satisfaction with the treatment. Dr. Pepler subjects a considerable portion of the patient's body from a temperature of 280 to 320 degrees F. The results are often not apparent for some time after treatment.

Dr. McAdam, of Battleford, asked Dr. Pepler if he had ever tried the treatment with high temperature, where he had any doubts of the condition of the heart.

Dr. MacDonald, of Brandon, referred to a case which had come under his observation in which there was heart trouble. Perspiration occurred freely but with no effect in a depressing way upon the circulation. Treatment in this case was continued for two weeks, but he had never determined that there had been any effect upon the heart, although there was a small heart-lesion at the time.

Dr. Pepler, in reply, could not speak personally as to any deleterious

results from weak heart. Of course, there were many cases reported where heart trouble was present. He personally had never noticed any heart or head symptoms in his cases. He thought with care there would be no bad results.

Orthopedic Treatment of Deformities and Disabilities Resulting from Diseases of the Nervous System, with Special Reference to Tendon Transposition.

With special reference to tendon transposition, DR. B. E. MCKENZIE, of Toronto, spoke of disabilities and deformities resulting from paralysis, some of which were commonly regarded as hopeless; but the conditions of a great majority of them were remediable and should receive a considerable amount of attention. He was at some pains to explain the respective motion of joints, particularly the ankle joint and knee joint, especially calling attention to the normal conditions of equilibrium, and then showed how the muscles of some of the groups at times became paralyzed and the balance and equilibrium thereby destroyed. Mechanical treatment was often necessary and often efficacious as well; massage and electricity had their respective places, but he made particular reference to the method of treatment that had been in vogue for twenty years, and had been introduced on this continent by Dr. Parish, of Philadelphia. He went carefully into an explanation as to how muscles can be transferred from their usual point of action and then he gave an account of several cases in which he had successfully accomplished this. In his opinion amputation of a limb because of apparent disability should seldom or never be resorted to.

In answer to Dr. McAdam, Dr. McKenzie disapproved of jackets in treatment of curvature of the spine.

DR. CLARENCE STARR, of Toronto, stated that the subject was of great interest to him, as he was interested pretty largely upon the same lines of surgery. Mr. McKenzie had indicated a large number of cases of paralysis which could be wonderfully helped by operative procedures. Dr. Starr thought that Dr. Bowlby, of Boston, deserved a great deal of credit for the work he has performed in this connection.

DR. H. B. SMALL of Ottawa, referred to a case Dr. McKenzie had operated on. In this case, previous to operation, the boy had great difficulty in arising from the sitting posture, and when walking he had had to rest every few yards. After the operation he was very much improved, and when Dr. Small last saw him about a week ago, he could walk very easily, and never had to support himself. The improvement during the last four or five weeks especially was very marked.

Second Day—Morning Session.

Mild Smallpox.

DR. G. A. KENNEDY, McLeod, Alberta, presented this paper. It dealt with the recent outbreak of the disease in the North-West Territory, an outbreak which was wide-spread and which had existed for some time before its true nature was recognized. Dr. Patterson, Quarantine Officer for the Dominion Government, was satisfied that there had been 1,500 cases. A noteworthy fact was that the greatest number of cases occurred among the French Half-breeds, who had never been vaccinated, and, further, Indians on reserves had not suffered to any great extent, as annual vaccination is the rule. Not one case was seen or heard of among Galicians, Doukhobors or Roumanians, which was due to the fact that compulsory vaccination was the rule in youth, and then they had been re-vaccinated on their recent passage across the Atlantic and at Halifax. Fifty per cent. of all cases were extremely mild in character; forty per cent. were cases of typical varioloid; ten per cent. were severe, almost confluent. The mortality was slight, only thirteen deaths occurring; and the disease prevailed fully as much amongst adults as amongst children.

DR. MUIR, Truro, Nova Scotia, discussed the merits of the different vaccines on the market, and the paper was further discussed by DR. MACDONALD, of Brandon; DR. INGLIS, of Winnipeg; DR. D. H. WILSON, of Vancouver; and DR. MONTIZAMBERT, of Ottawa. The latter considered it would be unfortunate if the impression went abroad that any doubt existed in the minds of the members of the Canadian Medical Association as to the true nature of the disease which had been epidemic for some years. He considered the facts presented in Dr. Kennedy's paper relating to Doukhobors and Galicians were perhaps the most valuable portion of it.

At the close of this discussion the following resolution was moved by DR. R. S. THORNTON, seconded by DR. J. L. BRAY, and unanimously adopted:—"Resolved, that in view of the general prevalence of smallpox throughout the continent, this Association desires to urge upon the profession and the public generally the necessity of vaccination and re-vaccination."

Chronic Ulceration of the Stomach, Simulating Cancerous Disease, Relation of a Case of Gastro-enterostomy with Murphy Button, Recovery.

DR. J. F. W. ROSS, Toronto. This case occurred in a woman twenty years of age, the condition of whose stomach had been bad for three years. She was a nurse in the Training School of a Hospital, and her gastric conditions grew gradually worse and worse. Dr. Ross was asked to see the patient by Dr. E. B. O'Reilly, Hamilton, in December, 1899.

He found the patient emaciated with the opium habit already formed. In January, 1900, he again saw her with Dr. Griffin, of Hamilton. At this time rectal alimentation was being persevered in with considerable benefit. In March, 1900, she was discharged from the hospital and remained well for two weeks. As soon as food passed into the stomach great rigidity of the right rectus muscle was noted. When the patient came under Dr. Ross' attention she weighed 75 lbs. As malignant disease of the stomach is rare at this age of life, it was difficult to diagnose the tumor as such, and the symptoms pointed to the pyloric end of the stomach. It was not possible to say whether cancerous or not. The symptoms pointed to the presence of ulcer, but the thickening easily made out lead to the belief that malignant disease had been grafted on to the ulceration. Some dilatation also could be made out, but the rhythmic muscle waves so characteristic of pyloric obstruction could not be found; but a large growth was found at the pyloric end. The case was looked upon as hopeless, and decision was arrived at not to remove the growth but to give temporary relief by gastro-enterostomy. This was done and the patient made an uninterrupted convalescence. Eleven months after the operation the patient weighed 140 lbs. and looked the picture of health. On examination of the abdomen no mass could be felt, and the patient was not suffering from any gastric symptoms at all. Dr. Ross then went into the literature on the subject, quoting Fagge, Sydney Martin, Moynihan and Mayo Robson.

Dr. Lapthorn Smith, Montreal, began the discussion, stating that the case was especially interesting to him, but rather from the general practitioner's point of view. He believed that no case of cancer of the stomach ever begins as cancer of the stomach. First there was some sort of irritation of the mucous membrane. This irritation finally becomes a chronic ulcer and upon this the germ of cancer was engrafted, or whatever it was which is the essential constituent of the cancerous process.

Dr. Martin, Montreal, discussed the importance of the examination of the stomach contents in these cases.

Dr. Bruce, Toronto, stated that he had an experience with a case a year ago which corresponded closely to the one Dr. Ross had reported. His patient was thirty-eight years old.

Dr. Gilbert Gordon, of Toronto, thought that we should look at these cases from the standpoint of the physician as well as from the standpoint of the surgeon.

Dr. Howitt, Guelph, stated that the second case of ulceration of the stomach upon which he operated was one of acute perforation.

Dr. Ross thanked them for the reception they had given his paper.

Some Forms of Hyperacidity and their Treatment.

Dr. C. F. Martin, of Montreal, presented notes of some facts deduced from the results of systematic examination of the gastric contents. The unfortunate general employment of the term dyspepsia was responsible for the disregard of this condition. In the case of organic disease producing excessive secretion, the diagnosis was often difficult. He gave the history of two cases in illustration, the second being an individual forty-five years of age, who gave the unusual history of having been ill for six months. There was no obstruction of the pylorus, but simple dilatation of the stomach. He also referred to the medical treatment following gastro-enterostomy.

Dr. Macdonnell, of Winnipeg, discussed this paper.

Medical Defence.

The report of the committee on Medical Defence was here presented by W. S. Muir, of Truro, N.S. It reported favorably on the formation of a Medical Union, and the organization thereof was immediately perfected. It will be known as the Medical Protective Association, will be incorporated, and will have for its object the protection of the character and interests of medical practitioners in Canada. It will further promote honourable practice, will aid in suppressing or prosecuting unauthorized practitioners and will seek to advise and defend, or assist in defending, members in cases where proceedings involving questions of professional principle or otherwise are brought against them, and other like matters. Dr. R. W. Powell, of Ottawa, was elected President; Dr. McKinnon, of Ottawa, Secretary; and Dr. James Grant, Jr., of Ottawa, Treasurer.

Report of Committee on Dominion Registration.

It is proposed to secure an amendment to the B. N. A. Act, or, to take advantage of section 91 of that Act, and under it obtain legislation from the Dominion Parliament, by which the profession in Canada might form a Dominion Council and which could be supplemented by legislation by the various provinces recognizing any certificate of standing issued by the Dominion Council as entitling a holder to practise in such provinces. Dr. Muir approved of Dominion Registration and spoke for the Province of Nova Scotia. Dr. Jones voiced the sentiments of the profession for Manitoba. Drs. A. A. Macdonald and J. L. Bray, endorsed the scheme for Ontario. Dr. Russell Thomas spoke for Quebec. Dr. Christie said that New Brunswick was in favor of Dominion Registration. Dr. Lafferty said the Northwest Territories were favorable.

Second Day—Evening Session.

Cancer of the Uterus, with Lantern Demonstrations.

This was a very interesting and profitable demonstration conducted by DR. THOS. S. CULLEN. In introducing Dr. Cullen, DR. CHOWN spoke of him as a young Canadian who had gone wrong in having removed to the United States and having never returned. Dr. Chown considered that the experimental work pursued by Dr. Cullen, if done in Canada, would meet with as signal success as that which attended his labours in the United States. For over an hour Dr. Cullen was engaged in showing a large number of excellent lime-light views, the results of microscopic examination of tissues, each view being lucidly explained by the demonstrator. At the close of his excellent demonstration, Dr. Cullen was accorded a hearty and unanimous vote of thanks, moved by DR. ECCLES, of London, and seconded by DR. GRAY of Winnipeg, and carried amid great applause.

Skin Diseases, with Lantern Demonstrations.

This was another valuable demonstration and was conducted by DR. FRANCIS J. SHEPHERD, of Montreal. He first exhibited cases of Blastomycetic Dermatitis and further spoke of a few cases which he had seen of this disease. Views were also given of cases after treatment with iodide of potash. Some interesting views were those caused by drug eruptions, of which he showed two or three due to salicylate of soda. In one of these Dr. Shepherd said that the lesions first came out with large welts like urticaria. This is rather a rare form of drug eruption. It appeared after two doses of ten grains each of the drug. One case almost died of acute laryngitis from the eruption in the throat. Amongst other views shown were papular purpuras, which are generally associated with rheumatic attacks, psoriasis of the nails, X-ray burns as the result of one application, and most interesting were cases of smallpox, one showing pustules upon the palm of the hand, particularly interesting, as in adults you never see chickenpox upon the palm of the hand, but you invariably do in smallpox. Views of feigned eruptions were also shown. This demonstration proved so interesting to the members, that Dr. Shepherd was frequently called upon to give more.

The Varieties and Distribution of Bacilli Diphtheriæ and their Clinical Significance.

DR. F. F. WESTBROOK, of the University of Minnesota, presented a paper on this subject, primarily from the laboratory point of view. He exhibited a carefully prepared chart showing in tabulated form the results of numerous examinations in schools, and stated the conclusions which he deducted from these facts. Formerly, it was believed that

the bacillus remained localized at its point of entrance, but within recent years, however, careful observations have showed that the toxins had been distributed throughout the body and the bacillus itself found in organs far removed from the atrium. From evidences of 230 cases of diphtheria at autopsy, observers had called attention to the frequency with which the bacillus of diphtheria was found in the organs of the body. The bacillus and its toxine have been shown to be capable of producing lesions which differ greatly from each other, as in ulcerative endocarditis, meningitis, etc. In summarizing, Dr. Westbrook said where each school was reported and where great care was taken in the isolaion of clinical cases with typical form, the percentage was very small.

Removal of Hairy Tumor from the Stomach Weighing 23 Ounces—Specimen—Recovery.

DR. H. A. BRUCE, Toronto. The subject of the case was a woman aged 26, who had been married six years and had two children. A lump was noticed in the abdomen two months previous to the birth of the last child. Patient had no symptoms. The lump was about five inches in width and it could be lifted forwards. It reached to within three inches below the umbilicus. It gave the patient no special discomfort, there being absolutely no symptoms present. Dr. Bruce advised exploratory incision. This was done on July the 22nd last at St. John's Hospital, Toronto. On opening the abdomen in the middle line the spleen and kidneys were found in a normal condition, but there was a large mass in the neighborhood of the stomach. The surgeon could make out the mass lying free in the stomach, a portion extending through the pyloric end of the stomach. An incision was made into the stomach and the mass removed. After removing the mass of hair, the opening of the stomach was closed in the usual way. Hot solution was given for two hours and nutrient enemata for six hours. Twenty-three hours after the operation sips of hot water were given by the mouth. Forty-eight hours after operation patient was given one-half an ounce of milk and lime water every hour. She left the hospital on the twentieth day. The tumor was entirely of hair exactly the same color throughout and the same color as the hair on her head It was 24 inches in length, being about 2 inches in diameter at one end and gradually tapering to a point at the other. Dr. Bruce considered this case rare, but offered no solution as to how the hair got into the stomach. There were no evidences of hysteria present in the patient. There are some specimens of hairy tumors in the McGill Museum at Montreal.

Third Day—Morning Session.

A Case of Transplantation of the Ureter for Cure of Uretero-Vaginal Fistula.

DR. A. LAPTHORN SMITH, Montreal. This occurred in a married woman thirty-four years of age, who came to Dr. Smith on the 1st of July, 1901. During parturition forceps were employed, and the vagina lacerated, and ever since there has been a constant flow of urine by the vagina. Operations for her relief had been performed in England, without success. Dr. Smith had seen Sanger perform an operation of this character in Leipsic when he was there three years ago, namely, to open the peritoneum running over the large vessels at the brim of the pelvis and to feel for the artery, see the vein and pick up the third tube which was the ureter. The operation was done in the highest Trendelenburg posture. A very small incision was made in the peritoneum lining the pelvis in the line of the ureter, a silk ligature was passed around it, and then the ureter was severed a little above the ligature. The end of the ureter was split open to a distance of a third of an inch. A slit was then made obliquely into the right upper corner of the bladder and the ureter stitched into it, the mucous membrane of the ureter being joined to the mucous membrane of the bladder with very fine chromicised catgut. This is the first time this operation has been done in Canada, and Dr. Smith stated that not a drop of urine had passed through the fistula since.

Syphilis as seen by the Ophthalmic Surgeon.

DR. F. BULLER, Montreal. See page 699.

The Present Outbreak of Smallpox in America.

This subject was presented by DR. H. M. BRACKEN, Health Officer, Minnesota. He outlined the origin and traced the course of many outbreaks in various parts of the State of Minnesota. The case of a porter on the Great Northern Railway, who arrived in St. Paul in March, 1899, was mentioned as the source of the outbreak. He was supposed to have contracted the disease in Seattle, and when told that he had smallpox, he said that if so there was plenty of the same disease where he came from. Other epidemics were spoken of in various parts of Minnesota with a total of 9,429 cases, and the disease has still many centres in that State. It is impossible to locate positively the source of the wide-spread epidemic farther than that it spread from the southern and south-western States into North Dakota, Minnesota, Nebraska, Montana and Texas. Dr. Bracken showed that returning soldiers from the Philippines were not responsible for its introduction. He sug-

gested that it was probably imported into the United States by Cuban refugees before war broke out between that country and Spain.

An interesting discussion took place on this paper. Dr. Russell Thomas wanted to know where the best vaccine was manufactured, a product that could be relied upon.

Dr. Inglis, formerly Medical Health Officer, Winnipeg, related his experience in the schools of Winnipeg and spoke of some of the bad results resulting through impure vaccine.

Dr. Bracken, in reply: Vaccine was frequently spoilt by not being kept in proper temperatures, as it was frequently being shipped in cans, which were too hot, and subsequently kept in warm offices. The Health Commissioner of Minneapolis kept all his vaccine in an ice-box, but, of course, not frozen, and had obtained good results. Replying to a question in regard to isolation, Dr. Bracken favored eighteen days' quarantine.

The Necessity of Recognition and Isolation of Trachomatous Patients in Canada.

In the absence of Dr. W. Gordon M. Byers, Montreal, Dr. C. F. Martin, of the same city, read this paper. The paper recited the history of a young girl from Glengary County, Ontario, who came to the clinic at the Royal Victoria Hospital, Montreal, with a most intense condition of granular lids. She had been unable to open her eyes properly for months past, and her vision was reduced to the counting of fingers. The seriousness of her disease had not been recognized at home, as she mixed freely with other members of the community. Another case was referred to in the County of Leeds, and in this case as well no precautions had ever been taken to prevent the spread of the disease. Dr. Byers believes that there are many unrecognized and untreated cases scattered here and there throughout the Dominion. The disease is said to be prevalent in districts of Manitoba and certain centres in the eastern counties of Ontario and others in Quebec. The trachoma problem has had to be faced by one Government in Europe, and the matter has been brought to the attention of the Dominion Government, which has not yet taken any action in the matter. Dr. Montizambert stated that the question of exclusion of trachomatous immigrants had been under consideration by the Government for some time. He considered these people somewhat undesirable immigrants.

A Few Notes on the Treatment of Typhoid Fever.

Dr. J. L. Bray, of Chatham, discussed this subject under medicinal, dietetic and hygienic headings. The first he thought might be eliminated except in cases where complications arise, and he thought a certain amount of medicinal treatment useful during the initiatory stages.

He was in the habit of employing calomel. Tympanites could be avoided to a great extent by a proper diet. In feeding, now, he gives very little milk, but that little always peptonized. He believes in making the patient drink two or three quarts of pure water in the twenty-four hours. Albumen water with sugar may be given from the first, after the first two weeks he gives liquid peptonoids, or some of the numerous preparations of beef, jellies, mutton broth or a soft-boiled egg.

As regards the hygienic treatment, the bedding and the night clothes should be changed daily. The room should be kept thoroughly ventilated, admitting plenty of fresh air and sunshine. The patient should be sponged frequently with tepid water, just as good results resulting from tepid water as from sponging with very cold water or the cold bath, and it was not so distasteful to most patients. In hospital practice, Dr. Bray used the electric fan after using the tepid water. He has found this plan very satisfactory, especially in young and sensitive children.

Dr. Russell Thomas discussed the paper, and said that he had found the ice-cap beneficial, that it did not disturb the patient and had a decided effect in reducing the temperature.

Third Day—Afternoon Session.

The Address in Surgery.

This was delivered by Dr. O. M. Jones, Victoria, B.C., and it proved a very able and masterful effort. See page 676.

Dr. F. J. Shepherd, of Montreal, proposed a vote of thanks, Dr. A. A. MacDonald, of Toronto, seconded this; Sir James Grant, of Ottawa, supported the motion, which was unanimously passed by the Association.

A Surgical Procedure for the Relief of Ovarian-Tension Pain.

Dr. Henry Howitt, Guelph, Ont., read this paper, opening with the question: Is not pain, frequently, if not usually, caused by tension on some nerve filament? In Dr. Howitt's opinion, the answer should be in the affirmative. The operation Dr. Howitt employs is quite simple. The ovary is exposed and then a number of cross-sections are quickly made through the tense capsule in such a manner as to divide it. Then the large Graafian follicles are opened. They are merely touched with carbolic acid. If the capsule is thickened a portion should be removed. Hæmorrhage has never been troublesome. Adhesions give rise to no complications. Dr. Howitt recited the histories of two or three cases in support of the operation.

Dr. Lapthorn Smith stated that he had never heard of this operation before, and considered that it was original with Dr. Howitt.

Symposium on Tuberculosis.

PROF. RUSSELL, of the University of Wisconsin, introduced this subject in a careful yet exhaustive paper on human and bovine tuberculosis and their inter-relation. The importance of any phase of investigation relating to tuberculosis and its relation to milk is unquestioned, in these latter days when the general public is beginning to appreciate, for the first time, the magnitude of the problem that confronts them in attempting to lessen the ravages of the "great white scourge" of the human race.

In considering this subject it may be reached from two points of view:—

1. From the standpoint of animal industry.
2. From that of public health.

The rapid extension of the disease amongst cattle within the last few decades has forced upon breeders and dairymen the necessity of considering this subject whether they desire it or not. It is customary in many quarters, even yet, to decry all consideration of this matter as unnecessary, inexpedient, and harmful to the dairy interests. But as is too frequently the case, the motive for such action rests upon a financial foundation, and many breeders are averse to a calm, judicious discussion of the matter simply because it may mean financial loss to them.

Since the introduction of the tuberculin test as an aid in the diagnosis of the disease in cattle, it has been positively determined that the malady, at least in its incipient form, is very much wider spread than was formerly supposed, but it by no means follows that all animals that react to the tuberculin tests are actually in a condition in which they or their products are dangerous to man and beast.

The slow insidious nature of the disease that characterizes it in the human is also to be found in the cattle, and not infrequently an animal may be infected with the seeds of the disease for a considerable time—even a year or so—without showing in any degree physical symptoms that are manifest to even the animal expert. Such animals are not diseased in the ordinary meaning of the term, *i.e.*, they are not capable of transmitting the disease, either directly or indirectly, through their milk or meat. The affection in such cases is latent, generally confined to various lymphatic glands; but animals so affected are, however, potentially dangerous for the latency of the disease may be overcome through the operation of various factors, and the chronic type may thus be awakened into an acute phase. It is in this way that the disease spreads slowly and unperceived through a herd. Before it has made such inroads as to cause actual death of any considerable number of animals, many more have acquired the trouble, at least in the earlier phases.

Necessity of controlling its spread and eradicating it is evident for the sake of the herd itself, if from no other point of view. Successful animal industry, especially with cattle, requires that the herd shall be kept free from all taint of this disease. As to treating milk, Prof. Russell said pasteurization and sterilization were the two best forms of applying heat to destroy the organism. He recommended the rotatory pasteurizing machine, one of which has been used in Winnipeg for some years, as the best method of removing organisms from milk.

Dr. Good, of Winnipeg, in discussing the paper, said that it afforded him some relief to learn that milk is not so dangerous after all. He stated that he had been avoiding milk and all organic fluids for the past year or two, but he was glad to know that he could now go back to its use with the same freedom as in his younger days. He then moved a vote of thanks to Prof. Russell, seconded by Dr. McArthur, which was unanimously adopted.

Dr. A. J. Richer, of Montreal, contributed the next paper on the "Sanatorium Treatment of Tuberculosis." This treatment had been introduced by Dr. Trudeau in America under great difficulties, and at the present time this distinguished scientist was able to house and treat over one hundred individuals in his institution. According to Dr. Richer, the treatment is made up of rest, outdoor life, over-feeding and medical supervision. The latter was described as the key-note to success in phthisical treatment. Over-feeding was also emphasized.

The last paper was contributed by Dr. Gilbert Gordon, of Toronto, and it referred to the etiology and the early diagnosis of pulmonary tuberculosis. He spoke of the early stages of the disease, and thought that we ought to be able to diagnose it before the appearance of the bacilli in the sputum. Direct inheritance he considers very rare. The inhalation of dried sputum is the most direct cause. Dr. Gordon considered that we are wofully behind in Canada in fighting this plague, and more money should be spent by Governments and philanthropic individuals. He went carefully into the symptoms of the pre-tuberculous stage, and considered that a persistent cough was a very dangerous symptom.

Another important discussion took place upon this topic. Dr. Lafferty warned the profession in Ontario against sending advanced cases to the North-West Territory. Dr. Barrick, of Toronto, pointed out that Ontario was leading in regard to the treatment of tuberculosis, and he hoped to see the Sanitarium brought with a wide open door to all conditions of life. Dr. Brett, of Banff, suggested that the Association should pass a resolution pointing out to the Parliament of Canada the necessity of providing for the establishment of sanitoria for the benefit of the community.

Officers for 1902.

The report of the Nominating Committee was presented by Dr. W. S. Muir, Truro, N.S., who expressed regret at having to accept the resignation of their General Secretary, Dr. F. N. G. Starr. Montreal was selected as the place of meeting in 1902, and a suggestion was left with the members of the Association that they meet in British Columbia the following year.

These officers were elected for the ensuing year:—

President—F. J. Shepherd, Montreal.

Vice-Presidents:

Prince Edward Island—S. R. Jenkins, Charlottetown.
Nova Scotia—T. F. Macdonald, Hopewell.
New Brunswick—Dr. Christie, St. John.
Quebec—J. Alex. Hutchison, Montreal.
Ontario—Bruce L. Riordon, Toronto.
Manitoba—A. J. Macdonnell, Winnipeg.
North-West Territories—H. G. McKid, Calgary.
British Columbia—J. M. Lefevre, Vancouver.

THE

Montreal Medical Journal.

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

VOL. XXX. SEPTEMBER, 1901. No. 9.

ON MEDICAL EDUCATION.

There is very much in the address in medicine delivered by Dr. Jones, of Winnipeg, before the Canadian Medical Association, with which we find ourselves in hearty agreement. He has, we think, recognized and indicated what we believe to be the great weakness of our system, namely, the lack of adequate preliminary education. Not merely in Canada, but throughout North America, judging from the students who come to us from all quarters, the school education is such that the ordinary medical student is unable to write even passable English. Whereby we mean, not so much that he is unable to spell or to form his letters correctly (though this is often the case), but that his instruction has been such that he is unable to express himself in clear language, or in other words, shows by his writings that while he may have been taught facts he has not been taught to express himself, and obviously has not been taught to think. That is the great weakness, we firmly believe, of our preliminary education, a weakness which tells throughout a man's life, and

though it is the custom to depreciate the education received by our French compatriots, we are forced to confess that in this respect the education received in the better class French schools throughout the Province, is better than that obtained by our English-speaking youth.

Acknowledging this, we must candidly confess that we entirely disagree with Dr. Jones that the preliminary examination should be left by the proposed Medical Council in the hands of the various universities and Provincial examining bodies. If this be done we shall be practically powerless to demand a better standard and better c urse of studies. Upon the other hand, if the Central Medical Council be given authority to make its own standard, then the schools throughout the Dominion will be given a level to which they must attain in order that their pupils may be found worthy of being admitted to work for the higher medical qualification, and we must safely expect in Canada the same result as that which followed the establishment throughout Great Britain of the local examinations of the Conjoint Board of Oxford and Cambridge. The effect of those local examinations upon the higher education in England has been very remarkable. It has improved the teaching throughout the land and we may expect the same to occur here in Canada. No individual university can effect the same advance.

We agree with Dr. Jones in what he has to say with regard to the value, not so much of a classical education, as generally understood, but of a competent knowledge of Latin and Greek along with a good knowledge of English. We believe that a sound training in Latin is an admirable means of education—of "drawing out" the thought and the intelligence of a young student. As for Greek, we would not demand quite the same course of training, but we firmly believe that it is essential that a medical student should possess such a knowledge of Greek that he is able to understand and to appreciate the mode of formation and meaning of the great number of scientific terms of Greek origin with which he has perforce to become familiar. It is our experience that our Canadian medical students work far harder than do, for example, English medical students, but a painfully large proportion of the time expended by them is expended in memorizing medical terms which did they know Greek roots would explain themselves and would immediately and without difficulty become committed to memory. For it is a well understood fact that words or facts which are isolated and have no associated ideas, are those which try the memory; the greater the number of associated ideas there are, the greater the ease with which a word or fact is remembered.

With regard to the conduct of the medical curriculum, we also find ourselves very largely in sympathy with the lecturer. We concede the

time has come for reducing the number of didactic lectures in most of the subjects of the curriculum, and with Dr. Jones we agree also that the best training for the future practitioner is a thorough bedside study of individual cases, this being superior to the Harvard plan, which he briefly describes. Nevertheless, we would here proceed somewhat cautiously; there is too great a tendency for us to follow fashion in these matters, and if one school establishes a given mode of teaching, the tendency is for all the others to follow without due consideration. Rather, we would urge, that in teaching everything depends primarily upon the teacher. We can each of us recall in our student career, certain courses of didactic lectures which have had a permanent influence upon the teacher. We can each of us recall in our student career, cerdents by the spoken word, by no means do away with his course of lectures. We agree, however, where the facts to be taught are largely routine and are to be found stated clearly in the text-books, there much more good would be done by replacing the course of lectures by demonstrations and grinds or "quizs" to sections of a class by the professor and demonstrators.

There are yet other matters in which we should like to enter more fully, but from its importance we would now turn to Professor Jones' attitude towards the proposed Dominion Medical Bill. This attitude at the present moment is, we confess, rather curious and disappointing. Evidently Dr. Jones is strongly in favour of the establishment of the Dominion Board, but, at the same time, his criticism would indicate that he would oppose the present scheme. Now we ourselves do not think, we do not expect, that our Colleague Dr. Roddick's scheme is perfect; rather we look upon this as a beginning. Like other human affairs, the work of the proposed Dominion Board must undergo a course of evolution, its weaknesses must be found out and remedied by practice. We think it a very promising beginning, and surely at the present time what is needed by those in favour of the scheme is not so much destructive, or would-be destructive, criticism as constructive; it should be shown not so much where the scheme is weak as where it can be mended and improved, and this course is not taken by Dr. Jones. We would say, let us urge on Dr. Roddick's scheme with the constant understanding that as its weaknesses become manifest in practice, so they shall be remedied. In short, what is needed for Dr. Roddick's scheme at the present moment is a loyal support with a clear recognition that some definite beginning is to be made towards the development of higher medical education throughout the Dominion.

THE ETIOLOGY AND TREATMENT OF EMPYEMA.

BY

J. C. Colby, B.A.

Empyema is a term which has undergone a good deal of alteration in meaning within a few years, but, with your permission, I shall restrict its use this evening to indicate a collection of pus within the pleural cavity.

Almost the first surgical dressings which I saw applied last year was an aseptic compress intended to soak up malodorous pus, which was discharging from an intercostal sinus. The marked scoliosis and pained expression of the patient's face were slight indications of the months of antecedent suffering, and hardly a day passes by that such a dressing is not applied to some unfortunate at one or other of our hospitals. That pus is constantly inimical to the well-being of the human genus, I had in some degree realized, but to what an extent and in what manner, a visit to the Out-door Surgical made plain. When, therefore, the Committee of our Society granted me twenty minutes in which to introduce a discussion here, I determined to make an inquiry into some of the varieties of pus and their varying degrees of virulence in the human body, choosing the neighborhood of the thoracic viscera at one likely to be a typical ground for pus formation.

I soon learned that bacteriology had indicated some few rounded unicellular organisms as lying chiefly at the root of pus formation, notably those which grow in colonies of microscopic bunches or chains.

These lowly creatures, first adequately described by Ogsten and Weichselbaum in their studies of the affliction of Job, had for a time been regarded as specific in pus formation, but shortly afterwards evidence was found that other cocci might, under proper conditions provoke similar results in affections of other parts, as of the urethra, appendix vermiformis, peritoneum, kidneys, meninges of brain and cord and more especially for our present purpose, in affections of the pleura and lungs.

Long before the microscope had been called to the aid of the clinician, however, there had grown up a whole system of symptomatology and treatment of empyema both on the medical and surgical

side, and in classification it was reckoned a sub-species in the larger class of pleurisy with effusion.

One chief variety of pleurisy with effusion had been set down as the result of exposure to cold and its onset after such exposure, often without other definite antecedent, was the chief ground of that classification—purely an argument by exclusion. Kelsch and Vaillard in 1886, however, published observations on 16 autopsies which revealed pleurisy of long standing (in some cases undergoing partial recovery) all in the highest sense typical of pleurisy *a frigore* in which smears from the surface of pleuræ and of the exudate revealed no micro-organisms, nor did inoculation of the pleural exudate into mouse, guinea-pig and rabbit yield symptoms of discomfort. Sections of the false membranes of parietal and visceral pleura, however, revealed the tubercle bacillus in abundance. The six empyemata included in their description yielded in four cases staphylococcus; in two streptococci. This investigation stands strongly in favor of the tubercular origin of cases of the primary pleuritis where no culture growth can be obtained from pleural effusion during life; there being absolutely no physical signs of tubercle infection.

Considering empyema then as a variety of pleurisy, we come to those numerous cases where the pleuræ become involved secondarily to pneumonia, and again it is in France that a distinction of some clinical importance was first drawn. This relates to the parapneumonic and metapneumonic pleurisies and empyemata. These forms differ from one another in progress, and, if recognized early, are among the most amenable to treatment, for once thorough evacuation of the effusion has been effected there seems to be a strong tendency to recovery. The onset of the pleural lesion in these cases is often so insidious as to be for a time, at least, overlooked, much damage in the meantime resulting.

Pure cultures of pneumococci are frequently to be obtained from these cases, or often associated with the staphylococcus aureus and streptococcus. The channel of pleural invasion must remain a matter of pure theorizing in most of these cases; the easiest mode of infection being the close contiguity of lung and visceral pleura. Many a case of empyema, properly belonging to this class, has been overlooked until late in its evolution, or, if symptoms were only fairly pronounced, mistaken for an unresolved pneumonia.

Any attempt at a complete classification of the various empyemata must include those in which which the typhoid bacillus is found in the exudate, those following scarlatina and the infectious diseases and those occurring in pyæmia and septicæmia. Injury to the chest-

wall, puncture of the pleura as by instruments, compound fracture of a rib, bursting of a sub-phrenic, mediastinal or retropharyngeal abscess, together with the not unknown infection of the pleural surface by the colon bacillus, are conditions which every now and again call for comment in the journals.

The early differentiation of the serous from the purulent variety is often of value in the treatment selected. In ideal cases the higher temperature and signs of toxic poisoning may give a clue in a general way, but many an empyema has been overlooked from the absence of these symptoms and only when a necrosis has been set up sufficient to rupture into a bronchus or intercostal space, is the purulent nature of the mischief recognized. This difficulty of diagnosis brings us to consider a most useful measure when used as diagnostic chiefly—aspiration. With, perhaps, an hypodermic needle one may draw off a few cubic centimeters of the exudate and so be convinced by ocular demonstration of the true nature of the case in hand.

The results thus obtained are not always trustworthy as the following possible happenings clearly prove:—At the first aspiration a serous fluid let us say is withdrawn, examined with microscopic aid and culture growth attempted, all with negative results. Persistence of untoward symptoms may require a second test and at this repetition a purulent fluid is withdrawn. Naturally the temptation arises to doubt the efficacy of even the most rigorous aseptic measures, or a grain of comfort may be had if we suppose the formerly sterile, tuberculous (?) fluid has at last turned purulent by the invasion of other organisms. Or, again, a large effusion may exhibit layers of density greatest at the bottom, least towards the surface; one part containing the pus cells and bacteria, the other serum with few cells or none. Facts such as these have led Holt in his consideration of empyema in children to state that he has seen but one case of a serous exudate turning purulent. All other cases in his practice exhibited pus at the first aspiration. So far as I know this is an unique record and may speak volumes for its technique. This noteworthy exception aside, few observers have just right to regard their technique as beyond question.

Should the serous exudate contain free bacteria there arises the nice point of probability of future pus, for the staphylococci have been isolated from non-purulent exudates. These staphylococcal cases are cited as of possible tuberculous origin if there is no direct evidence of other tuberculous affection. They tend to heal rapidly after a single puncture (or incision of the chest wall) in a manner closely allied to the tubercular peritonitis. Having glanced at our most ac-

curate diagnostic agent—the hollow needle and its limitations, let us consider if there be any possible explanation of the presence of streptococcal and staphylococcal pus in a thorax unmolested by trauma, ruptured bronchus or diaphragm. Holt asserts that fully nine-tenths of empyema of childhood follows upon pneumonia, and, in adults, 75 per cent. He gives the following bacterial findings in 19 cases of pyothorax:—

Pneumococci	14 times	in pure culture
Streptococci	3 times	"
Pneumo and Streptococci	once	"
Staphylococci	once	"

The question arises, can streptococci set up pneumonia, and may they be responsable for a concurrent or later invasion of the pleura? In reported cases of pyothorax authors do not appear to have taken this possibility into consideration. At the end of a case in which the personal history contained a note of antecedent pneumonia, one may be fairly sure to see as a bacteriological finding a pure culture of pneumococci or mixture of pneumococci and streptococci. It is more rare to see more than an expression "some lung trouble" in the personal history where streptococci appear in pure culture as a bacteriological finding. The inference of an antecedent streptococcal pneumonia is, at least, tempting in these obscure cases where the patient is doubtful as to the exact nature of an antecedent thoracic lesion. That streptococcal pneumonias do occur has been pointed out by Weichselbaum though he found mixtures of streptococci and staphylococci more constantly than he did either alone. As, then, a pneumococcal pneumonia is at times followed by a pneumococcal empyema, so also, though not clearly pointed out in the texts a streptococcal pneumonia is not uncommonly followed by a streptococcal empyema. But, as outside the body pneumococci flourish for a shorter time than do the streptococci, so also in cases of empyema the treatment of a streptococcal variety is attended by greater difficulty owing to the higher resisting power of streptococcus. Even giving speculation some lee-way in this matter of the streptococcal empyemas the most typical variety in adult life remains as somewhat of a stumbling block in the matter of precise etiological significance.

In the matter of staphylococcal empyema we may remember that associated with its ally the streptococcus, the staphylococcus inhabits the normal skin, mouth and pharynx. We may regard it as but natural that from its presence in air and in passages towards the

lungs empyema will constantly be noted to contain a pure culture of one or other coccus or a mixture of both.

Kiener, however, is rather upsetting in the statement founded on examination of a good quantity of material post mortem, that he had never seen staphylococci in a meta-pneumonic pleurisy before pleurotomy or rupture of a bronchus and that in autopsies following the exitus lethalis in infected broncho-pneumonia, he had found diplo and streptococci in the pleura, pericardium, endocardium and meninges and never staphylococcus, even though he had been able at times to demonstrate it in the lung. He finds staphylococci, in short, most frequently in cases of tuberculous pyopneumothorax. As cited above, he has seen cases of serous effusion with staphylococci which recovered without evident pus formation. Prinz Ludwig-Ferdinand, of Bavaria, had two similar cases under his observation at Munich.

Probably no two recorded cases of empyema run exactly the same course. The condition is but seldom unaccompanied by some more or less disturbing element—its very proximity to heart and lungs is bound to react on these organs, so that life itself is threatened. A large exudate of pneumococcal pus in the left pleura may be more difficult of treatment and exhibit more alarming symptoms than a much smaller streptococcal one in the right, although, in a general way, streptococcal pus or the toxins absorbed is more offensive to the organism than the pneumococcal variety. In average cases, however, we are justified I think, in relying to a considerable extent on the bacteriological report for the formation of our prognosis and selection of a line of treatment. Whether from antecedent causes or inate virulence the pneumococcal variety appears the most benign. The streptococcal empyema is the most sudden and critical in onset, the staphylococcal most prone to relapse and irregular in progress towards recovery, while the tubercular variety, though at times easy to suppress, in cases of local tuberculous pleuritis is most baffling, even hopeless in advanced phthisis or other grave visceral lesion. The morbid anatomy also differs to no small degree according to the nature of the bacillus observed—whether by coincidence or not. For example, in the local tuberculous pleuritis there is a great thickening of the two pleurae; fibrin is thrown out and becomes vascularised; the tubercles remaining in its deeper layers. The pneumococcal and streptococcal pus is almost without exception reported as being agglutinated, pervaded by masses of fibrin of larger or smaller size; while in marked distinction lies the staphylococcal pus, of thin watery aspect, not walled off by any masses of adhering fibrin and apparently acting as a peptonising ferment

rather than a coagulating one, as pointed out by both Kiener and Lop and Monteux.

In speaking of the operations devised to meet the indications, attention will again be called to the nature of the streptococcal invasion.

The differences above mentioned in the nature of the pleural lesions by the different cocci are becoming generally recognized, and though open to some serious objection on the ground of second-hand evidence and desire to point out from a single case the many peculiarities of the type as seen in scattering ones; I shall venture to select from different observers a single case where the germ involved was present in pure culture, that we may see if there be really clinical differences warranting a bacteriological examination in all cases, or, if the observations be too discordant to permit of generalization.

The progress of the cases while under treatment can, I believe, be of minor interest, for the treatment has been symptomatic throughout. Palliative, tentative measures have been the blight on the reputation of the accepted treatment of empyema. If a uniform method of treatment had been followed in four hundred cases I feel sure the results would serve to illustrate in a remarkable manner the specific characteristics of any one organism in its invasion, and that subsequent treatment, adopted as best suited to stamp out a particular invasion (or insurrection), would cause the duration of treatment, crisis and convalescence to be reckoned in days or weeks instead of weeks (or oftener months) in those cases which do recover. Frankel describes at considerable length a case of *pneumococcal infection* of the pleura in an adult, which, though running much too long a course and terminating in rupture of a bronchus, yet shows that in spite of misguided human endeavor pus will find out the way.

The patient was a bricklayer of 28 years admitted for treatment on June 3rd, '87. There was a history of right-sided pneumonia on two occasions, once during military service and again within two years. The present illness began with a chill on May, 29th, followed by fever and pain in the right side of the chest, and appearance of a bloody sputum. Dating from the fourth of June, the patient was a well nourished man of strong build, red cheeks and clear skin which was hot and dry, only a little moisture being present in the axillæ. Respiration was somewhat labored costal in character, and reinforced by the scaleni; thorax well developed and of good capacity. The percussion notes in front were equal on both sides above the fourth rib, where dulness commenced on the right. In the right side of the chest the note was of a little higher pitch. Breathing was vesicular on both sides; a little rougher on the right. Posteriorly dulness was evident on

the right side below the spine of the scapula. Loud bronchial breathing was heard on the right side down to the spine of the scapula, accompanied by crackling râles. Below the spine the breathing was indistinct, also accompanied by crackling râles. The breathing was vesicular over the whole area of the left side. Typical rusty sputum present. Heart sounds were normal. Cardiac dulness not displaced towards the left. Tongue moist, coated, white; abdomen slightly tender on pressure.

The urine was reddish and clear; free from albumen about 900 ccm in amount and of sp. gr. 1012. Evening temperature 103, morning temperature 101.4-5; pulse 104. Respiration 36.

Treatment.—Eight dry cuppings on the right side and decoction of Senega internally.

June 5th, profuse sweating. June 7th, morning temperature 99 1-5; evening temperature 100 4-5. Two teaspoonfuls ropy mucus expectorated. The area of dulness posteriorally on the right side begins to lessen and is present only below the angle of the scapula. General conditions good except for the pain in the chest which persists.

Despite the apparent change for the better, the next succeeding days showed morning temperature varying from 99 2-5 to 100 1-5, and evening temperature from 102 1-5 to 104. The dull area began to increase again until the tenth of June it had risen to the middle of the scapula. The right lateral area gave no evidence of marked improvement for, in addition to the dullness, a friction rub was audible. The sputum was viscid mucus. No tubercle bacilli were to be found in it. From the 13th, slight chills came on towards evening, followed by fever and profuse sweating. Under this unmistakably septic fever the patient began to lose flesh; the arteries were narrower and less full, so that finally on the 19th, an exploratory puncture was performed in the right side behind at the inferior portion of dull area in the ninth space. A small amount of thick, purulent exudate was withdrawn which contained, in addition to the pus corpuscles, numbers of pneumococci. The fact that puncture had to be performed in several places before pus was found, as also the deep situation of the same, indicated that the collection was strictly localised. Following puncture the treatment remained of the stimulating and expectant character. On July 2nd, a paroxysm of coughing brought up a scanty half viscid sputum which soon took on the character of homogeneous pus. The odour was in no-wise fœtid. On July 4th, two punctures were performed in the eighth space with result similar to that of June 19th. Culture of pus on agar remained negative.

July 12th. Great pallor and emaciation. On deep inspiration, the

expansion of the right half of the chest was markedly less than the left. The percussion note in the left supra and infraclavicular fossæ was rather dull as also in the upper region of the right chest where indistinct breath sounds and occasional râles were audible. Behind also the flatness (dulness) of the right side was marked especially towards the base. The apex beat of the heart was visible and in its normal position. Auscultation revealed a blowing systolic murmur at the apex; other sounds normal in præcordium; spleen not enlarged, tongue clean, appetite good, sweating was profuse, especially at night. Temperature 101 1-5, pulse 92.

July 23rd:—Temperature was normal, sputum almost nil, but the dull area kept on increasing in size. A third puncture with large trochar and cannula removed about 4 c.cm. of pus. Pneumococci were found in this exudate in zoogloea masses. A culture was made on agar and inoculation into a guinea-pig.

July 25th:—Typical pneumococcal growth on agar. Animal found dead in the cage early in the morning.

After 31st July fever disappeared, as did the sputum which had for a few days increased in quantity and become purulent. Ten days later patient quit his bed. Under influence of good diet the healthy color returned nutrition rapidly improved, and, at the end of August, he left the hospital without any inequality in the sides of the chest. The septic condition lasted about three months, pointed to a bronchus and, being of small extent, did not happen to suffocate the patient.

The *streptococcal infection* selected was observed by Prinz Ferdinand of Bavaria and Von Ziemsen, in 1890.

Paul V., aged 22. Has had pneumonia of the left inferior lobe, also a gonorrhœa. Parents apparently died of trichinosis; a brother is suffering from the same infection.

Two days ago was taken with a violent cough, pain in the right side, head and loins accompanied by fever. At present he is a well developed, well nourished man suffering from high fever, nasal catarrh, laryngitis, double conjunctivitis. Boundaries of both lungs normal, good expansion. Right inferior lobe yields a slight tympanitic note; no dulness. There is remarkably sharp vesicular breathing. Rest of lung normal.

Abdomen and liver show nothing apparently abnormal; spleen is slightly enlarged; urine free from albumen, high colored. Continuous fever as high as 102 began on January 1st ('90), with pain in side and dulness in right inferior lobe, bronchial breathing, increased vocal fremitus.

Next day the symptoms became more pronounced, pain in right side

increasing, dyspnœa marked, loss of sleep, want of appetite. Marked area of dulness below at the back. Bronchial breathing, bronchial vocal resonance sound. January 4th—Rusty sputum, temperature varying from 100 1-5 to 102. General condition decidedly bad. Dulness, bronchial breathing especially at the base, vocal resonance more pronounced.

January 10—Exudate apparent in the right chest temperature irregular between 98 2-5 and 102.

January 18—Exploratory puncture removed about 1820 grammes of a purulent exudate from the right cavity.

The pus formation continued, however, fever remaining high, and on 20th January, thoracentesis was performed with resection of a piece of the sixth rib. About three litres of pus were removed. After operation, the temperature began to fall off. Dressings were changed every three days. On February 20th the drains were removed, the operation wounds packed with iodoform gauze. The chest wall began to fall in somewhat.

February 27th—Patient was transferred to Convalescent Hospital, but on March 11th returned with recurrence of the empyema which had ruptured into a bronchus and set up pneumothorax.

Patient is now pale shows poor nutrition, great collapse of right side, symptoms of a right-sided circumscribed pneumothorax. Succussion splash readily heard. Metallic note on percussion. Nothing abnormal in heart or abdomen. Temperature rises at times to 104 2-5. Exquisite pain in the side. Exploratory puncture in axilliary line reveals pus.

March 21st—Coughs up pus; fever abates, sputum diminished; gentle amphoric breathing heard at the right base. Recovery uninterrupted and rapid. Smear of pus from puncture of January 20th stained with carbol fuchsin revealed streptococci in chains of varying length. Plate cultures on agar gave pure culture of streptococci.

Onset sudden, symptoms alarming, condition only temporarily improved by removal of exudate by means of puncture is a common picture in the streptococcal empyema. Pus is usually thick, creamy, containing flakes and clots of fibrin though not demonstrated in this case.

A *staphylococcal case* reported by Lop and Monteux in 1898.

A large stout, strong, healthy man, without hereditary or personal lesions. Early in March, of '97, after the Nice Carnival, was taken with violent chills, pain in the left side, fever, and rusty sputum. Seen by Dr. Lop on April 4th who diagnosed a pleural effusion extending

upwards to the spine of the left scapula. Heart displaced far to the right.

General condition, critical, orthopnœa, cyanosis, small pulse, scanty urine; temperature 101 1-5.

April 6th—Great dyspnœa. Thoracentesis performed with all possible aseptic precautions. Four litres of thin serous fluid were evacuated in an hour. Marked improvement was soon evident. April 11th—Dyspnœa reappears. Heart is again found strongly displaced to the right. Third puncture performed and three litres sero-purulent fluid withdrawn. Pleural cavity irrigated with sublimate 1-1000 followed by boric acid 20-1000. Temperature fell from 101 1-5 to 98 at once and remained at 101 1-5 until April 27th. The day before the first puncture 10 c.cm. of liquid were removed with a Roux syringe with all antiseptic precautions, two tube cultures made.

Polynuclear pus cells were found with rare non-capsulated non-lanceolate diplococci—at one place a bunch of four together was discovered. Bouillion after 24 hours gave small bunches of staphylococci —no evidence of pneumo or streptococci. Operation was decided on with cocaine anæsthesia. Three litres of sero-purulent fluid were evacuated—drainage tube inserted and antiseptic compress applied.

May 14th—A siphon was introduced and remained until June 20th. Fall in temperature accompanied gradual diminution of pus flow, but on evening of June 20th, the patient is allowed outside. Has a chill and pain—the fistula is found partially closed—dilated with laminaria tent and drained again under better conditions. Lung begins to expand—no retraction—general condition good. Absence of streptococci from serum was noted 15 days after readjustment of the siphon.

Under the treatment of "wait a bit," let the patient alone, pray for rupture into a bronchus, only interfere surgically as a last resort, (and then but partially) we see in all cases a more or less prolonged illness of three to five months in favorable conditions. The evacuation imperfectly performed by tube methods does not completely remove the septic agent, though it be the most favorable staphylococcal pus, free from fibrin and clots. It is doubly unsatisfactory in pneumococcal, streptococcal and tuberculous exudates, where fibrinous septa often become closed off sacs of matter unexplored or a clot of fibrin dams back the exudate from the tube.

But to consider the practice which time has evolved in all its details would require another hour or so. Briefly let me direct your attention to the fact that treatment has long proceeded along two lines—the internal and surgical. Internal remedies designed to cause absorption of a purulent effusion seem to invite the exitus lethalis via toxæmia

and septicæmia rather than a return to normal health. Yet these remedies have been used with the hope that anything would be less dangerous than surgical interference which has until recently been kept in reserve as the last heroic act of a drama where by irony of custom the patient is regarded as a victim, the doctor or surgeon a sort of high priest of sacrifice.

It is a matter of record that surgeons before Hippocrates resorted to operative measures with clean hands and hot irons. Patients did recover in spite of sceptic invasion.

Pliny the elder has a story of a Roman Knight who suffered torment from empyema and placed himself in the front rank of battle hoping to end his life as a noble post: he did receive a lance thrust, lost a great amount of pus and recovered. At this distance it is difficult to guess, with certainty, at the bacteria present, but the copious amount, the fluidity suggest staphylococcus. Recovery after one puncture suggests tubercular infection invaded by pneumococci.

Even to our own day numerous physicians and surgeons live in dread of the intra-thoracic pressure, collapsed lung and sepsis when requested to make more than a puncture of the pleural wall. Only the hopeless (?) cases were brought to operation a few years ago. Parietal pleura an inch thick refusing to comply with a collapsed lung was operated by excision of a portion of several ribs leaving the pleura unsupported. This fell in on the lung and in some cases after the subsidence of sepsis, if the case were not too long standing, the lung regained function re-expanded, pushed pleura back to nearly its normal position and in course of time new bony tissue replaced the old.

In conclusion let me point out that the votaries of internal medicine are recognizing the presence of pyothorax as a condition for surgical interference and to quote Carl Beck: At the ninth congress of Internal Medicine, Ewald seconded by Ziemssen, one of the greatest internists alive made the potent declaration that "Old cases of pyothorax should not exist and when they do the attending physician should be held responsible for their existence." And as long as the fable of spontaneous healing of pyotharax still haunts reputable text books on internal medicine the realization of such an ideal state of affairs cannot be expected."