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CONTENTS.

ORIGINAL COMMUNICATIONS.	SOCIETY PROCEEDINGS.	The Treatment of Sick Headache.... 602
Report of the Etiology, and the Preventive Vaccination of Yellow Fever 577	Medico-Chirurgical Society of Montreal	Prescription for Alopecia..... 602
Clinical Lecture..... 579	Canadian Medical Association..... 595	Another Treatment for Vomiting of Pregnancy..... 602
Hemoptysis	PROGRESS OF SCIENCE.	
Myalgia	The Treatment of Otorrhœa..... 601	EDITORIAL.
Canada Medical Association—President's Address..... 583	Pruritus Vulva	Canadian Medical Association
	Hydrochlorate of Cocaine in the Vomiting of Pregnancy..... 602	Yellow Fever and its Prevention..... 603

Original Communications.

(WRITTEN FOR THE CANADA MEDICAL RECORD.)

REPORT ON THE ETIOLOGY, AND THE PREVENTIVE VACCINATION OF YELLOW FEVER.

By DR. L. GERARD.

Late Surgeon to the Inter-oceanic Canal Company at Panama, S. A.

Translated from the French by Dr. Wolfred Nelson, late of Panama, S. A.

Whence comes yellow fever, how does it propagate itself, and what is our etiological knowledge of its nature? Can that knowledge produce some prophylactic means or measures, easy to apply and sufficient to give absolute protection against this formidable plague?

Such were the problems that I had undertaken to solve after my arrival on the Isthmus of Panama. I shall now briefly give the results of my experiments and studies :

I.

In the month of June, 1882, in a report to the Superior Agent of the Inter-oceanic Canal Company resident in the City of Panama, S. A., I had the honor to inform him, that I had found in the blood of yellow-fever patients, some microscopic organisms,—some filiform, others resembling a string of beads (*chaplets*), and, lastly, brilliant little bodies. That the organisms were constant in appearance, and could thus serve as elements for diagnosis.

After some trials and a great many failures I succeeded in isolating the microbes, and obtained

them in great quantity without the human body, by artificial cultivation, in liquids suitable for their nutrition and reproduction.

I was then enabled to study the mode of existence of the microbes. If one observes the filiform bodies attentively for a given time he perceives in their transparent and homogeneous substance, a series of small corpuscles, that refract light more than the other parts of the microbe. Little by little these corpuscles arrange themselves around a central axis or core, giving the organism the appearance of a string of beads (*chaplet*. This French word signifies the string of beads "told" by devout Catholics while praying). Soon other changes follow, the string-like formation separates and in place thereof nothing remains but a mass of brilliant little points. The size of little points is about the thousandth of a millimetre. These corpuscle germs have great resistance. *They do not perish by drying, and can after many years serve to propagate the disease, by regenerating the filiform bodies, when placed under favorable conditions.*

But what rôle can we attribute to the microbes in the production of yellow fever? To elucidate this question I have had recourse to experiments on animals. At the beginning of my work I experimented on a number of rabbits, later with dogs, poultry, rats and monkeys, but these animals did not show any predisposition to the disease.

At length a result was obtained by inoculating a guinea pig with half a gramme (a gramme is equal to 15 1-3 grains) of blood taken from the heart of a man an hour after his death from specific yellow fever. The animal sickened and after two days' fever died in great agony.

At the autopsy on the little cadaver, I found the characteristic lesions of yellow fever, shown with sufficient clearness to establish the identity of the disease, notwithstanding the difference in the organisms.

These direct inoculation experiments were repeated a great many times, the same results were produced in nine cases out of ten. The cadaveric lesions were always the same.

Examinations of blood taken from the ears of a guinea pig suffering from the disease invariably gave the same results, *i.e.*, the recognition or presence of the same microbe met with in man suffering from specific yellow fever.

Having thus established that yellow fever was transferable by inoculation, or vaccination from man to the guinea pig, it became easier to study the *role* of the microbe itself in the production of the disease.

More animals were inoculated with the culture liquids peopled with the microbes. They all died in the same manner, presenting the same symptoms as those infected by the direct inoculation of blood.

The periods of incubation in the various experiments declared themselves with varying phases in from one to nineteen days. Figures that correspond with those resulting from observation of the disease at Panama.

As a whole, the knowledge acquired by the experiments just related may be summarized thus :

1st. Yellow fever is a disease that is always characterized by the presence in the blood of the patients of a special microbe, which can be multiplied outside of the bodies of men or animals, by artificial culture.

2nd. The microbes give birth to germs endowed with great resistance to destructive causes, and are capable of reproducing the disease.

3rd. Yellow fever can be transmitted to a guinea pig by the inoculation of blood in its sub-cellular tissues.

4th. Finally, the animals inoculated with cultures charged with the parasites, contract yellow fever and die. Post-mortem, the same lesions are found as in those directly inoculated with blood.

II.

VACCINATION.

"In 1880 M. Pasteur discovered the first instance of a disease, produced by a special microbe, which, by special treatment, could be de-

prived of a part of its virulence, and that fowls could be inoculated with it, without danger. By using the attenuated virus, the disease could be communicated to fowls, and after a light attack they were protected against the fatal disease.

"Later, several microbic diseases were recognized or defined. Their microbes having the same properties.

"M. Pasteur, with marvelous sagacity, could not help but remark that the process which had enabled him to lessen or attenuate the action of the microbe of chicken cholera, ought to be a process of diminishing or attenuating the virulence of microbes generally that cause other diseases."*

Such were the antecedents that encouraged one to search out a method for attenuating the microbe of yellow fever. In my experiments already related I noticed that three of the inoculated animals that were dangerously ill recovered. That circumstance permitted me to submit to experimental proof, the important theoretical problem, as to whether they were still susceptible to the yellow fever poison. The three guinea pigs were re-inoculated some time afterwards to demonstrate if they were susceptible to the disease *de novo*. They did not present any abnormal symptoms after the inoculation, nor the slightest elevation of temperature.

Thus, we should admit in principle that yellow fever cannot be taken anew. And in this again the experiments were in perfect accord with clinical observations.

This fact accepted rendered my later experiments perfectly legitimate in the alternation of the virus of yellow fever poison for the production of a vaccine-virus capable of protecting man against the terrible effects of the disease.

The problem, thus stated, to me seemed susceptible of receiving a favorable solution by following in the steps traced out with so much perfection by M. Pasteur, in his search for the virus of charbon or malignant pustule.

This *savant* showed that he easily could obtain microbes of various degrees of virulence. From the deadly virulence, that is to say, that killed one hundred times in a hundred the animals experimented upon, such as guinea pigs, rabbits and sheep, passing thence by a number of intermediate steps down to the most inoffensive attenuation of the virus. The method of preparing this atten-

* Chamberland de la Vaccination Charbonneuse.

uated or lessened virus thus becomes one of marvelous simplicity.

My conjectures were confirmed by experiment, and now, after the usual experiments, trials and inevitable reverses, I have obtained the microbe of yellow fever in different degrees of attenuation which can be reproduced indefinitely by cultivation.

A guinea pig inoculated by this attenuated virus not only runs no danger of death from the inoculation itself but is placed beyond the dangers and death that invariably follows the injection of virulent blood in animals that have not been protected by the preventive vaccination, or inoculation.

The illustrious savant whose methods I have followed said: "We now possess some virus-vaccine from charbon, capable of protecting against that fatal disease without being fatal in itself, a living vaccine, cultivated at will, transportable everywhere, without alteration, at length prepared by a method that we may believe susceptible of generalization."

I shall now apply his words to yellow fever, and it remained for me to carry my experiments from the animal to man.

The experiment was made last week on myself. Some months ago I was inoculated with an extremely attenuated culture. Fifteen days ago by a second and stronger culture, and, finally, guided by special reasons, I allowed myself to be bitten by mosquitoes that had just bitten a man suffering from specific yellow fever. He was in the fifth day of the disease.

In view of my experiments it became easy to analyse what obtains in the human body, inoculated, as I was, with a virulence of maximum intensity, direct from the body of a patient.

Twenty-four hours after the above direct inoculation I felt sudden pains in the region of the kidneys, a feeling of bruising or soreness in all my extremities, a sensation of tearing in my eyeballs. Two hours after these first sensations my temperature was taken in the mouth and was found to be 39° C. (36.9-10° centigrade being equal to 98½° Fahrenheit). That evening it was 40° C. The next morning also 40° C. That evening 39° C. and on the morning of the 3rd day 39°. Then it kept falling to normal.

Tongue creamy white, gums bleeding, the amount of urine was diminished by one-third. On the fourth day I had got back to my normal condition.

Thus, the preventive inoculation of yellow fever is proven. This was what I had been searching for, a virus capable of transmitting a mild type of the fever without danger.

The first step, the most difficult and the most laborious, because it was filled with the uncertainty of unknown factors, was over. The rest will surely follow in time.

A number of courageous friends having full confidence in the method, and who fully understood the importance of the experiments, and their great utility for mankind, have declared themselves ready to be vaccinated by me. I shall vaccinate them soon, with all the care that such a serious matter requires, and with all the precautions exacted by rigorous experiments.

In conclusion, I may add that the theoretical question of the preventive vaccination of yellow fever is thus solved. The practical question has now entered on a course of experimentation, and promises to be a fact and a safeguard to mankind.

CLINICAL LECTURE.

Delivered at the Montreal General Hospital, February 23rd, 1886.

BY FRANCIS W. CAMPBELL, A.M., M.D., L.R.C.P.L.

(Dean of and Professor of the Theory and Practice of Medicine in the Medical Faculty of Bishop's College).

HÆMOPTYSIS.

The patient now before us came to the out-door room on last Thursday complaining of having, during the previous night, spat up blood, and in proof of her assertion brought with her, in a small vessel, holding about an ounce, almost that quantity of expectoration which consisted principally of blood. Mr. Charles Vidal took her history which is as follows:—

"Catherine Murphy, aged 41, comes to hospital complaining of a hard dry cough, with spitting of blood at intervals. Pain under left breast and choking sensation before attack occurs, knows nothing about her grand-parents. Her father is alive and comparatively well, but last summer was in the hospital laid up with dropsy. Her mother died suddenly of heart disease. Her brothers and sisters are alive and well, with the exception of one sister who died of CONSUMPTION. Up to two years ago she was perfectly healthy, never being troubled with sickness of any kind, and being remarkably healthy as a child. After her marriage her health continued perfectly good; has had several children,

and was generally up the second day after confinement. About two years ago, while nursing her child, and being rather exposed to draughts, she caught a severe cold. She took a warm bath and hot drink and went to bed almost immediately. Next morning, when getting up, she fainted. Since then she has never regained her health. The cold was shortly succeeded by a dry, hard cough, which she was unable to get rid of. About three months after this first attack she coughed up about a tablespoonful of blood. The cough began in the ordinary manner, but instead of bringing up a harsh yellow expectoration she coughed up blood. After this up to the present time, at intervals varying from 3 to 4 months, she has these attacks occurring, and she will cough blood about 6 or 8 times during 24 hours. Between the attacks she is troubled with the cough. Before each attack she experiences a dull pain, succeeded by a sharp darting one under the left breast, and a feeling of general oppression over the chest.

THE PRESENT ATTACK occurred on Wednesday last. The blood coughed up is of a bright red color, intermingled with minute bubbles of air. During Wednesday night she brought away a large quantity, but was unable to secure it."

I placed her on a mixture containing Vinum Ipecac and Tinct. of Ergot, and whether due to the medicine or to nature, her cough is somewhat easier, and the expectoration of blood has ceased. The quantity which this patient has at any time passed has not been large, and the probability is that the present attack would have been slight even without any medicine having been given to stop the flow. There is, so far as the report shows, no history of heredity of consumption, although one sister, she admits, died of this disease. If we could get the history of the grand-parents and their relations it is more than probable that in some branch of the family a phthisical tendency would be discovered—for it is a well recognized fact that a hereditary tendency to many diseases passes over one, sometimes two generations—only to re-appear in the next. Upon examination of this woman's chest we will find decided dullness in the left infra-clavicular space with diminished or weakened vesicular murmur while posteriorly, immediately below the angle of the left scapula—and covering a small space there are distinct mucus rals. The other portions of the lung, indicate a feeble organ while the right is so far in a healthy condition. The history of the case shows that the exciting

cause was a cold caught while exposed to a draught, and that this cold she has been unable to throw off. Her general condition seems fairly good, and there is one sign about her case, which is favorable, *i. e.*, that her general nutrition is excellent, and that there is no marked activity in the disease. From the small quantity of blood she has brought up on each occasion I infer that the spot of softening is limited, and that the vessels which have opened from the breaking down of tissue have also been small.

When called to a case of this kind you have to decide as to whether the blood comes from the stomach, post nares, the mouth or fauces. If it comes from the stomach, it will be ejected by vomiting and will be mixed with food. It will give an acid reaction, whereas pure blood is alkaline. It usually also has a blackish color from the action of the gastric juice. If it comes from the posterior nares, it is in the form of dark solid sputa, which are removed by hawking. An inspection will show you whether it comes from the mouth and fauces. It is coughed up, when it comes from the air passages, it is felt in the larynx and trachea, and is ejected with but little effort. In color it is bright red and contains bubbles of air, as did the blood brought up by this patient. The amount brought up varies from a teaspoonful to one or two pints, the average is a few ounces. It may last only a few minutes, when the amount coming up gradually ceases, but for several days the expectoration is tinged with blood. Death rarely takes place during an attack, but it does sometimes. A patient may only have one attack; when this is the case, it is generally found that nature has taken this method of relieving a congestion of a portion of a lung. When it repeatedly occurs, at longer or shorter intervals, it is looked upon generally as indicating a serious condition of the lungs, though, I must say that an experience of over twenty years, has led me not to take a too serious view of an hæmoptysis, unless there are other indications of a rapid softening of pulmonic tissue.

If hæmoptysis is large, suspect an aneurism unless the patient is in advanced phthisis; an aneurism sometimes eats its way into the bronchial tubes, and is thus discharged; an attack of hæmoptysis generally causes much alarm. The patient is nervous and agitated. Your first duty is to reassure the patient, 1st, that there is no immediate danger, and a possibility of a complete recovery.

Tell him that you have had more than one patient who has had repeated attacks, and who is still hale and hearty.

Treatment.—If patient is plethoric, may bleed, rarely required, but I would not hesitate to make use of the lancet, in a robust man with a full, strong, and bounding pulse.

If it is a large hæmoptysis and is persistent, cold to the chest. This is done with compresses, wet with iced water, or even with ether, which evaporates rapidly, *ice* itself recommended. Flint has used it with success, and no bad results. Revulsive measures as sinapisms, foot-baths and dry cupping to front and back of chest. Ligatures around the extremities to limit amount of blood returning to the heart. Common salt is the popular remedy, and is generally administered at once, before the arrival of a physician. It has but little value, nevertheless it continues to hold the mind of the public. It at all events makes the patient feel satisfied that something is being done for him. Quiet, rest in bed, voice restrained, room cool, head and shoulders raised, diet bland, drinks cool or cold. If the patient coughs, he should have an *andyne* cough mixture.

Plumbi acetate:—Galle Acid and opium, tannin, karameria are recommended.

Ergot in form of pill, 3 grs. every 4 hours; ergotine injected hypodermically is a good remedy, also ice to suck.

Tinct. digitalis as a vascular sedative; alum and dilute sulph. acid are useful.

Turpentine, saline aperients useful in Plethoric cases.

MYALGIA.

A very large proportion of cases, in which pain is the principal symptom, are due to myalgia. This disease is a morbid condition of the voluntary muscles of which the chief and often the only symptom is pain on movement. It is sometimes called myodynia. It has no essential relation to rheumatism or the rheumatic diathesis. To use the common expression "muscular rheumatism," is not correct. This error has caused much confusion of thought, and tends to maintain the obscurity which hangs over rheumatic affections in general.

As manifested in particular muscles or groups of muscles, myalgia is described as cephalodynia, torticollis (myalgia cervicalis) pleurodynia (myalgia pectoralis *vel* inter costalis) lumbago (myalgia lumbalis) dorsodynia, scapulo-dynia (myalgia dorsalis).

It is described in few text books. It is essentially pain produced in a muscle which is obliged to work, when its structure is imperfectly nourished or impaired by disease. Hence all influences which unfavorably affect the nutrition of the muscles, all diseases which directly affect the integrity of their structure predisposes to this affection. The defect in nutrition may be only relative to the amount of work the muscles is called upon to do, or there may be absolute mal-nutrition implicating the whole body. The muscles may be impaired by local disease which affects it alone, or it may share in morbid processes which also involve other and distant structures. Sedentary occupations leading as they do, to poor nutrition of the muscular system, from want of proper use and exercise.

Malnutrition from a diet deficient in amount, defective in kind, or in childhood from too rapid growth, the chronic wasting diseases, the state of convalescence from acute disease, and finally, degenerative diseases of the muscles themselves, all favor the development of myalgia. Among the acute maladies, which by their derangement of nutritive processes, especially render those who have suffered from them, liable to this painful affection of the muscles during convalescence, is acute articular rheumatism. It is this fact that has given rise to the view, that the muscles share with the serous and fibrous structures in the lesions of that disease and, therefore, that myalgia is rheumatism of the muscles.

Over and above these defects in nutrition, there is an especial predisposition or idiosyncrasy, the nature of which is unknown, which render certain persons, far more liable than others, to suffer from myalgic pains. This predisposition is met with in those who have inherited or acquired a gouty taint, and in those who are perfectly free from this taint. It is not associated with any special liability to true rheumatism. The most common exciting cause, is overwork, pure and simple; especially overwork which brings into prolonged and excessive exercise, unaccustomed muscles. Next in frequency is exposure to cold, especially to damp cold, when over-heated or fatigued; finally, inevitable and incessant contractions, such as are physiological and are performed without consciousness, or sensation in a healthy state of the muscles will, in muscles that are defectively nourished, or have undergone fatty, granular, or fibroid degeneration, cause more or less distinct myalgia.

As examples of myalgia, due to overwork, pure and simple, is the pain experienced in the adductors of the thigh, after a ride on horseback, when out of practice; the pain in the epigastric region, which is met with in children who have a persistent and troublesome cough. This is well seen in children who have measles; also the pain of spasm, particularly that which follows tonic spasm, such as occurs from reflex causes, as cramps in the calves of the legs at night, and in bathers. Many of the pains, which are met with during the growing period of our existence, and which are called "growing pains," are myalgic in their character. Examples of the disease, the result of exposure to cold, are seen in the pains of what is commonly called "wry-neck" or "lumbago." These are both met with in persons perfectly healthy, but, who being very tired, fall asleep in a current of cool air. This form of the disease is also often met with among "plumbers" who, during very hot weather, have to enter and work in cellars, whose atmosphere is chilly and damp. Here they often are compelled to assume strange and awkward positions, putting certain groups of muscles into excessive action for a time, thus materially assisting the local, or more properly, the atmospheric cause, in inducing myalgia.

Examples due to defective nutrition of muscles are very common in the flying or fixed muscular soreness met with in chronic wasting diseases, and in the convalescence from acute diseases, when muscular exertion is commenced too soon. Certain forms of præcordial pain, which are met with in degenerative lesions of the muscular substance of the heart, are evidently of a myalgic character. The symptom which is common to all cases is pain, it is sometimes constant, especially in acute cases. More often it is slight or absent when the patient is at rest, with the affected muscles in full extension. Calling the muscles into action, always aggravates it. The pain is felt all through the muscular mass, but is most intense at or near its tendinous insertion. In character it is stabbing or stitch like, sometimes dragging or tearing. At others it is a simple soreness, as if the part was bruised. In chronic cases, it is almost invariably accompanied by stiffening of the muscles, and this is occasionally met with also in acute cases. The difference in the character and severity of the pain is due to difference in the opportunity for physiological rest in different groups of muscles. The most obstinate and severe form of myalgia is

that of the intercostal muscles, and their fibrous aponeurosis, generally known under the name of pleurodynia. Here the affected muscles are constantly concerned in the respiratory movements, and have but the briefest possible period for physiological rest, simply the brief interval, between the end of expiration and the commencement of inspiration. Scarcely less stubborn and severe are the myalgias of the great muscles of which the principal function is to maintain the erect position of the head and trunk. Less painful and of short duration are the myalgias of the limbs; less painful because prolonged intervals of absolute rest may be voluntarily secured; of shorter duration because it is by rest, that the balance of nutrition is most speedily restored. Over the myalgic area some degree of tenderness usually exists. It is generally slight, except at the region of tendinous insertion where it often alone is felt. It is not associated with cutaneous hyperæsthesia. As a rule, spasm does not exist in acute cases, except when the muscles are brought into use. In chronic cases, there is generally a condition of tonic spasm, a spastic rigidity. There is at times a loss of contractile power, and with it is associated some degree of atrophy. Objective signs are absent, except that the patient assumes by preference, an attitude of repose, and keeps, as much as possible, the structures which are involved, at rest. There is no pyrexia or fever; the appetite is good, and digestion seems not to be interfered with. There is not, as there is in rheumatism, acid perspiration. The urine is normal. There is no tendency to either pericardial or endocardial inflammation. There is little or no constitutional disturbance. If any is present it is slight, and is due to prolonged local suffering, and want of rest. Generally, with the exception of local pain, the patient remains in his usual health. Myalgia may affect the voluntary and occasionally the involuntary muscles of any part of the body. Those most generally attacked are those subject to continuous and excessive work. The aching dragging pain in the back of the neck, so frequent in poorly nourished nervous women, and in other cases of neurasthenia, the so-called pain of nervous exhaustion, is myalgic. It is felt principally during fatigue, and in the erect posture. Almost always it is relieved by lying down. It is referred, sometimes, to the base of the skull, sometimes to the back of the neck, but most often to the spinal region, just above the level of the upper border of the scapulæ. It is a very

harassing symptom. Many of the pains of that condition known as spinal irritation are myalgic. Acute myalgia is generally brief in duration—from a few hours to a few days. The chronic is indefinite in duration, from a few months to a life time. This variety has its periods of exacerbations and remissions, which are much influenced by change of temperature, and the different phases of the weather. The pathology is obscure. It is not rheumatic, although at times the two conditions do exist together. Such relationship is accidental, not casual. It does not resemble neuralgia. It is believed to be of the nature of a sub-inflammatory process within the muscle substance. The not uncommon instance in which an injury or contusion has been followed, shortly after recovery, by severe myalgia, would go to prove this theory.

The indications for treatment are three: (1) relieve pain. (2) Physiological rest for the affected muscle. (3) Restoration of the balance between the nutrition of the muscle and the work which it has to perform. 1. Relief of pain. This may often be secured by rest in a position that permits the complete relaxation of the muscles involved. In acute cases, due to overwork, little more than complete rest is required, a few hours sometimes, or at most a few days, and muscular contractions are once more painless; when this complete muscular relaxation is impossible, or fails to give relief, anodynes are required. Morphia injected under the skin by means of the hypodermic syringe, at first $\frac{1}{4}$ of a grain, combined with the $\frac{1}{200}$ of a grain of Sulphate of Atropia. If relief does not follow the first injection in 6 hours, a $\frac{1}{4}$ of a grain of Morphia with the same quantity of Atropia as was given at first, viz., $\frac{1}{200}$ of a grain. The continuous application of dry or moist heat by means of hot water bags, flannels, poultices, and spongio-piline is also useful. Anodyne liniments also do good. Soap liniment, containing aconite. Tr. opii, belladonna, chloroform or chloral, are useful. The compound belladonna liniment of the B.P. sometimes gives excellent results. Emplastrums or plasters of Belladonna, Opium, Conium and Menthol are recommended. Galvanism sometimes gives prompt relief. The pain gives way often under gentle and long continued massage.

(2) Rest is enforced on the patient by the intensity of the pain which movement causes so that in severe cases rest in bed becomes a necessity. When the respiratory muscles are affected, it is advisable to make an attempt to limit their movements.

This is done by means of overlapping strips of adhesive plaster drawn from the spine downward and forward in the direction of the ribs to the medium line in front. Such a dressing gives much comfort. It is advisable at times also to support these muscles by a bandage tightly wound around the chest.

(3) The balance of nutrition is restored by rest. Local means to further this end, are such as relieve pain viz., heat, anodyne and stimulating liniments, massage and galvanism. The parts must be protected from sudden changes in temperature by extra flannel, sheets of wool, or cotton batting, covered, if necessary, with a piece of oiled silk or gutta percha tissue. In such cases prolonged massage, with passive movements, and the slowly interrupted galvanic current, alternating with rapid faradic currents, now and again show good results. Ten grains of Owers powder or pulv. ipecac. co. at bedtime and a mild purge, saline the best—in the morning. In gouty or plethoric persons, purgation is called for; and the Turkish Bath is also useful in the same class of persons, in Anemic subjects, Quinine, Iron, Lime, and C.L.O., are useful.

If the attack linger, full doses of Chloride of Ammonium, and in old cases, iodide of potash in moderate doses, should be given well diluted and continued for a lengthened period. In stubborn cases Anstie recommended deep accupuncture of the muscle near its tendinous attachment. When the general nutrition is poor the local trouble is apt to be obstinate and often only yields to measures which restore the general health.

CANADA MEDICAL ASSOCIATION.— PRESIDENT'S ADDRESS.

The President's Address, delivered before the Canadian Medical Association, at its nineteenth annual meeting, held in the city of Quebec, on the 18th August, 1886, by T. K. Holmes, M.D., Chatham, Ont.

Gentlemen of the Canadian Medical Association.—When, a year ago, you paid me the high honor of electing me to the presidency of this Association, I will not pretend to deny that the distinction that appointment conferred afforded me the most lively gratification, which, however, was qualified by several considerations that were to me of quite a serious character. Not the least of these was the knowledge that I must address an audience distinguished for intelligence and for scholarly attainments, both professional and general, and

that the learning and ability of my predecessors in office would not detract from the difficulty of the task. Indeed I felt, and still feel, that my chief qualification for the position in which your kindness has placed me is an unswerving interest in the prosperity of this Association, which has influenced so strongly and so favorably the medical profession of this country. While expressing my most sincere thanks for the highest honor at your disposal, I feel sure that the same kindly feeling which prompted its bestowal will render easy the duties of presiding officer, and that the same zeal which has hitherto marked the scientific work of this Association will characterize the meeting now convened.

Romance and history combine to render the city of Quebec the most interesting spot in Canada, and our Association may well be congratulated on the privilege it enjoys this year in holding its session in a place rendered famous by so many circumstances. The adventurous quest and the indomitable will of the early navigators, who laid the foundation of civilization in the country when they planted the colors of France along the shores of the St. Lawrence, may well serve us as models for emulation in our more peaceful search after that scientific knowledge which contributes so much to the happiness of mankind. If our efforts be at all comparable to theirs, equal honors and equal blessings may be expected to result from our endeavors. In this connection I may express the wish that the same spirit of enlightenment and progress that characterizes our parent countries, France and England, may animate their descendants in this young Dominion, and that the Canadian profession of medicine may not be unworthy the great names of Harvey and Lawrence, of Hunter and Pasteur. It will certainly contribute greatly to the progress of medical science in this country if the two races whose ancestors have led the van in Europe go hand in hand and vie with each other in creating a professional status here inferior to that of no other country. Some of the means by which we may hope to accomplish this will be the subject of my remarks to-day.

The architect who aims at lasting fame not only lays broad and deep the foundations of his work, but anticipates each step in the growing structure, even to the crowning event of its completion. He selects the material, superintends each process of manufacture, shapes every part, and embellishes the whole, until it rises in symmetry and perfection,

and stands the glorious and enduring monument of his creative genius. In this land there is arising a temple whose foundation is based upon the accumulated labors of some of the greatest architects of human happiness. Their names shine with brilliancy unabated all down through the vista of past years, and animate and enlighten all who labor in the same profession and emulate their achievements. We are the privileged architects of this temple of medicine in our country and generation, and I trust that the marks of our skill may not be indistinguishable in the rising edifice. The progress of scientific medicine in the recent past is the result very largely of the development of the science of biology which has done so much to establish medicine on a scientific basis.

Until the study of life in its elementary forms was rendered possible by modern instruments of precision, empiricism necessarily entered largely into all medical progress, and it was maintained as an opprobrium that medicine was no more than an enlightened empiricism. This is true but it could not have been otherwise, since until the birth of biology as a science, medical knowledge had either to remain at a standstill or to progress by a series of empirical jumps which sometimes left it in a more advanced state of usefulness, and sometimes failed to do so even in the slightest degree. Although empiricism in medicine has been such a laborious means of advancement, we must admit that it generally contained some grains of truth, and that when it failed to accomplish what was expected of it, the reason of the failure lay, not in the worthlessness of the efforts at progress, but in the difficulty of separating the grains of truth from the abundant chaff in which it was contained. Each new fashion, while it has contained some truth, has failed and given place to another little in advance, not because it contained no truth but because the truth it did contain was incomplete. When, however, the study of biology was established on a scientific basis, medicine, which is but an applied science of biological doctrine, became less empirical and more scientific, and by the aid of physiology and pathology, which are the necessary sequence of biological investigation, has advanced to the present high and satisfactory position it occupies. The very fact that morbid processes are viewed and studied from a physiological standpoint and are estimated and measured by the laws that govern elementary processes of life renders it certain that the progress of the

recent past and of the present is on surer lines and firmer foundation than ever before, and that the future of medicine will be the glorious sequel of the present, as the present is the glorious sequel of the past. It justifies the belief that the advantages to the human race likely to accrue from the prosecution of medical studies and investigation pursued on these lines will be far greater in the future than in the past, that physiology and pathology, which are but in their infancy, are destined to illuminate the dark places in medicine and reveal the true cause of much human suffering and premature death.

We are accustomed to regard with wonder the achievements of modern invention in the art of war, and to contemplate with amazement the perfected instruments of destruction that strengthen the hands of modern belligerents, but the general who advances to battle with all these at his command has no greater advantage over a barbarous foe than modern medical searchers after truth in the realms of disease have over their empirical brothers of the prebiological period. Possessing these advantages, and stimulated by this prospect, it is reasonable to suppose there will, in the near future, arise men whose investigations, beginning where those of Sanderson, Koch, Virchow and Pasteur leave off, will be equally brilliant and equally conducive to human happiness and longevity. The country that produces these men will be the country that affords the best medical education to those entering the profession, and that most facilitates original investigations for those who have chosen that field of labor. No physician in this country, worthy of the profession to which he belongs, can be indifferent to the position Canada shall occupy in the honorable and honored competition in which so many are and will be engaged.

The future of the medical profession in this as in any other country will largely depend upon the natural ability and the mental and moral training in childhood and youth of those entering its ranks; so that in considering any scheme for the creation of a high standard of medical qualification, domestic training, and the plan of education pursued in public schools must be recognized as bearing an important part.

It has been said that poets are born and not made; a saying that is not untrue when applied to medical men, for a combination of mental and moral qualities which cannot be wholly

acquired, enters into the character of every great physician. It is cause for regret that greater discrimination is not exercised in directing young men in the choice of a business or profession, and that convenience and not natural aptitude should frequently determine a young man's course in life. There are so many examples of men rising from obscurity to great eminence in every vocation that there has arisen a popular impression that all obstacles and natural defects can be compensated for or can be overcome by diligence and perseverance on the part of any aspiring youth. It would be wrong to under-estimate the value of industry and high aspiration, but these, while they can improve all and can render mediocrity respectable, can never supply the place of genius. While it is impossible to create genius by any system of training, it is almost impossible to repress it altogether by any carelessness or neglect.

"That many mute inglorious Miltons lie buried in our church-yards, I venture to doubt: the fire of a Burns is not easily hidden under a bushel, but some smaller lights may be quenched, and the best of such men, like Burns himself, may be thwarted and broken in heart." (*Dr. Allbutt.*)

Other things being equal, the child, who from infancy is trained to think and to reason correctly and to express its thoughts clearly, will be more likely to attain eminence in mature life in all pursuits of an intellectual character than the child not so trained; indeed, skillful training in early life is essential to success in persons of average natural capacity, and is of unquestionable importance to all.

The efforts to establish, not to maintain an, efficient system of education in this country are worthy the highest commendation, but the task is a difficult one and there is danger of enthusiastic legislators over-stepping the work and making our sons and daughters mere receptacles of knowledge instead of creators of knowledge by failing to recognize that it is vastly more important that a man should think and reason correctly than that he be the professor of multitudes of facts and definitions. Physicians, with such questionable elementary training, are like the artificer well supplied with the tools of his craft, but lacking the skill to use them. It is not to such that we may look hopefully for real progress in our science; they make up the great army of routine practitioners who trouble themselves little with profundities, and are like Dr. Sangrado, who felt quite sure that those of his pa-

tients who, under the care of his pupil Gil Blas, died from excessive bleeding and the copious drinking of warm water, did so because his panacea was not applied with sufficient vigor and determination.

It is probably not incorrect to say that most medical men in Canada are of opinion that the chief defect in our school system lies in the oversight here referred to. The curriculum for medical matriculants in Canada must create a higher average intellectually among young men aspiring to the profession, but there can be no doubt that a widening of the curriculum, so as to embrace a more extensive knowledge of the natural sciences, would greatly facilitate the acquisition of knowledge presented to, and required of, medical students. An acquaintance with the laws relating to climatology would serve a useful end in the study of epidemic and endemic diseases, and in an estimate of the influence of climate on disease in general; an acquaintance with minute organism and histological structures, such as could be readily acquired in any high school provided with a microscope would prepare the mental soil for the reception and quick germination of the seeds of knowledge, sown by teachers of physiology and kindred subjects in medical schools. The medical student, who learns something of biology, of cells and germs, and of bacterial life only after he has entered upon his course of medical lectures, is at a great disadvantage, and loses much time in a bewildering effort to master names and technicalities, and I can conceive of no more irksome task for a teacher than to lecture to a class of young men laboring under this disadvantage.

The relations existing between medical schools and licensing bodies in this country are so satisfactory that little desire has been manifested to alter them, and it is beyond doubt that to these relations we owe, in great measure, the improved status of medical education here.

When the great discovery of Columbus opened to the old world the unknown and virgin resources of the new, the most progressive nations entered eagerly into keen competition for the advantages this discovery presented. National ambition and individual courage and endurance combined towards the great aim and object of colonization and development of natural resources in this continent. The results are patent to all; a newer and greater freedom and civilizations in the new world are the rich fruits of these vigorous pioneer efforts, and the evidence exists in the glad and prosperous

millions of the western world. Analogous to this is the meteoric brilliancy of the discoveries in medical science within the past fifty years. Physiology, pathology, the etiology of disease, physiological medicine, preventive medicine, these are some of the fields laid open to the modern physician, and they leave no lack of opportunity for the exercise of ambition, skill, and philanthropy. Nearly all European nations and the individual States of the neighbouring Republic have shown their determination to participate in the honorable achievements in medicine, thus rendered possible in the near future. Schools for the pursuit of original investigation have been liberally endowed by these governments, and this liberality has been supplemented by the wise and princely donations of private individuals.

Sanderson and Klein, Koch and Pasteur, our own Osler, and many others scarcely less distinguished, are devoting their lives with indefatigable zeal to the elucidation of scientific questions upon which rests the superstructure of medical practice, and they are enabled to do so only through the liberality of the various governments under which they live. Research of this kind can only be carried on successfully by men naturally adapted to such work, and who are free from the care and anxiety inseparable from the lives of those engaged in the active practice of their profession. Hence the absolute necessity for the endowment of institutions of this character. The large expenditure necessary to the equipment of a laboratory for such work has greatly retarded it in Canada, and until means are provided we must be content to occupy an insignificant place in the great race now being run. Can it be that this country or its wealthy citizens will remain indifferent in this matter, while our nearest neighbor is lavishing millions of dollars to attain honorable eminence in the progress of medical science? Scarcely a State in the Union that has not its well endowed university, and the princely gifts of Cornell, of John Hopkins, of Mr. Stanford, of Mr. Vanderbilt and of Sir Donald A. Smith are the great beginning of greater things. Who can estimate the blessings to the human race that must arise from the wise munificence of these noble men! Millions yet unborn shall speak their names with feelings of reverence and love, nor will other monuments be needed to make their names immortal. In this connection, I would suggest that a committee of this Association be appointed to report at the next annual meeting upon the best means

of establishing one or more laboratories, where original investigation in medicinal studies may be carried on.

Medical societies constitute a most important factor in the advancement of medical knowledge, and it is much to be regretted that they are not everywhere established. It is safe to say that the maintenance of active local societies contributes immensely to the knowledge of their members by encouraging careful observations in private practice and more extensive reading and research. Aside from a scientific point of view, the harmony engendered by these meetings eliminates much of the jealousy and misunderstanding that are so humiliating and so subversive of individual happiness and public respect. The general organization of small local societies would be a sure means of improving the representations at the larger ones, and would secure to them papers and discussions of a higher character. Provision has been made in Ontario by the Medical Act for the formation of territorial associations in different electoral divisions, and in some of them most prosperous societies have existed for many years, and the reports of their proceedings constitute valuable additions to medical literature.

Of all the means of medical progress, few could be more advantageously utilized than the accumulated experience of men in private practice if they could be induced generally to keep a systematic record of their more important cases. Time, skill, and the privilege of post-mortem examinations are essential to the successful recording of cases, and their absence is doubtless the chief cause of neglect so universal in this matter. Time so consumed would be more than repaid by the increased skill acquired; the high standard of qualification now required of graduates should remove the second difficulty, and if requests for autopsies were made in all cases necessary to verify a diagnosis or to elucidate an obscurity, the prejudice now existing against them in the public mind would to a great degree disappear. Let rural practitioners who underrate their opportunities of contributing to the general fund of medical knowledge remember that Jenner, McDowell and Koch were not metropolitan physicians, and were unknown to fame until their great discoveries, wrought out by diligent study and observation, placed them among the great benefactors of mankind. Observation and reflection are the parents of discovery, and never fail to produce their offspring, although the gestation may be

long and the labor hard. Every truth so revealed is like a lantern, the light of which may be turned on the dark places of our field of investigation and new truths stand clear to our mental vision, and we talk boldly and safely on, using each new thought to illumine the obscurity that surrounds and precedes us.

The building up of a science is a slow and laborious process, and facts must be supplied by a multitude of workers. The scholar who deciphers the cuneiform inscriptions of ancient Babylon or the hieroglyphics of Egypt, and contributes to our knowledge of these nations, must be aided and preceded in his work by the archæologist who discovers and the laborer who uncovers these imperishable records of past events. So in the building up of medical science, the humblest worker is not to be despised, for his contributions may be and often are essential; but to be available, his thoughts and observations must be recorded, that they may be weighed and winnowed by those suited to the task.

All who have read the lectures of Murchison on "Functional Diseases of the Liver," of Roberts on "The Digestive Ferments," or of our own Osler on "Malignant Endocarditis," must be impressed by the great impetus given to practical medicine by these, and will need no arguments to convince them of the desirability of the endowment of similar lectureships here. From a literary and scientific standpoint, the advantage accruing to the profession from such lectures would be important, but of even more importance would be the encouragement afforded to the more gifted and aspiring of our own Canadian physicians and surgeons. As Canadians we may feel proud of our country and of its physical and political excellencies, but we may rest assured that, so far as we, medical men, are concerned, others will estimate us by the reasonable and practical standard of our contributions to medical knowledge and by our scientific attainments. No conservative clinging to absolute methods on the one hand, or the multiplication of weak meretricious literature on the other, can impose upon the learned in the professional world, and the sooner we create strong incentives to scientific work the sooner will the workers be forthcoming. I would here offer the suggestion that this Association take into consideration the establishment of lectureships similar to those in England and other older countries.

Of all means enumerated for the advancement

of medical science, individual effort undoubtedly ranks first. Associations can teach and stimulate, but they can never supply the place of study and observation. Truth only yields her wealth to him who lays siege to her shrine. Emerson says the hardest task in the world is to think. We try to look in the face an abstract truth, and we cannot do it. The mind swerves from the encounter, and thick darkness prevails. We return to the charge and try to force Truth from her citadel, and then in a moment, when we least expect it, a rift in the cloud comes, a ray penetrates our minds, light floods in more and more, until objects, dim at first from sudden light in dark places, become real shapes, and we gauge their dimensions and estimate their proportions with unerring exactitude. Few truths are discovered but by this laborious process, and because we evolve them slowly and often only partially by delving beneath the surface of things, it is better to labor so than not to work at all, for when the surface is broken and disturbed others will see clearly what we only half perceive, others will perfect what we are able only to dimly outline.

It requires no prophetic eye to perceive the future greatness of Canada. Her vast extent and varied and inexhaustible natural resources everywhere abounding are such that it would seem impossible for any series of unfortunate events to stem her progress, or to divert her course in the contest of nations for pre-eminence in all that constitutes true greatness. The spirit of progress is abroad, armed with the all-compelling weapons of modern invention, hampered by no medieval absurdities, and thwarted by no ignorant prejudices; we are justified in entertaining the most exalted and hopeful view of the future of our country, and may deem ourselves fortunate in bearing a part in the development of so fair a heritage. As physicians, the part we assume is not an insignificant one. To enact wise laws, to encourage commerce, to preserve peace within our borders, and to command the respect of neighboring nations, are objects worthy the most exalted ambition and the most patriotic determination; but will it be said that the aims of medical science are less exalted or less conducive to national prosperity or individual happiness? To cure disease, to alleviate suffering, to extend the limit of human life, to enlarge the field of human usefulness, to be able to prevent disease by removing the cause; surely the profession that devotes its energies to the accomplish-

ment of these objects is entitled to the fostering care of governments and to the liberty of wealthy citizens.

"A sound nation is a nation that is composed of sound human beings, healthy in body, strong of limb, true in word and deed, brave, temperate, sober, chaste, to whom morals are of more importance than wealth. It is to form characters of this kind that human beings are sent into the world, and those nations who succeed in doing it are those who have made their mark in history. They are nature's real freemen, and give to man's existence on this planet its real interest and value!" (*Froude*.) In the not-distant future this Dominion will be the home of fifty millions of people with all the wealth and all the greatness that implies a thought that might well inspire us with feelings of pride and satisfaction; but the wise man will not be so much impressed by the vastness of our territory, the multitude of our people or the size and wealth of our cities; but will be more concerned in the problem of the social advancement, the civil liberty, the physical perfection, the scientific status, and the moral rectitude of our teeming population. When that time comes may the science of medicine have contributed its share towards the creation of a people unsurpassed for physical perfection and mental sprightfulness, and for all those virtues that are born of these. Should these hopes be realized, then indeed would happiness prevail and prosperity sit as a ruling genius on the brow of every hill, the bosom of every lake and the bank of every stream; and the application to our country of the language of one of England's greatest poets would scarcely be considered hyperbolic, when he says:

"All crimes shall cease and ancient fraud shall fail
Returning justice lift aloft her scale,
Peace, o'er the world her olive wand extend
And white-robed innocence from heaven descend."

Dr. S. A. Defoe, of Washington, N. J., writes to the *Med. Record* that he has found the following to give excellent results in melancholia. ℞. Valerianates of zinc, quinine, and iron, each twenty grains, to be divided into twenty pills. One pill is to be taken three times a day before meals. The drugs should be absolutely pure. Dr. Defoe says he has tried this remedy thoroughly, and finds it a specific for the worry of nervous women and for incipient melancholia.

Society Proceedings.

MEDICO-CHIRURGICAL SOCIETY OF MONTREAL.

Stated Meeting, May 14th, 1886.

J. C. CAMERON, M.D., 1ST VICE-PRESIDENT, IN
THE CHAIR.

Dr. A. L. SMITH, for the author, read a paper, entitled,

Notes on Phthiriasis.

By P. W. P. MATHEWS, LL.D., M.R.C.S.E., etc.,

Dominion Coroner for the North-West Territories and
Medical Officer of the Hudson Bay Company, etc.,

as follows :

A case of somewhat unusual occurrence came under my notice here some short while since—one of phthiriasis. It is the second only that I have personally known, and I trust that it will be of sufficient interest to justify me in offering you a few notes, both in connection with the case itself and the disease.

George "Beady," an Indian, aged 30, was admitted to the York Hospital suffering from capillary bronchitis. In ordinary cases, and in cases other than the one I am about to describe, it would be, or ought to be, unnecessary to touch upon cleanliness, both as regards the patient and his surroundings, even in an Indian cottage hospital; but the nature of the case requires my emphasizing the fact that every rational and judicious precaution was taken to ensure cleanliness, both in the washing of the patient and in the changing of the body and bed clothes. The condition of the patient varied for several days, and on the evening of the tenth, symptoms of pulmonary congestion set in. I was in attendance for the greater part of the night, and on again visiting him at about 10 o'clock in the morning, found him in a comatose condition. Giving a few directions, and re-covering his chest, which he kept constantly exposed, I left and in two hours' time was hastily called by the nurse, who stated that "he was being eaten up." Upon arriving, to my astonishment, and, I must say, to my interest, I found the man one literal mass of lice, creeping over the bed-clothes, crawling on the body—one slow-moving, disgusting mass, but a living, suggestive "precursor of the grave." He was as carefully cleansed as he could be under the circumstances, and shifted to another bedstead, with clean bedding, etc., but all to no purpose, for

within two hours the body was again simply infested by vermin, and so it was to the end, some six hours afterwards. Upon examination of the skin, I found a multitude of irritable-looking spots on many parts of the body, from which the nits could be detached by lateral pressure. The louse itself was the common body or clothes louse (*pediculi vestimenti*). In this connection I must note a few cases which I have collected from various works.

Dr. Whitehead relates a case which I shall here abbreviate; R. S., aged 43, a farmer, strong, of sanguine complexion, contracted a virulent form of syphilis in April, 1840, for which he was chiefly treated with induretted sarsaparilla. Seven months afterwards he suffered severely from secondary symptoms, when he was placed on a course of mercurial medicine, and became salivated, with great relief to the disease. At the end of 1841 he again sought advice, stating that for several weeks past he had been annoyed by the presence of lice about his person, chiefly on the trunk. He was scrupulously clean in his habits, and had never before been troubled in a similar way. No lice were found about the head. What little hair he had was clean, fine, and silky. The vermin so increased in number, and produced such mental distress, that fears began to be entertained for the integrity of his intellect. Upon an examination of the skin, the nits were there found to be imbedded, and at this period the generation of the insects got so considerable that the flannel vest put on clean in the morning was crowded with them by the end of twenty-four hours. For some time remedies were unavailing: sulphur, oxymercurate of mercury, white precipitate, and hellebore were freely tried, with little or only temporary benefit. At length, by mere chance, a mixture of iodide of potassium and prussic acid in full doses was given; and in a few days, after taking sixteen or eighteen draughts, the cure was permanently completed.

There is another case in which the quick generation of the body louse was remarkable. The patient was a young lady, a member of a most respectable family, in whose skin, mostly below the margin of the mammæ, the nit was found in a small pimple which gave exit to its contents like a pustule in acne. She had been troubled with these lice for several years. Mr. Bryant, of London, England, has reported a somewhat similar case: A patient who had been a governess, and who was 30 years

of age, was admitted into Guy's Hospital. The whole of her body was literally covered with lice; the irritation and scratching having given rise to excoriations and scabs. She was put into a warm bath, and all her clothes were taken away. Every precaution was adopted to remove all the insects, but two hours afterwards her body was again covered with them, although she lay in a clean bed. She was again thoroughly washed, but the vermin reappeared immediately. All the remedies employed proved useless. Bernard Valentin has also related the history of a man who suffered from intolerable itching on all parts of his body, while his skin was covered with tubercles. On incising these, each was found filled with lice. Bremser once met with a mass of lice in a tumor on the head. And Jules Choquet observed some thousands of these insects in a subcutaneous cavity. According to Erasmus Wilson, the explanation of these cases is simple; for he says that the pediculi creep from the outside of the skin into follicular tumors, when they feed on the contents, and are afterwards found as the sole occupants of these sacs.

As is well known, lice, under certain circumstances, become developed on the surface of the body, a fitting soil being supplied by filth and by the morbid secretions in skin affections, as well as by constitutional disease. But I wish the more particularly to refer to what appears to be an idiosyncrasy, or rather a condition of constitution, that in some cases appears to favor the development of pediculi, as is evidenced by the case under my own care, and those I have advanced as further illustrations, so that the statements of some old authors that divers persons "have come to their ends, being devoured by lice," are not so very improbable after all. But what appears so remarkable in this case of the Indian Beardsy is what I may with some reason term the apparently spontaneous generation of the pediculi, their existence not having been noticed at an earlier stage. The man was carefully and watchfully tended from first to last, and, further, he insisted upon his chest being constantly exposed. At ten o'clock in the morning it was perfectly free from "bite" or "hæmorrhagic speck"; at twelve it was one mass of eruption. Difficulties only become intensified upon a further examination of the case, for, in the first place, their period of incubation is six days, and, secondly, judging by their organization, it is perfectly clear that these pediculi are air-breathing animals: and

that, consequently, they cannot exist as adult insects under the skin, where respiration would seem to be impossible.

Among the poorer classes in England (I do not know if the same holds good in Canada), any unwonted appearance of lice in connection with a sick person is invariably regarded as a precursor of death. Is it possible that the approaching dissolution is indicated or appreciable to the insect, by the lowering of the surface-temperature, etc., and its quittance of the body to the bed-clothes attributable to this instinct?

Remarks by DR. SMITH.—Such cases as this are rare in this part of the country, because it is difficult to find any one so dirty as to give the body-lice a chance to breed in such quantities. Cases of pediculus capitis and pediculus pubis are quite frequent at the dispensary, but he has seen only a few cases of pediculus corporis, principally in neglected old men. Among the Indians of Lake Huron and Georgian Bay, and also among the shanty-men in the Upper Ottawa, the pediculi corporis were frequent guests, and by the way they were tolerated one might think that they were not altogether unwelcome; and as these persons often wear the same flannel shirt for six months or a year without washing it, it was easy to see that they would multiply continuously, as the eggs hatch in six to eight days, and one female may see the birth of five thousand descendants. The disease is easily cured by means of an ointment containing one part of the oil of delphinium staphisagria and seven parts of lard. I have also found the Ung. Hydrarg. Ammon. very effective.

Dr. J. C. CAMERON said that coal oil was a good application for body lice, and if Balsam Peru be added to it, the odor was hardly objectionable. Chloroform he has found useful for crab lice.

General Tuberculosis following a Nephritis.—Dr. WYATT JOHNSTON exhibited the kidney, bladder and other organs, and Dr. J. C. CAMERON related the case:

Patient, aged 26, had remote history of phthisis in one of his cousins. He had knocked around the world a good deal, exposing himself at times to great hardships, and drinking pretty freely. He always enjoyed good health till November, 1884, when he had an attack of scarlet fever, followed by sharp nephritis. He came under Dr. Cameron's observation in Feb., 1885. Ten per cent. of albumen was then found in his

urine, also some red blood-corpuscles and casts, chiefly hyaline. Under treatment his symptoms improved; the casts disappeared in about two months, but more or less blood and albumen remained all summer and autumn. The presence of urethral trouble was suspected, as an old gonorrhœa and gleet had persisted for a long time. No examination was made till Jan., 1886, when Dr. Roddick passed a No. 3 steel sound with some difficulty through a long, deep-seated stricture; a sharp attack of cystitis followed, which did not yield to internal treatment. When the acute symptoms had somewhat subsided, he was etherized, and an attempt made to pass a catheter and wash out the bladder, but nothing could be got past the stricture. His condition was becoming so serious that perineal section was decided on. A careful examination of the lungs revealed nothing abnormal. The operation was performed on 17th February., and his immediate sufferings thereby relieved, but his symptoms did not markedly improve. High, irregular temperature, rapid pulse profuse perspirations and gradual emaciation were the chief symptoms. About March 1st he spat up blood, and, on examination, dullness was discovered at both apices; softening soon began, and went on rapidly, till, in six weeks, his lungs were completely riddled. His wound never healed. He died 23rd April. The diagnosis lay between a general tubercular condition underlying the renal and vesical catarrh, probably fanned into flame by scarlatina, and pyæmia, due to retention of putrid matters in the bladder by a tight stricture. The rapidity of the lung break-up was particularly noticeable, repeated examinations failing to detect anything abnormal in lungs till about six weeks before death. The right kidney was made up of sacs of pus, the walls being infiltrated with tubercles. The ureter was dilated, and its walls thickened. The bladder showed evidences of the cystitis and its walls near the exit of the ureter were also thickened with tubercular infiltration. The other abdominal organs were full of tubercles, with the exception of the left kidney, which was normal. Dr. Johnson found bacilli in the lungs, kidney, ureter and bladder.

Dr. CAMPBELL said that though tubercular disease usually begins in the lungs, still it frequently attacks other organs first. In this case, most likely, it commenced in the bladder or kidney. Although it is said that no nurse ever contracted disease in the Brompton Consumption Hospital

yet he had several times seen the disease attack a husband who had a consumptive wife, and *vice versa*. He advised separation, where one had the disease. He believed strongly in the heredity of consumption.

Death following abortion.—Dr. ROWELL exhibited the uterus and Dr. ARMSTRONG related the case. He said the cause of the abortion was uncertain; the patient, aged 23, had had several before. On his arrival he found the foetus, aged about six months, had come away, and he had no difficulty in getting away the placenta. Two days after, the woman became delirious, and had a very rapid pulse and fever. She continued suffering from apparent septicæmic poisoning till May 13th, when she died, having aborted April 5th. He was at a loss to account for the cause. The discharges were at no time offensive; she never had a chill, and never complained of abdominal pain. He washed the uterus out, using a return tube. Toward the end, vomiting set in. Dr. Rowell said that on opening the abdominal cavity he found the intestines matted together and covered with lymph and pus; the pelvis was filled with offensive purulent matter, and in the left iliac fossa was a collection of similar-looking pus, enclosed in inflammatory adhesions. The mucous membrane of the uterus was thickened and covered with a thickish bloody discharge. On the right side of the body of the uterus was a small fibroid.

Dr. TRENHOLME said that most likely she had had old pelvic adhesions, with pent-up inflammatory matters, and that the fresh trouble (abortion) again lighted up the mischief. It being painless may have been due to tolerance from repeated abdominal trouble.

Dr. KENNEDY thought this case in many respects similar to one he attended some years ago. The woman had had five attacks of peritonitis. Deep pressure over the abdomen gave little or no distress. He diagnosed the case to be tubercular peritonitis. She died suddenly, and a post-mortem examination revealed a large pelvic abscess which had burst, the attacks previous no doubt being due to slight ruptures of the abscess. Ovariologists found they had better results follow operation where peritoneal adhesions existed, producing a tolerance to interference.

Dr. SHEPHERD thought if the case could have been diagnosed, the proper thing would have been to open the abdomen and wash out the peritoneal cavity. Recovery had followed operations for

inflammation produced by perforation of the appendix vermiformis.

Dr. WILKINS said he had seen an absence of evidence of pain in some typhoid fever cases produced by the dulling effect of the typhoid poison. In one fatal case of perforation there was no evidence of pain shown.

Stated Meeting, May 28, 1886.

T. G. RODDICK, M.D., PRESIDENT, IN THE CHAIR.

Case of Hysterical Paralysis in a Boy.—Dr. LAPHORN SMITH exhibited this case, and gave the following history:—

Joseph L., aged 11 years, was always a delicate child; never had scarlet fever nor measles. He has often had running at ears (otorrhoea), but never had any disease of his eyes until this year. Family history good; father and mother very healthy, as also his grandparents. Has six brothers and sisters living, and none dead. There is no evidence of syphilis or tubercle in any of the family. Last June his mother first noticed that he dragged his left leg in walking, and, though he was able to go about the house, he could not go out. He had no photophobia at this time. He dragged his leg for about a week, and then recovered without any treatment, returning to school, where he continued to attend until the vacation on the 1st August. From June to August, however, he complained of pain in the left knee, sometimes during the day and sometimes at night; but he did not drag his leg again until January of this year, when one day he became slightly deaf, and both external ears became exceedingly painful to the touch. Next day his eyes were red and swollen, especially the lids, and about two weeks later his legs became so weak that he was unable to stand. He could bend them easily, but could not keep them straight. One evening in March his left eye suddenly closed, and neither he nor any one else was able to open it again until a few days ago. Almost from the beginning of this attack, his legs, from the middle of the thighs to the toes, have been exquisitely painful to the touch, as also have been his external ears. This hyperæsthesia was real, for his mother several times, while he was asleep, touched him lightly on these over-sensitive parts, with the result that he suddenly awakened with a frightened scream. His father also tested his paralysis by setting fire to his clothes, but he was unable to get up. I tried several times to touch him gently

on the affected parts, with his eyes blindfolded, but always with the effect of making him cry, although he would allow me to pinch him moderately in any other part of the body, even within half an inch of the sensitive parts. Neither was I able to expose his pupil. He had such a dread of the light reaching the retina of his left eye, that even when I forced the lids apart he rolled the cornea up out of sight. I examined his spine carefully, and there is no tender spot, and the patellar reflex is quite normal. I thought his case one of functional nervous disorder, and as he was pale and weakly, I placed him on a ferruginous treatment with syrup of iodide of iron. He had only taken this remedy for less than a week when his father returned from the country with some ferns and Dr. John's herb, which a friend recommended him to use on the boy's legs. He boiled them together, and rubbed the boy's legs with the decoction during ten minutes, in spite of his cries, and afterwards made poultices of the leaves and bandaged them on to his legs. The next morning the boy walked with a little difficulty, but without assistance, into the kitchen. That morning the pain left his legs, but instead he complained of a feeling of pins and needles in his feet, and also in his left eye, which he was able to open three days later. He is now quite well.

Dr. Smith had met with somewhat similar cases in young females, but this was the first he had seen in a boy, and he thought it of sufficient interest to bring before the Society.

Dr. HENRY HOWARD said the temporary paralysis, whether it occurred in males or females, was always hysterical, and recovered without treatment, and that, unfortunately, the recovery was generally attributed to supernatural miracles.

Gunshot Wounds of the Chest.—Dr. JAS. BELL then read a paper on this subject.

CASE I.—*Penetrating Wound of Lung; Gangrene;*

Recovery.

Corporal J. E. L., 90th Battalion, aged 24, was wounded at the Fish Creek fight on the 24th of April, 1885. He was shot in the chest while lying facing the ravine in which the enemy were concealed, at a distance of about one hundred yards from him. The bullet passed through the second left costal cartilage, beneath the sternum, downwards and outwards towards the right side, making its exit through the 7th rib in the mid-axillary line. Before being removed from the field he also re-

ceived a flesh wound over the right trochanter major, which, although not in itself serious, added greatly to his sufferings on the journey to Saskatoon and subsequently. He, with the other wounded from Fish Creek, arrived in Saskatoon on the 2nd of May, having been driven forty-five miles in a lumber waggon over the "trail." The period of seven or eight days intervening between the time of his injury and his arrival at Saskatoon was one of very great hardship to a man in his condition. The weather was cold, especially at night, and windy, and a considerable part of the time wet; their only shelter was the ordinary "bell" tent, and there were neither the materials nor the facilities for making warm and soothing applications to the chest nor was there any suitable invalid diet. On arrival at Saskatoon his condition was very bad indeed. The greater part of the right lung was consolidated, and his breathing painful and rapid. There was also high fever and troublesome diarrhoea. Empyema followed, and on the 8th of May Deputy-Surgeon-General Roddick enlarged the wound in the right axillary region evacuating a quantity of pus which was very foetid. The pleural cavity was then washed out daily with antiseptic solutions (carbolic, alcoholic and boracic at different periods); and from time to time portions of gangrenous lung tissue presented at the wound and were removed. In spite of these precautions, however, he continued to suffer from high fever, perspirations, foetid discharge, and great weakness. On the 23rd of May, with the advice and assistance of Dr. Roddick, I attempted to make a dependent opening. The patient was etherized and an incision made in the eighth intercostal space, posteriorly. On reaching the pleura, however, the lung was found to be firmly adherent to the chest wall at this point. The wound was therefore closed, and the original axillary wound enlarged, and the cavity explored with the finger and long probes. A considerable amount of sloughy tissue was found lying unattached in the cavity, and was removed. The cavity was then emptied as well as possible, and washed out with weak carbolic lotion. On introducing the finger into the cavity it was found to be as large as a large-sized orange, and surrounded on all sides by pulmonary tissue. It was an intra-pulmonary cavity, and not, as we had supposed, a localized pleural sac. As he recovered from the ether he was seized with a severe and prolonged fit of coughing, in which he expectorated pus and fluid from the

pleural cavity which had a distinct carbolic odor, and caused unmistakable tingling in his mouth. From this time forward the pus was expectorated constantly and freely, and in a day or two was free from smell. The wounds healed up rapidly. All his symptoms subsided, and from this time his recovery was uninterrupted. In a few days he was able to be taken out into the air and sunlight, and in a couple of weeks was convalescent. He was one of the last remaining patients at Saskatoon, and embarked on the hospital barge on the 4th of July, and was discharged when he reached Winnipeg on the 15th of the same month. He has since enjoyed the best of health, and at the present time writes that he is quite well and strong. I have no doubt but that the thorough exploration of the cavity and the removal of sloughy tissue on the 23rd of May opened communication with a bronchial tube of considerable size, and that henceforth the cavity was kept freely evacuated by expectoration. This, I think, was the starting-point on the road to his recovery, which progressed with marvelous rapidity from that time.

CASE II. *Penetrating Wound of Chest.*

Private H. H. M., 10th R. G., aged 19, was wounded at Batoche on the 12th of May, 1885. When brought into the zareba he was suffering from dyspnoea and painful inspiration. He had also coughed up a little blood soon after receiving the wound. On examination, a bullet wound was found about an inch to the right of the vertebral column, opposite the fifth dorsal vertebra. The track of the bullet could be traced as far as the vertebral column, passing deeply through the muscles of the back, and the bullet itself (a round one) was felt beneath the skin at the angle of the left scapula. It was immediately removed, and the wounds cleansed and dressed, with iodoform. There were no marked chest symptoms until after his removal to Saskatoon, where he arrived on the 15th. The wound was then suppurating freely, and he suffered from considerable pain and uneasiness in the side and high fever. A few days later the left chest was found to be gradually filling with fluid; a hypodermic needle was introduced, and half a drachm of odorless sero-pus withdrawn. The chest filled rapidly, and the patient suffered from chills and fever. The pleural cavity soon became filled to the apex, and displaced the heart slightly. The flow of the pus from the wounds now became greatly increased, and pus was forced out from both

wounds, but especially from the posterior one (the wound of entrance of the bullet), on coughing. I then administered ether, and made a free opening through the 7th intercostal space and in the existing wound, and evacuated a large quantity of pus having a slightly foetid odor. Through this opening also came, at this time, pieces of red cloth from his tunic and pieces of his shirt and undershirt. On examination, while the patient was under ether, a long probe passed directly into the pleural cavity from the original wound. The bullet was found to have passed between the spines of the 5th and 6th dorsal vertebræ, close to the bodies of the bones, and to have roughened the edges of both spines. The opening of the cavity and the insertion of a large drainage-tube gave great relief, and all the active symptoms subsided promptly, although the discharge continued for a long time. His recovery was slow. The pleural cavity was washed out with antiseptic solutions from time to time, and nourishing food and stimulants were administered, and the patient was soon able to leave his bed and go out into the fresh air and sunlight in daytime. He was brought down to Winnipeg on the hospital barge, still very weak, and placed in the General Hospital there on the 15th of July under care of Dr. Kerr. He remained there for some time, and reached his home in Toronto, I believe, about the end of September. He is now perfectly well. There was great retraction of the chest-wall during convalescence.

In this connection I wish to mention briefly two other cases which did not come under my observation at the time their injuries were received, but which I saw later on.

Pvt. L., 65th Batt., was wounded on the 28th of May at Frenchman's Butte. He was struck on the posterior wall of the right chest, the bullet making its exit in front at a point nearly opposite. He suffered from severe respiratory symptoms and spat up some blood, and a penetrating wound of the chest was diagnosed. He recovered rapidly, however, and when I saw him, on the 12th of July, his wounds being then perfectly healed, there were no chest symptoms, no alteration in the conformation of the chest, and no physical signs to indicate that the pleural cavity or its contents had even been disturbed in any way.

A similar case was that of Sergt. F., N.W.M.P., who was wounded about a week later in Steele's engagement at Loon Lake. He also had very severe symptoms of pulmonary injury, dyspnoea,

bloody expectoration, hurried breathing, etc., but recovered rapidly and perfectly without any serious pleural or pulmonary inflammation. I saw him on the 18th of July, on his return to Calgary to report for duty. He was then apparently in perfect health.

In gunshot wounds of the chest, the important point in prognosis is, of course, whether the bullet has penetrated the chest walls or not. In the surgical history of the American Rebellion the mortality in a group of over 8000 cases of penetrating wounds is given at 62.5 per cent., while in a similar group of non-penetrating wounds the mortality is 2 per cent. The four cases which I have reported show the difficulty of making an exact diagnosis, unless the patient can be kept under the observation of the same surgeon throughout his illness; and as our knowledge of such wounds must be mainly derived from military surgery, this is, of course, nearly always impossible.

Case II of this series was not thought to be a penetrating wound when treated on the field. Cases III and IV were so diagnosed, and yet, I think, the subsequent histories show that case II was undoubtedly a penetrating wound, and that the others were not. One could hardly help making such a diagnosis, however, with the symptoms shown by these men at the time of receiving the wound—cough, distressed and hurried breathing, and bloody expectoration. The fact that the symptoms did not persist beyond a few days, and that there was no evidence of pleural or pulmonary inflammation, or of the results of such inflammation, makes it quite clear. I think that these were only wounds of the soft parts of the chest wall, external to the pleura, and the blood expectorated at the time of the wound may be explained by the contusion produced by the bullet. I consider Case I an extraordinary recovery, under all the circumstances, and considering the nature of the injury and its termination in gangrene, which destroyed a large portion of the lung. Empyema followed, as a matter of course, but, fortunately, the axillary wound was favorably situated for the evacuation of the pus and the removal of the necrosed pulmonary tissue.

Dr. SHEPHERD congratulated Dr. Bell on the success of his cases—a success which would, before the days of antiseptic surgery, have been almost impossible. He thought that when empyema followed gunshot wounds that it should be treated as other empyemas—by free and dependent

drainage. He deprecated the probing of gunshot wounds, and related a case of pistol wound of the lung which was in his wards at the General Hospital last summer, where the wound healed by first intention, and, with the exception of spitting a little blood, and having a local area of dullness for a few days, no other symptoms were present, the patient recovering completely without the slightest fever. The treatment was altogether expectant, and no search for the bullet was made.

Dr. HENRY HOWARD said that fifty years ago he took lectures on surgery, delivered in Dublin by Sir Philip Crampton, Surgeon-General, who said, speaking of wounds received in the battle of Waterloo, that recovery generally took place if the ball passed through the chest and came out, but death generally followed if the bullet remained in the chest cavity. Much of the success now seen in these cases was due to drainage.

Dr. FENWICK said he regretted not being present when Dr. Bell read his paper. He spoke against being too anxious to remove bullets lodged anywhere. Too much probing often did great harm. If the bullet could not easily be reached, drain, and leave it. Nature generally encysts it, and so prevents its doing mischief.

CANADIAN MEDICAL ASSOCIATION.

*Nineteenth Annual Meeting, held at Quebec,
August 18th and 19th, 1886.*

The nineteenth annual meeting of this Association was held in Laval University, Quebec, on the 18th and 19th of August. The meeting was opened by the Hon. Dr. Sullivan of Kingston.

After routine business and the presentation of the report from the Committee on obstetrics (the only Committee which made report), the PRESIDENT-ELECT, DR. T. K. HOLMES, of Chatham, Ont., was introduced, and delivered an address, which will be found elsewhere.

SURGICAL SECTION.

WEDNESDAY, AUGUST 18TH.

DR. GEORGE E. FENWICK, OF MONTREAL,
IN THE CHAIR.

DR. DESJARDINS, of Montreal, read a paper on
KERATOSCOPY AS A MEANS OF DIAGNOSIS IN
ASTIGMATISM.

After defining the term astigmatism, he said that errors of refraction affect the vision injuriously, although the optic nerve be healthy. It was for-

merly supposed that the fault was in the lens, but it is now known to be due (as was first pointed out by Donders) to the curves of the cornea. The lens, according to later investigators, partakes of the same deformities as the cornea. Accommodation is not without influence on refraction. After mentioning that corneal anomalies are detected by the keratoscope, Dr. Desjardins exhibited and described an instrument of simple construction made by de Wecker and Masillon, by which the meridians and amount of astigmatism can easily be determined. Many cases of slight astigmatism can be rapidly detected and suitable glasses prescribed. By the aid of this instrument, one scarcely needs to submit the patient to a subjective examination, and for this reason the author finds it especially useful in children.

DR. JAMES BELL, of Montreal, read a paper on
TRACHEOTOMY IN MEMBRANOUS LARYNGITIS,
in which he advocated dispensing with the tube in the after-treatment of tracheotomy. He said that the method of stitching the cut edge of the tracheal to the edge of the neck wound and the nose of the canula had proved of but little benefit in actual practice.

He preferred late to early operations in membranous laryngitis for the following reasons, viz. : (1) If patient were operated on early many would be operated on unnecessarily; (2) Extension of membrane takes place more rapid after tracheotomy; (3) If the obstruction is not rapidly produced, membrane is separated and expelled. The recoveries after early operations were 25-33 per cent.; after late operations, 5-10 per cent. A greater percentage recovery without operation. He next entered on the question as to whether the extension of the membrane is due to general or local causes, and thought that the weight of opinion is that extension is due to general or local causes, and gave a number of cases illustrating this point. After discussing the subject as to whether diphtheria is or is not primarily a local disease, he gave his reasons for not liking the tube in tracheotomy: (1) The tube never accurately fits; (2) When the tube is in place, the incisions into the trachea cannot be kept under observation; (3) Occasionally the tube, from not being in the middle line, and being left too long in the trachea, ulcerates through, and an artery may be opened; (4) When the tube is in the trachea, there is difficulty in expelling through it pieces of membrane; (5) The tube causes sometimes exuberant granulations and warty

growths. In place of the tube, Dr. Bell has devised an instrument which he thinks does away with the objections to the tube. It consists of a pair of "clips," which catch the edge of the trachea and hold it apart. They are held in position by a tape which goes round the neck. He had experimented with the clips in a number of dogs, and found that they held well, and that no ill results followed.

In speaking of the place of operation, Dr. Bell stated that he preferred the low operation, because there was more room, and also because, by it, we get further away from the disease. In the after-treatment of cases in which the "clips" are used, he withdraws the mucus, etc., from the trachea by means of a glass pipette. He said he did not believe in the close camp-bed which is now so often used, but preferred a free current of air. After operation he plugs the trachea or larynx above the wound with antiseptic sponge; this abhors the discharges and helps to localize the membrane. Over the wound he keeps a piece of gauze, and he occasionally introduced vaseline into the trachea. When the tube is used, after two or three days, the breathing becomes dry, and the end of the tube becomes coated with inspissated mucus; below this, in the trachea, is a cone of dried exudation which helps to block up the passage.

Dr. Bell gave the histories of two cases of diphtheria in which he had operated and used his "clips." One case died, and the other—aged twenty-five months—recovered. In nine cases of tracheotomy, in which he has used the tube, all, with one exception, died.

He summed up by saying that the excessive mortality after diphtheria was due to defects in the after-treatment. The presence of a tube is a source of irritation and prevents the application of remedies.

Dr. A. L. SMITH, in the discussion which followed, said that when house surgeon to a children's hospital in London, he had a large experience with cases of tracheotomy. He believes that the "clip," introduced by Dr. Bell, will prove of the greatest possible benefit and will, in all probability, reduce the mortality after the operation. He had seen one death from ulceration of the tube into a large vein.

Dr. KERR, of Winnipeg, said that he had considerable experience in tracheotomy whilst in Nova Scotia. He had performed it twelve times, and never had a good result. He did

not think tracheotomy is a good operation, and had seen most desperate cases recover without it. If Dr. Bell's treatment without a tube reduced the mortality, it would be a great gain. Dr. Kerr went on to say that the after-treatment of tracheotomy is always a source of anxiety; the tube is apt to get displaced during fits of coughing. In his last case he dispensed with a tube and stitched the edge of the cut trachea to the edge of the wound, as recommended by Post. He did not like this method, for when the patient's chin was depressed, the opening closed. He thought that with Dr. Bell's instrument he could do better. As to the question of the general or local origin of diphtheria, it was too large a subject to discuss at the present time. His last tracheotomy case lived three weeks and died of paralysis, so that it is not always the extension of the membrane that kills after tracheotomy, and the best after-treatment will fail to produce a good result. He was very doubtful about the good that would result from plugging the trachea above the wound.

Dr. F. J. SHEPHERD said that he had performed tracheotomy a number of times both in hospital and private practice. His first ten or a dozen cases were all fatal, but during the last two and a half years he had performed tracheotomy in private practice his results were not so good. He thought that the kind of instrument used did not matter much; it was important that the wound should be kept aseptic. He removed the tube as early as possible, never later than the fifth day; in one successful case he removed the tube on the third day; they were all cases of diphtheria. He preferred the low operation because the trachea is opened at a greater distance from the disease, there is more room, and it is not necessary to cut the cricoid cartilage. In the high operation division of the cricoid had to be frequently undertaken and often resulted in necrosis. Again, stenosis more frequently occurred after the high operation. Dr. Shepherd believed that after operation it was useful to have a warm room (75°-80° F.), and that the atmosphere should be saturated with moisture. He always used a croup or closed bed, and the steam of the kettle was conveyed into it by a huge spout. The inner tube was removed every hour, and the outer one on the second day, lime-water was occasionally dropped into the tube. He thought that the tube favored expulsion of membrane. With regard to the antiseptic plugging of the trachea, he did not think it of much benefit.

Very often the membrane extended, at time of the operation, below the wound, and if it did not, the continuity of the mucous membrane could not be interfered with. He had never seen the conical plug in the trachea described by Dr. Bell. All the cases of death after tracheotomy he had seen had been due to extension of the membrane. Theoretically Dr. Bell's instrument was perfect, but it remained to be seen what it would do in practice.

Dr. RUSSELL, of Quebec, had not seen half a dozen cases of diphtheria in twelve years, but during the last year he had seen a great many cases of membranous croup. He thought this disease was more fatal than diphtheria. He was formerly opposed on tracheotomy, but now thought early operation advisable: if the operation did not cure, it always relieved. He had performed tracheotomy six times with two recoveries. He thought Dr. Bell's instrument was a most ingenious one, and likely to prove very useful. In the after-treatment he was strongly in favor of using lime water spray.

Dr. FENWICK, of Montreal, said that he preferred the high to the low operation. Dr. Bell's instrument appeared to answer very well. Dr. Marshall Hall, many years ago, devised a somewhat similar instrument made of wire. He had seen one of Dr. Bell's cases treated with the "clips," and formed a most favorable opinion of the instrument.

Dr. FENWICK, of Montreal, read a paper on

TREATMENT OF TUBERCULOUS GLANDS OF THE NECK.

He believed that scrofulous glands are intimately connected with tubercle. After giving a sketch of the history of tubercle and Koch's discovery of the tubercle bacillus, he said that there must be some predisposing condition in the individual so that he can contract tubercle—the proper soil must be present. The glands of the neck are specially liable to infection, especially the sub-maxillary and those over the large vessels. Enlargement is rarely single, and occurs generally at first one side of the neck only. Often there are no external signs of softening of the gland, but when the glands break down and open externally and indolent ulcers and sinuses are left. The disease generally first shows itself in a single gland and then spreads to other parts; very little is known of the mode of entrance of the tubercle bacillus. In scrofu-

lous enlargement of the glands of the neck the author strongly advised early removal of enlarged glands. After removal the general health of the individual improves; if they are left, the patient runs the risk of general tuberculosis, and if he recovers it is with impaired health and a number of disfiguring scars on the neck. The author preferred removal to laying open and scraping out the gland or the cauterization of Mr. Treves. He related a number of cases in which he had removed large numbers of glands from the neck. In his first case, which was operated on in 1873, he removed some half dozen glands from the neck beneath the sterno-mastoid; [the scar was now hardly to be seen. Dr. Fenwick shewed a number of photographs of cases, before and after operation, where the results were most admirable, the cicatrices being hardly perceptible.

Dr. KERR, of Winnipeg, said that if we accepted the principle of the identity of scrofula and tubercle much confusion would be removed. He was not satisfied with the results of operation and did not now operate so often as formerly; he found the operation not only very tedious but difficult and dangerous, and the results were not always so good as represented. Dr. Alexander, of Liverpool, who formerly operated some twelve years ago very frequently in these cases, has now given up the operation.

Dr. SHEPHERD, of Montreal, confessed that the results of operation were not always so perfect as were described by the enthusiastic advocates of the operation, but in many cases the results are entirely satisfactory. Occasionally there are high temperatures after operation; sometimes attacks of cellulitis. He had operated in a good many cases, and had removed as many as twenty to thirty glands at a time. Apparently solid glands not infrequently come to pieces during removal, and are found to be quite soft in the centre. These conditions always complicate the operation. After incising the deep fascia, he prefers removing the gland with the fingers, and an occasional cut with a knife.

He has never had any accident attending the operation. Although he has had no experience with Treves's cauterization, he does not think it suitable for glands deeply placed. In sinuses and scrofulous ulcers, he has had most excellent results from scraping out the parts with Volkman's spoon.

Dr. TRENHOLME, of Montreal, read a paper on

SOME DETAILS OF UTERINE AND OVARIAN OPERATIONS.

He said the instruments used in these operations need not be numerous or complicated. After describing the usual precautions that should be taken regarding the cleanliness of hands, sponges, and instruments, he said that he prefers No. 1-20 shoemakers' thread to any other form of ligature. Before used the thread should be immersed for twenty-four hours in pure carbolic acid, and not put into water at all. In closing the abdominal wound, he uses silver wire for the deep sutures and horsehair for the superficial. He laid great stress on the importance of not enclosing any muscular tissue in the suture. The incision should be midway between the umbilicus and pubis, and should not extend to within one and a half inches of the pubis. He advised short incisions of one to two and a half inches. Muscle should never be cut in the incision, as it gave great trouble afterward.

The pedicle of the tumor should be ligated in small segments, and the large vessels should be ligatured separately and the ligature cut short. The cavity of the abdomen should be thoroughly cleansed with sponges, and drained when necessary. He objects to abdominal bandages, and has only used them after the removal of the largest tumors. He allows his patient after the operation to move freely in bed; this favors the reposition of the bowels. In uterine fibroids, when large, he always divides the mass in the median line, then each half is enucleated. The stump should be cut in the shape of a V, and the edges brought together with a running suture and quilted with the shoemaker's stitch. He has found linseed-tea enemata of great service after operation; fomentations to the abdomen were also very beneficial. No after medicinal treatment is needed, except when there is vomiting; in this he has found sipping hot water useful, and also ipecacuanha in homeopathic doses. He uses the third dilution.

Dr. MACFARLANE, of Toronto, would have liked to hear Dr. Trenholme say more about dietetics. In his operation he had found vomiting to be a very troublesome complication; warm water with a flavoring of brandy he had found of great service in these cases, also frequent small doses of epsom salts as recommended by Lawson Tait. He never gave any medicine at all when there was any threatening of peritoneal trouble. He never used drainage unless the adhesions were extensive.

Dr. SHERMAN, of Ogdensburg, would like to have

heard more details regarding the preparation of the patient, also as to whether he referred, when speaking of fibroids, to extra or intra-mural growths.

Dr. MACDONALD, of Wingham, Ontario, would like to have heard more details as to the closure of the wound, and also as to the value of the clamp in securing the pedicle, and whether operation for ovarian tumors should be performed early.

Dr. KERR, of Winnipeg, had seen hernia follow the operation, due to failure of union in central portions of wound. He would like to know why Dr. Trenholme objected to including muscle in his sutures.

Dr. SHEPHERD, of Montreal, thought that wounds of the abdomen are much the same as wounds of other parts, and that abdominal surgeons make a great ado about their special methods of healing this abdominal incision. General surgeons, who are operating every day in every part of the body, have no fear of including muscle in their sutures. He did not understand why an abdominal wound should heal so differently from wounds in other parts. So far as he himself was concerned, in performing abdominal section, he treated his incision as an ordinary wound. He used silk or catgut sutures and passed them through the whole thickness of the wall of the abdomen; union invariably took place by first intention. Every gynæcologist thinks it incumbent upon him to have some special mode of treatment of the abdominal incision, and seems to think that general surgical principles are not applicable to it. Dr. Shepherd had not much faith in ipecac used in the third dilution.

Dr. FENWICK said that he had operated a number of times for ovarian tumors with fair success. He agreed with the remarks of the last speaker. He always used silk sutures and objected to horsehair because knots made in it did not hold well. In treating the pedicle he first clamped it and then tied all the large vessels; afterwards, he tied the pedicle with the Staffordshire knot and removed the clamp. He had used hot water occasionally to cleanse the abdomen.

Dr. TRENHOLME, in reply, said he spoke of interstitial fibroids. He formed the pedicle out of the labial borders of the uterus in such a way that he left the broad ligaments to sustain the pelvic viscera. He used the shoemaker's stitch to secure primary union. With regard to the external wound he thought that the conditions found in the abdominal cavity existed nowhere else. It is of the greatest importance to secure primary union so

that there shall be no subsequent hernia. For vomiting he used hot water over the wound, and ipecac in minute doses. In preparing the patient he avoided purgatives as much as possible. In cold weather he kept the extremities of the patient wrapped up in cotton-wool.

Dr. SHEPHERD, of Montreal, next read a paper on
EXCISION OF THE TARSUS IN TUBERCULOUS DISEASE
OF THE BONE.

He commenced by saying that formerly when there was carious disease of the bones of the foot the only resource was amputation, but with the advent of antiseptic surgery and the establishment of conservative principles of treatment, other methods of procedure have been adopted with success.

In cases of tuberculous and carious disease of bones the necessity for amputation is not immediate, and it is the duty of the surgeon to endeavor first to remove the local disease before sacrificing the foot. It is not necessary to perform a Hey's, Chopart's, or Syme's amputation in these cases, but merely to remove all the disease, however extensive. The reader of the paper illustrated this principle by giving the histories of several cases. In one case, where there was disease of both feet, he removed on the right foot the cuneiform, scaphoid, cuboid, and bases of the metatarsal bones and on the left the lower end of the tibia, astragalus, part of the os calcis, the scaphoid, and cuboid. The result was excellent, and the patient, a girl aged seventeen, was able to walk about comfortably. In children it is often sufficient to remove the diseased portion with Volkmann's spoon, and in them amputation is hardly ever required.

Dr. MACFARLANE, of Toronto, had followed out the principle advocated by the reader of the paper for years. He believed it is the proper method of treatment, and should be extended to caries of the spine. In dressing the wound left after excising tarsal bones he never stuffed the wound with any thing, but placed the foot in a good position and left the rest to nature.

Dr. DUPUIS, of Kingston, said he recently had a case of disease of all the tarsal bones in which he performed amputation; afterward the tibia necrossed and he had to reamputate. He also reported a case of frost-bite in which he had removed the greater part of the tarsus.

Dr. HOLMES, of Chatham, remarked that Dr. Shepherd's paper was a good exemplification of conservative surgery. He had several times excised the ankle-joint with the best results.

Dr. KERR, of Winnipeg, said that patients, after operation, should not be allowed to walk about too soon, as they were apt to have a splay foot. He did not believe in leaving the wound to nature altogether, but preferred keeping it in an aseptic condition.

Dr. RUSSELL, in Quebec, also insisted that the wound should be carefully protected, and that antiseptic dressings should be applied. If the wound were left to nature it would soon become putrid, and all the dangers incident to such condition would be incurred.

Dr. FENWICK said he could mention a number of cases in which he had resected the tarsus with the happiest results. He related the case of a gentleman (a medical man) who had been wounded at the battle of the Alma, and had carried the bullet in his heel for nearly thirty years. The os calcis was trephined, and the bullet removed, with the result of a rapid closure of the cavity and a useful foot.

Dr. KERR, of Winnipeg, read a paper on the
EVACUATION OF AN ABDOMINAL HYDATID CYST.

The patient was an Icelander, who came into the Winnipeg Hospital last winter with a large abdominal tumor. From the history, and as the result of exploratory puncture, the attending physician, Dr. Whiteford, made the diagnosis of hydatid cyst, and handed the case over to Dr. Kerr for operation. The operation was performed in two stages as recommended by Volkmann. A cut was first made down to the growth, and six days after it was incised. To open the cyst he had to cut through two inches of the liver. The cyst was then emptied and washed out with a solution of iodine. The patient did well, and went home in two months. He marked that these are rare cases. Up to 1880, only 155 cases have been reported. This is the second case that has been in the University Hospital. The other patient was operated on but died on the table.

Dr. ECCLES, of London, Ont., related the history of a case which had been treated a year ago in the London Hospital.

THURSDAY, AUGUST 19TH.

Dr. KERR reported cases of
GUNSHOT WOUND OF THE HIP-JOINT.

Both cases were caused by the incidental discharge of small shot. The soft parts were much torn, the trochanters in both cases were split, and the joints laid freely open. In the first case the patient was not seen till three weeks after the

accident, and had had no treatment, his condition was deplorable. The whole wound was in a sloughy condition and horribly fetid. The patient was in a septic condition. The wound was thoroughly cleansed, the sphacelated portions freely excised, and the wound irrigated and packed with iodoform gauze; an anterior wire splint was also applied. The improvement at first was marked, but the patient died of septicæmia and exhaustion in a short time. The second case was seen immediately after the accident; the wound was treated in the same way, and the limb fixed in an anterior Smith's splint; a posterior splint was also employed, so that immobility was secured, and recovery with a useful limb resulted. Dr. Kerr referred to other methods of the treatment, viz., excision and amputation. In these cases the mortality was high. He brought these cases before the Section in order to show what could be done by conservative methods in such cases.

Dr. CLARKE, of Toronto, said that a number of cases of gunshot injuries of the hip were reported in the *Surgical History of the American Rebellion*. He had seen several cases treated when with the Federal army in Virginia. They were treated under canvas, and did well.

Drs. Russell, Fenwick, and Shepherd also joined in the discussion.

Dr. BULLER, of Montreal, read a paper on THE TREATMENT OF ACUTE PURULENT OPHTHALMIA. He remarked that eyes are now seldom lost in these cases, some use hot applications, others cold; some use astringents, others do not; some use antiseptics, others rely on frequent and thorough washings. All are agreed on the necessity of frequently cleansing the diseased eyes. Many remedies are used, as quinine, boracic acid, corrosive sublimate, etc. The antiseptic treatment is still on trial. Solutions used as germicides must be strong, weak solutions are of little value as antiseptics. He had lately treated three cases of acute gonorrhœal ophthalmia. He first used boracic acid, and afterward a solution of corrosive sublimate, the latter in the strength of 1 : 2000 without improvement, but the application of a solution of 1 : 1000 was followed by immediate and marked improvement. The patient was discharged cured in twenty-four days. In the other case the patient was a child, aged three years, with acute vaginitis; under similar treatment patient rapidly recovered.

In the third case, also one of gonorrhœal

ophthalmia, there was sloughing of the cornea. He treated it by hot fomentations and washes of boracic acid and sublimate solution used warm. Improvement immediately followed, the slough separated and a clean ulcer was left which soon healed.

Dr. Buller thinks that in general practice a rigid cleanliness is not sufficiently carried out. With regard to cold applications, he thinks they are the best, but whilst applying them the cornea should be closely watched; if there is any cloudiness, hot applications should immediately replace the cold, and the cornea will be saved.

Drs. Smith, Russell, and Fenwick took part in the discussion which followed.

Dr. SHEPHERD, of Montreal, read the notes of a case of

AINHUM

which he had treated in the Montreal General Hospital. The disease affected the little toe of the right foot of a negro, æt. forty-seven, born in North Carolina. The little toe became affected some six years before. He first noticed a small ulcer on the digito-plantar fold, then a constriction surrounded the toe at this point which gradually deepened. The toe was much larger than normal. He suffered greatly when walking. The toe was amputated, and on dissection appeared to consist of much thickened skin and fibrous tissue. The bones of the toe were much atrophied and the joint had disappeared; the proximal phalanx looked somewhat like a claw. The reader of the paper then gave a short sketch of the history of the disease, saying it was first accurately described by Dr. Silva Lima, of Brazil, that it was a disease confined to the dark races, and was more common in some families and more in men than women. It sometimes affects the fingers and even limbs. The disease, if left to itself, lasts about ten years, and ends by amputating the member affected. The word "ainhum" is a negro word, and means "to saw."

Dr. FENWICK, of Montreal, reported a case of AMPUTATION AT THE SHOULDER-JOINT FOR MYELO-SARCOMA OF THE ARM.

Patient, a woman, aged forty-seven years, seven-months pregnant, came to Montreal General Hospital in the spring of the present year, with a large ulcerated tumor a little below the shoulder of the right arm, and a smaller tumor near the biceps. Two years ago she had received a blow, and within three weeks perceived a small lump at the site of injury. It grew rapidly and was removed. She was told that it was a fatty tumor. It soon return-

ed, and this time plasters were applied by a "cancer doctor," which burnt the tumor, and caused the ulcerated appearance which was seen when admitted to hospital. Dr. Fenwick amputated the arm at the shoulder-joint, and patient did remarkably well, never having a temperature higher than 99° F. On examination, the tumor proved to be a myeloid sarcoma. This was the first case Dr. Fenwick had seen in which the myeloid tumor first-affected the tissues external to the bone and periosteum.

Dr. A. LAPHORN SMITH read a paper on ALEXANDER'S OPERATION AND THE TREATMENT OF DISPLACEMENTS OF THE UTERUS.

After describing the operation minutely, and also giving a discourse on the anatomy of the parts, Dr. Smith went on to say that the round ligaments are really muscles, and are in a state of tension, except during coition. They are the homologues of the cremaster muscle in the male. Dr. Smith considered that the risks of the operation are great, and that it is not a justifiable one, except in extreme cases, and when performed did not permanently cure displacements of the uterus. He prophesied that it would soon fall into disuse. The author said that displacements of the womb could be corrected by lessening congestion, by keeping the liver clear and the lower bowel empty. The paper was illustrated by diagrams and tables.

Dr. TRENHOLME agreed with Dr. Smith that the operation was one that would soon be known only in history. He had operated once, but had failed to find the ligament. He, himself, many years ago, suggested a similar operation.

Dr. SHEPHERD had frequently dissected the round ligament, and had performed operations on the dead subject. The uterus could be easily elevated by pulling on the ligaments. He did not think the fact that a few muscular fibres had been found on the ligament proves that it is now in active use as a muscle; it is, rather, a foetal remnant of the ligament of the Wolffian body, and the homologue of the gubernaculum testis of the male.

Dr. AHERN, of Quebec, said that the round ligament is frequently abnormal, and that at its insertion is often much atrophied. In cases where the the uterus is fixed, tightening it will not correct displacements.

The Section then adjourned.

OFFICERS ELECTED FOR NEXT YEAR :

President.—Dr. J. E. Graham, of Toronto.

Vice-Presidents.—For Quebec, Dr. Russell; for Ontario, Dr. Dupuis; for Nova Scotia, Dr. Wickwire; for New Brunswick, Dr. Currie; for Manitoba, Dr. Crowther.

Local Secretaries.—For Quebec, Dr. J. Bell; for Ontario, Dr. McKeough; for Nova Scotia, Dr. Trueman; for New Brunswick, Dr. Lunam; for Manitoba, Dr. Kerr.

Place of Next Meeting.—Hamilton; Chairman of Committee of Arrangements, Dr. Malloch.

Progress of Science.

THE TREATMENT OF OTORRHOEA.

Common as otorrhœa is very few physicians understand how to treat it intelligently and properly. The treatment is very simple and nothing is more satisfactory in its results.

Supposing that the otorrhœa is uncomplicated with fungous granulations or polypi, the ear is first cleansed with a syringe and warm water. Then it is to be dried out thoroughly by twisting a soft rag and passing it down to the bottom of the meatus so that it will absorb all moisture from the ear. Next sufficient boracic acid is put into the ear and worked down upon the drum so as to cover its surface. The powder should not be packed down upon the drum. It is allowed to remain there 24 hours, when the ear is again syringed, dried out, and the powder reapplied as before. The treatment must be repeated daily until all suppuration ceases. After that twice, or even once, a week is often enough to repeat the application. The dry powder must be applied to the ear for two or three weeks after all suppuration has ceased. This is the treatment of uncomplicated otorrhœa in a nut shell, and the result is nearly always very satisfactory. I have the common acid rubbed in a mortar till it assumes a granulated form, like granulated sugar, and use it in preference to the minuter powder of different firms, because it goes down to the bottom of the meatus easier and does not hang to the walls so persistently as the fine powder.

PRURITUS VULVA.

Martineau (*Annales Medico-Chirurgicales*) notes that this arises sometimes in the course of affections unconnected with the vulva, at others during the evolution of a disorder or lesion of this part. In the first class are intestinal worms, the oxyuris in particular; these wander at night over the neighborhood of the anus and genital organs. They should always be looked for there and then, especially in children, where there is an absence of any direct cause. Tinea tonsurans and the

pediculus pubis are other causes. Affections of the bladder, vegetations, and polypi of the urethra may lead to it. Glycosuria, also, either temporary in wet nurses, those who take much sugar, or permanent, as in diabetes. In the second category may be ranged pruritus, consecutive to various primary or secondary inflammations of the vulva, which may be simply local, or proceed from a general diathetic or constitutional cause, as tuberculosis, eczema, herpes, psoriasis, lichen, epithelioma. Vulva pruritus may be purely nervous, and then appears without any manifest lesion of the mucous membrane or skin; at times it may be associated with urticaria. The diabetic form is best treated with the effervescent citrate of lithia, with addition of a little arseniate of soda. Locally, during the acute stage, lotions of bromide of potassium or of chloral are recommended, and in the chronic phases a weak solution of corrosive sublimate and alcohol.—*Edinburgh Medical Journal*.

HYDROCHLORATE OF COCAINE IN THE VOMITING OF PREGNANCY.

Weiss, of Prague, has used this remedy successfully in case of vomiting in pregnancy which had resisted all previous attempts at relief. The patient was weak and anemic, of a certain disposition, and had suffered in three previous pregnancies from persistent vomiting: in the present pregnancy her condition was serious. Weiss described:

℞ Hydrochlorate of cocaine.....gr. ij;
Alcohol, enough to dissolve.
Water..... ʒ v.
S: One teaspoonful every half hour.

After the sixth dose three tablespoonfuls of milk were well borne; after the eighth, a cup of broth with egg, without vomiting. After the sixteenth dose the patient ate with relish chicken broth, slices white chicken meat, and drank a glass of wine, without vomiting. The drug was then withdrawn for a time, owing to an increased frequency of pulse and respiration; but hourly doses were subsequently given, with the result of entirely checking the vomiting and enabling the patient to regain her former strength.—*Edinburgh Medical Journal*.

THE TREATMENT OF SICK-HEADACHE.

Dr. W. Gill Wylie, of New York, has produced excellent results with the following method of treatment: So soon as the first pain is felt, the patient is to take a pill, or capsule, containing one grain of inspissated ox-gall and one drop of oil of gaultheria every hour until relief is felt, or until six have been taken. Dr. Wylie states that sick

headache as such is almost invariably cut short by this plan, although some pain of a neuralgic character remains in a few cases.—*N. Y. Med. Journal*.

PRESCRIPTION FOR ALOPECIA.

Oil of sweet almonds and stronger liquor of ammonia, of each, one ounce; spirit of rosemary, 4 ounces; honey water, 2 ounces. Mix. This lotion is to be rubbed well into the roots of the hair and over the scalp, and the head should afterwards be washed with clear, soft water—rain or distilled water if possible.

ANOTHER REMEDY FOR VOMITING OF PREGNANCY.

Still another remedy for this much medicated condition has been found in the hydrate of cocaine. When everything else had failed, when hope had fled and absorption seemed the only alternative, Dr. Holtz gave his patient a hypodermic injection of cocaine, and the vomiting ceased. The writer is happy to record the instance as one of the few in which cocaine has appeared to be good for anything, except for local anesthesia.

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MONTREAL AUGUST, 1886.

CANADIAN MEDICAL ASSOCIATION.

In another column we give a report of the meeting of the Association at Quebec on the 18th and 19th of August. For the greater portion of it we are indebted to the *Philadelphia Medical Times*. The number in attendance was not large, but it was representative. Ontario sent a good number of members, Toronto being well and ably represented. Montreal, considering the number of her leading medical men at present in Europe, had a good quoto present. Winnipeg sent an able representative in Dr. Kerr. The proceed-

ings were harmonious, and quite a number of interesting papers were read, especially in the Surgical Section. We were, however, sorry to find so many men, principally in the medical section, who were on the programme, as readers of papers, fail to put in an appearance. This is not right. If a member informs the Secretary of his intention to read a paper, he should make a point of being in attendance. The one regret of the meeting was the absence of the majority of the profession of the city in which the meeting was held. Indeed very few put in an appearance. What reason they had for this action is, of course, alone known to themselves. It is true the Association went to Quebec without an invitation, and were, in consequence, quite prepared not to have any public hospitality extended to them. No fault, so far as we heard, was found for this break in the usual programme of the Association. But the absence from its meetings of the Quebec members was so marked as to call forth very general comment. The city, which nineteen years ago was the means of organizing this Association, was hardly expected to all but ignore the fact that it had again returned to the place of its birth. It was a very pleasant feature of the meeting the large number of representatives who were present from the United States, as also was the active part they took in the proceedings. Detroit, Buffalo, Ogdensburg, Portland, and Burlington, Vermont, had some of their ablest men in attendance. Hamilton is the next place of meeting, and we believe the decision is a wise one. Hamilton is centrally situated, and has a body of professional men who will appreciate the advantage of having the Association assemble in their midst. The enthusiasm of those who were present at this last meeting was very marked, and the determination was expressed, not to allow its partial failure to interfere in any way with the future success of the Association.

YELLOW FEVER AND ITS PREVENTION.

In this issue our readers will find a timely and highly important communication on the etiology, and prevention of yellow fever by inoculation. We are indebted to Dr. Gererd, for having prepared it as a special contribution to the RECORD, and to our old friend, Dr. Wolfred Nelson, late of Panama, South America, for its translation.

For many years—1826 to date—the city and Isthmus of Panama have been recognized hotbeds of yellow fever. In 1868 there was a serious

epidemic in the city of Panama. It appeared again as an epidemic in 1880, and it remained endemic and endo-epidemic up to the summer, when, in May and June, it assumed the proportions of an epidemic of the first class, killing forty victims daily. This fact was first announced in the *New York Herald*, and later by the American papers generally in May. Later the *New York Herald* stated that the mortality of forty per diem understated the truth.

The filthy condition of the cities of Panama and Colon, in the American Isthmus, may be imagined, but the reality is almost incredible. The city of Panama—modern Panama—was built in 1688 as a strongly-walled, massively-constructed city. To-day, speaking of it and its suburbs—now extensive—it is without water supply or drainage, properly so-called. Its water is derived from deep wells, built by the early Spaniards, the majority on the outskirts of the suburbs. Three of the argest wells from which watermen purchase water to sell in the city, are at Cocoa Grove. The wells are within three hundred feet of a new cemetery, they are in a ravine many feet below its surface, while they drain a level fully sixty feet below the cemetery. The cemetery is, without exception, the most flourishing bonanza in the Isthmus. The owner of the wells, Senor Don Nicanor Obcarrio, has a special concession from the Government of the State of Panama to bury the dead. Whether they are buried in his cemetery or in the foreign Jewish or Chinese cemeteries he exacts his fee. Regarding the cemetery, at the edge of the wells, between July 15th, 1884 and April 12th, 1886, it had actually received 3,884 bodies for interment in the ground, apart from several hundreds buried in the *bovedas* or stone vaults. In the month of November, 1884, the Canal Company alone buried 652 officers and men on the Isthmus, principally from yellow and malarial fevers, tropical dysentery, &c., &c. The Canal hospitals in Panama have had as many as seventeen deaths in a single day.

Such is Panama, well and fitly named the Gate to the Pacific, by Captain Bedford Pim, R.N., in one of his interesting books. The Isthmus of Panama is a constant producer and distributor of yellow fever. The Mexican West Coast epidemic of 1883 and 1884 was traced to a yellow fever corpse landed by a steamer from Panama.

That death has such a monopoly can easily be understood, when the drainage and water-supply, so-called, are considered. In both Panama and

Colon over-crowding has obtained, to an incredible extent, but in Colon the inhabitants have pure drinking water, and not cemetery drainage as in Panama. In Panama proper the natives throw all kinds of filth over the sea-walls; as it is not washed away by the tides, there it remains, an insult to the eye, a foul, reeking, death-dealing mass. In the suburbs the inhabitants throw their excretæ and filth into lanes and vacant lots, this, plus heat and moisture generate poisons best left to the understanding of our *confreres*, God forbid that it should ever reach their nostrils. A few drains within and without the city are never flushed except by the rains. During the dry season, December to May, they are simply so many receptacles for excretæ. The odors that pour forth from them are unbearable.

It ceases to be a matter of wonder that, under such conditions, the Canal hospitals offered a rich field for clinical observation for Dr. Gererd and his Canal *confreres*. Drs. Meurrisse, Didier, Vernial and the late George W. Nelson.

Dr. Gererd's special observations on yellow fever and its specific microbe extended over three years. He had an able staff of assistants, and the finest of appliances that science could suggest, and it was his singular good fortune to recognize and isolate and cultivate the special microbe. Its propagation was brought about by Pasteur's well-known methods and apparatus.

With Dr. Gererd it was more than a mere matter of scientific enquiry pushed to a successful issue—with him it was a matter of absolute faith, and he abundantly proved it by inoculating himself with culture-microbes, and finally resorted to a crucial test, in allowing himself to be bitten by mosquitoes, that had just fed on a yellow-fever patient. Dr. Finlay, of Havana, we believe, was the first yellow fever expert to point out the propagation of yellow fever by mosquitoes. Dr. Gererd's experiments are a highly important contribution to tropical medicine. His three years of persistent labor were crowned with success, and he deserves all the praise that science and his Government (he is a Parisian) may accord him.

Yellow fever is one of those fearful scourges in whose dread presence physicians feel powerless. So little is known of the cause producing it and the great variety of treatments are a silent but tacit admission that our tropical *confreres* hitherto have been working in darkness, some epidemics killing 75 and 80 per centum, others 8 and 10. The last great epidemic at New Orleans and vic-

nity is credited with having swept away 30,000 victims.

Yellow fever on the Isthmus of Panama is nearly always fatal, that is, true specific yellow fever. Of twenty-seven admissions to the Canal hospital, Panama, for a series of weeks but one recovered.

The Dingler Expedition to Panama—fully endorses the above. M. Dingler, Chief of Works of the Panama Canal, accompanied by his wife, and family, in all a party of thirty-three, including Canal engineers, arrived at Colon on the 29th of October, 1883; up to January, 1885, or in fourteen months, fourteen of the party had had yellow fever with but a single recovery, M. Dingler losing his whole family, wife, son and daughter. The recoveries truly are the exceptions that prove the rule. The malignancy and intensity of the disease there destroys the blood. Intense malarial poisoning is supposed to be an important factor, no doubt increased by the unsanitary conditions already described.

Dr. Domingo Freire if we remember rightly, was the first observer to recognize a microbe in yellow fever and to conduct experiments and publish the results. One of his first contributions on this subject was translated from the Spanish by Dr. Walfred Nelson, and published in the RECORD some three years ago. *Science* in a recent issue refers to Dr. Domingo Freire's excellent work at Rio de Janeiro, Brazil, and states that in 7,000 inoculations by him, only eight died of the disease, while 3,000 inoculated persons living under the same conditions were victims to the disease.

Dr. Joseph Holt, the very able and indefatigable President of the New Orleans Board of Health, whose quarantine regulations are undoubtedly the best known, recently has used his influence to secure the passage in Congress of a Bill to enable an American Commission to visit the yellow fever centres and study the disease, and the methods of skilled men like Dr. Domingo Friere and Dr. L. Gererd. Should the Commission verify the experiments of the gentlemen named, preventive medicine in the tropics will have entered on the grandest discovery of modern times, one that will protect millions of people.

The RECORD has been promised a series of original papers on yellow fever, by physicians of recognized standing in Brazil, Mexico, and at Panama. They will appear as received, as well as a series to be written in Cuba, the hot-bed *par excellence* of the disease.