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THE
MONTREAL MEDICAL JOURNAL.

Vol. XXXI.

APRIL, 1902.

No. 4.

Original Communications.

THE MISSION OF SOCIETIES FOR THE PREVENTION OF
CONSUMPTION IN THE ANTI-TUBERCULOSIS CRUSADE.*

BY

S. A. KNOPP, M.D., New York.

MR. PRESIDENT, YOUR EXCELLENCY, MY LORDS, SIRS, MEMBERS OF THE
CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS,
LADIES AND GENTLEMEN :—

The honor which you have conferred upon me by the invitation to address you to-night, while personally appreciated to the fullest extent, I must above all consider a compliment to the United States and to the medical profession of the country to which I have the honor to belong.

Between your country and the United States, between the Canadian and American medical profession, the most cordial relations have existed for years. This act of courtesy extended to an American physician, the privilege to speak at so distinguished a gathering as this, presided over by your highest official in the person of His Excellency, the Governor-General, the Earl of Minto, will bring still closer together the medical professions of these two great nations, which speak one language, and have the same aspirations, viz., the progress of humanity, the combat of disease, and the increase of human happiness.

We have gathered to-night in the interest of a work which is now attracting the attention of the whole civilized world. Throughout Europe a most active anti-tuberculosis movement is going on.

* Address delivered by invitation before the Canadian Association for the Prevention of Tuberculosis, at its annual meeting, April 18th, 1902, at Ottawa, at which His Excellency, the Governor-General, the Earl of Minto, presided.

Societies for the prevention of tuberculosis or for the erection of sanatoria exist in nearly all European countries, and these societies are sanctioned, helped and patronized by governments, kings and princes. England has its "National Association for the Prevention of Consumption and other Forms of Tuberculosis," with His Majesty, King Edward VII., as patron, and His Royal Highness the Prince of Wales, as President. There are 34 Vice-presidents, among whom we find the names of the Duke of Bedford, the Marquis of Londonderry, the Marquis of Ripon, the Marquis of Salisbury, the Marquis of Zetland, the Earl of Derby, the Earl Spencer, Lord Lister; the Presidents of the Royal Colleges of Physicians and Surgeons of England, Ireland, London and Edinburgh; the Director-Generals of the Medical Service of the Army and Navy; the Presidents of the Royal Agriculture and Veterinary Societies; Sir Hermann Weber, and many other equally illustrious names. The members of the Council are presided over by Sir William Broadbent and the Right Hon. Sir Herbert Maxwell. Alfred de Rothschild and Malcolm Morris are the Treasurers, and Alfred Hillier is Secretary. This British National Association for the Prevention of Consumption, counted already at the end of last year 13 branches, namely the Bournemouth branch, the Bradford branch, the Cumberland branch, the Devon and Cornwall branch, the Dublin branch, the Society for the Prevention and Cure of Consumption in the County of Durham, the Glasgow and District branch, the Gloucestershire, Somerset, and Wilts branch, the Leicester and Leicestershire branch, the Liverpool and District branch, the Newcastle-upon-Tyne and Northumberland branch, the Northampton Town and County branch, the Nottinghamshire Association for the Prevention of Consumption and Other Forms of Tuberculosis, the Southampton branch, the South Wales and Monmouthshire branch, the Ulster branch, the Winchester and District branch, the Wrexham and District branch and the York branch.

In Germany the work of societies for the prevention of tuberculosis and sanatorium associations started under the patronage of Her Majesty the Empress Augusta Victoria, who, likewise, became patroness of the congress held in Berlin in 1897, under that appropriate name "Kongress zur Bekämpfung der Tuberkulose als Volkskrankheit" (Congress for the Combat of Tuberculosis as a Disease of the Masses). "The German Central Committee for the Erection of Sanatoria for Consumptives," which has done such good work during the past few years, remains under the patronage of Her Majesty the Empress, and has for its Honorary President His Highness the Prince Hohenlohe-Schillingsfurst, and for its President Dr. Count von Posadowsky-

Wehner, Secretary of the Interior, and among its Vice-presidents such men as Count Lerchenfeld, von dem Knesebeck, von Mendelssohn-Bartholdy, the Duke of Ratibor, von Ballhausen, Professors Fränkel, Gerhardt, and von Leyden. The Council is likewise composed of 48 men belonging to the best class of society, the aristocracy of science, birth and finance. Dr. Gotthold Pannwitz, Chief Staff Surgeon of the Army, is the able Secretary of this committee with offices in one of the government buildings on the Wilhelmplatz in Berlin.

Nearly every German city of importance has its sanatorium association. They, in common with the "Invalidity Insurance Companies," have accomplished a vast amount of good in procuring sanatorium facilities for thousands of consumptive poor of the German empire.

In France, where the government has taken a most active part in the anti-tuberculosis work, private enterprise has created a journal called "La Lutte Antituberculeuse." As patrons of this periodical figure the names of Brouardel, Letulle, Arloing, Landouzi, Monot, Calomet, and others of equal prominence. This journal is the official organ of 25 antituberculosis movements, under a variety of names, such as "Popular Sanatorium Work," "French League Against Tuberculosis," "Agricultural Colony for Poor Convalescent Consumptives," "Maritime Sanatorium Association," "Maritime Sanatorium for Scrofulous Children," "Society for the Prevention of Tuberculosis and the Gratuitous Placement of Poor Consumptives in Sanatoria," "Work for Tuberculous Children," etc., etc. Five of those associations are located in Paris, two in Bordeaux, and two in Lille, the rest throughout the Departments of France.

The very latest news which came to us from France this week speaks of a federation of 76 various anti-tuberculosis institutions in that country, which sent delegates to an assembly convoked at Paris, March 16th, for the purpose of uniting them all into a national federation. The success of that plan surpassed all anticipations, and the result of the deliberation was the formation of a Central Bureau and Council for mutual aid. It was furthermore proposed to establish a permanent exposition for everything needful for the campaign against tuberculosis.

Japan, Russia, Austria, Italy, Portugal, Spain, Holland, Denmark, Sweden and Norway have done similar work, though not on such an extensive scale. In some of the American Latin republics there, too, has been an awakening, and to judge from the "Revista de la Tuberculosis," "Organo de la Liga Argentina Contra la Tuberculosis" they are doing excellent work in the Argentine Republic, Chili, Brazil, Uru-

guai, Paraguai, Bolivia, Ecuador, Peru, Mexico, etc. In January, 1901, in Santiago-de-Chili, there was formed a permanent national commission for the prevention of tuberculosis in Latin America ("Comision Internacional Permanente par la Proflaxia de la Tuberculosis en la America Latina").

In Cuba anti-tuberculosis work is most active. It is carried on partly by the United States Military Chief Sanitary Officer, and partly by the Tuberculosis Society of Cuba under the presidency of Dr. Emilio Martinez.

The latest international development in the combat of tuberculosis has been the formation of an International Central Bureau for the Prevention of Tuberculosis, with its seat in Berlin. Its objects are, I, to collect all news relating to the combat of tuberculosis in various countries; II, to collect the literature on the subject; III, to reply to questions relating to the anti-tuberculosis movement; IV, to petition the proper authorities to further the cause; V, to receive and make suggestions relative to the international combat of tuberculosis, especially as regards investigations, the publication of popular essays, and arranging lectures and meetings; VI, to publish a periodical to be sent free of charge to all members, containing the reports of the work done by the International Central Commission, and discussing other subjects of interest to the cause.

Every country is represented by at least two members, and countries with more than ten million inhabitants are entitled to one more representative for every five million people; but the total number of members for a single country must not exceed five.

Here in North America we have, perhaps, not done quite as good work as our brethren in Europe. In Canada, however, though your country has a smaller population than the United States, greater strides in the anti-tuberculosis work have been made than in the latter country. You have already a Canadian Association for the Prevention of Tuberculosis while we have but a few small local societies striving to do the same work you are doing. They are the Pennsylvania, the Colorado, the Ohio, the Maine, the Minnesota, and the Illinois Societies for the Prevention of Tuberculosis. Besides these State Associations there exists in Baltimore a Lænnec Society for the Study and Prevention of Tuberculosis; a similar one in St. Louis composed of the alumni of the City Hospital; a Cleveland City, a Buffalo City, and Erie County (N.Y.), and in New Hampshire the Suncook Association for the Prevention of Tuberculosis. There exists as yet no American or United States society for the prevention of tubercu-

losis. It grieves me to make this statement, and I do it not without a sense of humiliation. But I am full of hope, and I trust that the example which you, our good neighbors, are setting us to-day will not be without fruits. I devoutly hope that some day in the near future we may even enjoy a union meeting of the present Canadian and the future United States societies for the prevention of tuberculosis. I look forward to the time when, by a combined effort, we may be able to combat tuberculosis as a disease of the masses throughout this continent.

In this thought let us find our inspiration to discuss now as intelligently as we may be able to do the subject we have chosen. With your permission I desire to speak on "The Mission of Societies for the Prevention of Consumption in the Anti-tuberculosis Crusade."

At no epoch in Phthisiology, or for that matter in the history of medicine in general, has this singular disease, called consumption, or pulmonary tuberculosis, been so much written and talked about as at the present time. I have endeavoured to give you a birdseye view of the various anti-tuberculosis movements in foreign countries and of those of our own continent. You know of, and have yourselves experienced the widespread interest which is now now taken by medical and laymen all over the civilized world in this tuberculosis problem. If I should, however, be asked what is the cause of this strong awakening to the importance of a disease, the contagiousness of which was known to Isocrates, a contemporary of Hippocrates (460-377 B. C.) and the curability of which was demonstrated and described by the Arabian physicians as early as the 10th and 11th centuries, I would be at a loss to answer in one sentence. There have been mighty forces in operation to bring about this awakening which came almost simultaneously with the increase of our knowledge concerning the etiology of tuberculosis. Our greatest gratitude for the increase of knowledge in this respect we doubtlessly owe to that trinity of master-minds, Pasteur, Koch, and Lister, those three stars in the firmament of bacteriological science who represent at the same time the three foremost nations of the world. The first, the immortal Pasteur, has taught us that an infectious disease cannot arise without the presence of an infectious germ; Koch has shown us the infectious germ of the disease in which we are particularly interested, and Lister has demonstrated to us the value of cleanliness and antisepsis in the combat of infectious diseases.

It would take me too far to enumerate here the many illustrious pupils and co-workers of these three men. Wherever medicine is

taught you find the pupils of those men as teachers. They have helped you and me to understand the true nature of tuberculosis.

For the modern methods of curing tuberculosis through outdoor life, proper hygiene and good food, we are primarily indebted to the English people. It may not be generally known that even the earliest efforts in sanatorium treatment were inaugurated by an Englishman in the person of Dr. George Bodington, of Sutton Coldfield, Warwickshire, England; and as a veritable pioneer in aërotherapy we must not forget that princess among nurses who helped to cure the English physician Bennett from consumption, the great and good Florence Nightingale. Brehmer and Dettweiler, of Germany, were the pioneers of the sanatorium treatment of consumption as it is now almost universally practised, and as American pioneers of modern phthisio-therapy we must not fail to mention our distinguished colleagues, Dr. E. L. Trudeau of the Adirondack Cottage Sanatorium, and Dr. Vincent Y. Bowditch, of Boston.

To summarize our present knowledge and to state the basis on which our societies for the prevention of tuberculosis should work, we might say we now know that tuberculosis, especially in its pulmonary form, is an infectious, communicable, preventable, and in many instances absolutely curable disease. Furthermore, that it can be cured in nearly all climates where the extremes of temperature are not too pronounced, and where the air is relatively pure and fresh. In other words, it is not always necessary for a consumptive patient to travel long distances and seek special climatic conditions, but that in most instances he has a chance of getting well even in his home climate.

Before I proceed, may I be allowed to digress just for one moment to make it clear why I call tuberculosis, and especially pulmonary tuberculosis, a communicable, and not a contagious disease, still less a dangerous contagious disease. There is enough difference in the meaning of the words to justify an explanation. It is my firm conviction based on the experiences and the experiments of our greatest European and American scientists, such as Koch, Straus, Grancher, Prudden, Biggs, and others, and on a somewhat extensive experience of my own, that tuberculosis is not a dangerous contagious disease, but only a communicable one. To be in contact with a tuberculous individual who takes care of his expectoration or other secretions which may contain the bacilli, is not dangerous. In sanatoria for consumptives, where the precautions concerning the sputum are most strictly adhered to, one is perhaps safer from contracting tuberculosis than anywhere else. The great danger from infection lies in the indiscriminate deposit of sputum containing the bacilli, which when dry and pulverized, may be

inhaled by susceptible individuals and then cause the disease to be developed. The communication of the germ of the disease is, however, less obscure to us in its process and far more easily guarded against, than the contagion arising from such maladies as diphtheria, scarlet fever, or smallpox. What has just been said concerning the absolute security from infection in a well kept sanatorium can not very well be said of a smallpox hospital, no matter how well directed the hygienic precautions. Against the danger from contracting smallpox we have thus far no other means than preventive vaccination, and in case of an outbreak of the disease the most rigid isolation. It is entirely different with tuberculosis. The simple contact of a smallpox patient may suffice to convey the disease. This is never possible with a consumptive, with whom, even should he be careless or unclean, a prolonged contact is necessary to transmit the disease. Herein lies the difference between communicable and contagious.

It seems to me essential that those of us who labor not only with tuberculosis patients, but also with their friends and relatives, and a large portion of the community, whose sympathy we desire to enlist in our cause, should know the true status of a consumptive. Whether we work under the name of society for the prevention of tuberculosis, or sanatorium association, or an anti-tuberculosis movement of any kind, we must never, never be considered as an anti-consumptives society. The consumptive must know that every member of an anti-tuberculosis society is his friend, that we labor for him and not against him, that we try to lessen his burdens, and that we are the last to make him feel as if he were an outcast from society. To do the work in this spirit will be the first and most essential duty in the mission which a society for the prevention of tuberculosis should fulfill.

Infused then with this spirit of deepest sympathy for our fellow creature who may be afflicted with consumption, what can we do for him to protect him from reinfection? What can we do for him that he may not transmit the disease? What can we do for the community at large to protect it against the invasion of the tubercle bacillus and the subsequent inroads of the "great white plague?" What can we do to better the condition of the consumptive poor and those of moderate means?

The first question, what can such societies as yours do to protect the consumptive from reinfesting himself or infecting others, must be answered by the single word "education." The Pennsylvania Society for the Prevention of Tuberculosis, of which I have had the honor to be Vice-president for a number of years, has issued a series of very interesting and instructive pamphlets with this end in view. Permit me to give here the titles of a few of them: "How persons suffering

from tuberculosis can avoid giving the disease to others." "How to avoid contracting consumption." "How hotel keepers can aid in preventing the spread of tuberculosis." "How storekeepers and manufacturers can help to prevent the spread of tuberculosis." "Predisposing causes of tuberculosis; how to avoid or overcome them." To complete the education of the public this series of pamphlets might be increased, and I would suggest the following themes: "How can children be protected from scrofula and other forms of tuberculous diseases?" "What can the farmer and dairyman do to diminish the frequency of tuberculosis among animals, and thus indirectly stop the propagation of the disease among men?"

I do not intend to suggest to you any means of combating tuberculosis in cattle, nor measures to prevent the sale of tuberculous products, such as milk and meat. This is the province of the boards of health with whose duties we should not interfere. Societies for the prevention of tuberculosis should, on the contrary, work in greatest harmony with the officials of the health departments. By the combined workings of these two bodies a great deal of good can be accomplished. You should not only seek to give your pamphlets the largest possible circulation, particularly in the densely crowded tenement districts, but they should be gratuitously placed in the hands of all health officers so that they may distribute them to families wherever they think they are most needed. You should also place these pamphlets gratuitously at the disposal of physicians.

But the educational work of societies for the prevention of tuberculosis should not be limited to the mere distribution of pamphlets. There should be frequent popular lectures and reunions where verbal lessons are taught and discussed. These lectures and practical talks should be reported to the daily press. I do not believe there is a single newspaper in your country or in mine, or for that matter in any part of the civilized world, which would not always be glad to print the report of a meeting of an anti-tuberculosis society. The daily press has already done much good in spreading the knowledge which consumptives and those living with them should possess. Unfortunately, the public press serves also at times for the advertising of the many "absolutely sure consumption cures," which are from time to time put on the market by unscrupulous quacks. I am nevertheless sanguine enough to hope that in time the better class of newspapers will, in the interest of the community at large, no longer extend the hospitality of their columns to such dangerous advertising matter, especially when it is protested against by such societies as yours. How many poor consumptives have lost their last little reserve fund by giving everything they had for a dozen bottles of that "sure and quick cure," only those

who come much in contact with them know. How unscrupulous some of these charlatans are in their method of procuring certificates of cure is something which can hardly be believed. Let me tell you only of one instance: A poor woman in the last stages of consumption came to me seeking advice. When asked for the name of her former medical attendant, she confessed that she had been treated for a number of weeks by a quack concern, and now, her means being exhausted, she was made to understand that they would not continue to treat her unless she would give them a certified testimonial that she had been thoroughly cured of her disease which had been pronounced by prominent physicians as an advanced case of consumption. This poor sufferer had not derived any benefit whatsoever from the treatment, and as a result her conscience would not permit her to become a partner to such a fraudulent procedure.

To break the nefarious trade of the man who deals in sure and infallible consumption remedies, to stop the practice of the men and women who claim to be able to diagnose and treat consumption by letter, the Christian scientists and faith curists who ridicule preventive measures and the laws of cleanliness and hygiene—which are the laws of God,—but who, as a token of faith, demand their fees in advance, we have but one weapon, and that again is education. I would suggest that every pamphlet which may be issued by a society for the prevention of tuberculosis, every lecture which may be printed for the cause, every newspaper report which is sent forth, should include a declaration, which should read about as follows:—

Consumption is a preventable and curable disease. The sooner the patient puts himself under the care of a competent physician the greater are his chances for recovery. The well trained physician is the most competent person to guide the patient in the means to prevent re-infection of himself or the infection of his fellowmen. Consumption, or pulmonary tuberculosis, is not cured, and never has been cured, by quacks, patent medicines, or any other secret remedies. The most modern and most successful methods of treating consumption consist solely and exclusively in the scientific and judicious use of fresh air, sunshine, water, abundant and good food, and the help of certain medicinal substances when the just mentioned hygienic and dietetic means do not suffice in themselves to combat the disease.

The thorough and constant supervision of the pulmonary invalid, the immediate intervention when new symptoms manifest themselves or old ones become aggravated, or do not disappear rapidly enough, the prescription of proper food and drink, can only be had at the hands of the thoroughly trained physician.

With educating our consumptive friend, those living with him and

the public at large, as to the methods of prevention and means of cure, the mission of a society for the prevention of tuberculosis by no means ceases. Our work has only commenced. We must now solve the question which I have asked above: What can we do to better the condition of the consumptive poor and those of moderate means?

The well-to-do patient can easily be advised to better his unhygienic environments; with the poor it will be far more difficult. When our work brings us into the presence of a consumptive wage earner, living in a tenement house in a few badly ventilated and badly lighted rooms, with the earnings of better days gone, with scanty food and scanty raiment, we wish we could do not one thing but many things. First of all we would wish we could take this poor sufferer to a sanatorium where he would have the best chance of cure and where the possibility of his reinfecting himself and infecting his wife and children would be removed. We would then wish to examine all the members of the family to find out if there are any who have already contracted the disease, and, if so, take them too in the earliest possible stage to a sanatorium for complete recovery. The next thing we would wish to do is to advise a thorough disinfection of the rooms, bedding, and garments of all the members of the family. Lastly we would wish to be able to provide for the family in want, deprived of their wage earner, good food, and, if possible, a more healthful apartment, so that all the predisposing factors of tuberculosis, which are bad ventilation, poverty, want and malnutrition, as well as the existing foci of infection, shall be eliminated for once and all.

What a vast amount of work there is to do! What a great mission a society for the prevention of consumption has to fulfill! Where will we find shelter for the consumptive poor, who, not infrequently, owing to an unjustified and cruel phthisiophobia (exaggerated fear of the presence of consumptives) are little welcome anywhere. The sanatorium must be to the poor consumptive not only a place of cure but also a haven of rest. There are not enough sanatorium and hospital facilities for the consumptive poor either in your country or in mine. Thousands of consumptives are allowed to die annually, not because their disease could not be cured, but for the simple reason that there is no place in which to cure them. One of the greatest missions of a society for the prevention of tuberculosis is therefore the propaganda for the erection of sanatoria for the consumptive poor, and not only for the absolutely poor but also for those of moderate means, not only for consumptive adults, but also for tuberculous and serofulous children. If any community would have the courage, conviction, and means to erect a number of sanatoria and special

hospitals for all the tuberculous invalids, which, owing to want of means can not be properly treated at home, there would not only be a great sanitary, a great moral, but even a great financial gain at the end of a very few years. Those of my hearers who have visited any of the European, American, or one of your beautiful sanatoria in Canada, will bear me out when I say that there is no better school of hygiene than the well conducted sanatorium for consumptives.

The inmate of such an institution, after a few weeks sojourn, has been trained in hygiene and cleanliness and regularity of life. The beneficent influence of sanatorium education is so true that it has been even demonstrated that in the villages of Goerbersdorf and Falkenstein, where five of the most important and flourishing German sanatoria are situated, the mortality from tuberculosis among the villagers has actually been decreased by one-third from what it was before the establishment of these institutions. The villagers voluntarily followed the hygienic regulations, which are obligatory for sanatorium inmates. This shows how wrong our phthisiophobic friends are when they object to the establishment of a well conducted sanatorium for fear of contagion to the neighborhood.

If a community will erect a sanatorium for its indigent consumptives, this institution will prove to be a hygienic educator to all the inhabitants. The patient returning home, whether cured or only improved, will have become a practicing expert in the prevention of tuberculosis. Should he have been fond of intoxicating liquors the enforced abstinence in the sanatorium, the good food, the regular life, and other ennobling influences which the sanatorium offers, will most likely have made a better man of him, morally as well as physically.

Let me, lastly, demonstrate to you that the communities which you will seek to interest in the establishment of sanatoria will gain financially by placing their consumptive poor in time in such an institution. I have advanced this argument before. I am not very familiar with the condition of your own large cities in this respect, so if you will permit me I will take as an example my own state, New York, which has the largest population of any in the United States, and quote in part what I have said on this subject in my article on Tuberculosis in the Twentieth Century Practice of Medicine, vol. XX., 1900. It is estimated that there are in New York State about 50,000 tuberculous invalids. Of these probably one-fifth belong to that class of patients which sooner or later become a burden to the community. These 10,000 consumptives, absolutely poor, will sooner or later have to be taken care of by the public general hospitals. While they may not stay in one hospital for twelve months continually, they will cer-

tainly occupy a bed in one of the public institutions for that length of time before they die. According to the last annual announcement of the public charity hospitals of New York, the average cost per patient per day in the general hospitals was \$1.16. Thus the cost to the commonwealth will be \$4,234,000 per year for caring for the 10,000 consumptives.

What would be the expense if they were taken care of in a sanatorium? Experience in this country and abroad has demonstrated that the maintenance of incipient cases in well conducted sanatoria can well be carried out for one dollar per day. If these 10,000 would be sent to a sanatorium in time, at least 6,000 of them would be lastingly cured after a maximum sojourn of 250 days, at an average expense of \$250 per capita. Thus for \$1,500,000, 6,000 individuals would be made again breadwinners and useful citizens. If the remaining 4,000 invalids were kept in the sanatorium one year before they died, it would cost \$1,460,000. Thus, taking away from the tenement districts 10,000 consumptives, curing more than half of them, and caring for the other half, and destroying 10,000 foci of infection, will cost \$2,960,000. Not taking care of them in the earlier stages of their disease they will probably all die, since this 10,000 represents the absolutely poor who now live under the most unhygienic conditions; but before dying they will have cost the community \$4,234,000.

Another important factor in the combat of tuberculosis, particularly among the poor of a large city, it seems to me, is the establishment of special tuberculosis dispensaries. All pulmonary invalids who for one reason or another cannot find sanatorium accommodation, former sanatorium patients who are convalescent but still need medical guidance, or all people afflicted but slightly with tuberculosis and able or obliged to pursue light outdoor occupations, could find in such a tuberculosis dispensary an admirable temporary substitute for the sanatorium. In France and Germany such special dispensaries, aided by diet kitchens, which are essential in order to carry on the dietetic treatment with the unfortunate consumptive poor, have done already a vast amount of good. In most of the cities there are as yet, and will be for some time to come, insufficient sanatorium facilities, and therefore such special dispensaries seem to me an urgent necessity.

In our care for the consumptive adult, however, let us not forget the tuberculous child. He will be the man of to-morrow, and the more healthy and strong men and women we can make of these little sufferers the fewer consumptive adults we will have to take care of. The results which are obtained in seaside sanatoria for the treatment of tuberculous and scrofulous children in some of the European countries

are simply marvellous. If tuberculosis is curable in the adult, it is still more so in the child. Some French institutions report as many as 75 per cent. of absolute cures of these little ones. It is strange to say that we on this continent have so few institutions of this kind. France alone has, according to "La tuberculose infantile," of December, 1901, along its sea coasts no less than 24 sanatoria for tuberculous and scrofulous children, offering accommodation to 3,923 patients. All these sanatoria are provided with educational facilities, so that the children's intellectual development does not suffer. To make propaganda for such school sanatoria for tuberculous and scrofulous children is another of the duties of a society for the prevention of tuberculosis.

Before concluding let me beseech you not to rest here with your labors. After you will have removed multiple centres of infection from tuberculosis, after having erected sanatoria for tuberculous adults and children, there will still remain, if not the most important, at least equally important, factors of predisposition to tuberculosis which we find in the badly housed, in the badly clothed, in the underfed and overworked individual. A society for the prevention of consumption must make it one of its duties to work for the better housing of the poor. Let it be known to employer and employee, to every landlord and tenant, to rich and poor, but particularly let it be known to the dwellers in the crowded tenement districts, that it is as dangerous to breathe foul, vitiated air as it is to drink foul and infected water. Sweatshop work and unsanitary factories and workshops should not be tolerated in this enlightened century. The eight-hour law and the prohibition of child labor should be enforced everywhere if the underlying factors of the propagation of tuberculosis shall be removed.

All children at school should have more outdoor instruction and more physical culture than they have now. It is wrong, nay, it is even a crime to push the intellectual culture of children to the detriment of their physical growth and development. Children in our public schools should be taught the value of sensible dress and be equipped with the knowledge of elementary hygiene. Housekeeping and good, plain cooking should be compulsory in the curriculum of all girls' schools. The young woman will then, whoever she may marry, know how to make even a small and modest home a happy and cheerful place, and the husband, returning from his day's labor, will not seek the club or the saloon. It is so often the dark, dreary, and untidy tenement, and the poor food, badly cooked by the wife who does not know how to do better, which drive the husband to the saloon. Give to the laboring man a clean, cheerful home, be it ever so modest, and an intelligent

housewife who can prepare good and appetizing meals, and the rum-shop will have less temptation for him.

Alcoholism is a strong predisposing factor to tuberculosis, and while the moderate use of feeble alcoholic drinks, such as light beers, may be considered as harmless to adults when taken with their meals, alcohol should never be given to children in even the smallest quantities. In families in which there is a fear of hereditary transmission of the desire for strong drink, even the mildest alcoholic drinks should be absolutely avoided. It would also be best if all people so predisposed, or who may have acquired only the occasional desire for drink, should never smoke, for experience has taught that attacks of dipsomania (periodical sprees) are often caused by an excessive use of tobacco. The young man starting out in life should take with him the moral training which will enable him to be a gentleman, and be considered a polite gentleman, though he absolutely refuses ever to enter a liquor saloon in order to treat or be treated to drink. It is this treating habit—alas! so prevalent in our American society—which has ruined many a young man and made him a moral and physical wreck. The creation of tea and coffee houses, where warm, non-alcoholic drinks, including bouillon, are sold in winter and cool ones in summer, is to be encouraged. It would be of additional advantage if some of these houses could also offer healthful amusements for old and young.

All such knowledge you should disseminate whenever and wherever you can. Yet important as this dissemination of knowledge, and the propaganda of sanatoria are, there still remains some work which you are called upon to do if you want to fulfill the whole mission of a society for the prevention of consumption in the anti-tuberculosis crusade. You will have to appeal to the great philanthropists of your country for material help. Without their aid you, the municipalities and the health boards will be handicapped in your fight against this common foe, for no community has public funds enough to cope alone with the tuberculosis problem. Plead with those noble souls who have given and are giving so much for educational institutions to examine the work you are doing. We all are profoundly grateful for what has been done in recent years by philanthropists in the line of creating and endowing educational institutions. Yet, it seems to me, that there is now at least in this northern part of America a plethora of colleges, universities and libraries, and I know that there is in nearly all of our large Canadian and American cities a penury of good model tenement-houses, where the average wage-earner could enjoy a cheery, pleasant home without paying an exorbitant rent. There is a penury of public baths which, for a moderate price, should be at the disposal

of the people every day, winter and summer, and for some hours in the evening. There is a penury of decently kept places of amusements, open all the year, where the laborer and his family may spend a pleasant Sunday afternoon, and partake of non-alcoholic drinks. There is a penury of children's playgrounds and small parks. There is a penury of hospital and sanatorium facilities for thousands of poor consumptives, who would be cured if only taken care of in time. Call the attention of your statesmen and philanthropists to this condition of affairs and I am sure they will gladly co-operate with you in your endeavour to solve this tuberculosis problem, the most interesting and important of medical and social problems of our times.

The help of your statesmen and philanthropists is needed also in another direction. You will recall that I spoke to you a few moments ago of the many things we would like to do for the family in the tenement homes, of which several members were afflicted with tuberculosis. There is one more thing we would wish to do of which I have not yet spoken, and that is to induce that family to leave the crowded city and move to a smaller town or village, if it is at all possible for them to do so. There they would find larger and more commodious quarters for less money. Urge them to take up agricultural pursuits, or to seek at least such occupations as will demand outdoor life. I know all this will not be easy, but I see in connection with this problem a large field of true statesmanship and practical philanthropy. By making farming more profitable the statesman will stop the overgrowing tendency of emigration from village to city. By creating and endowing institutions for healthful amusement in country districts, and thus making life more attractive there, the philanthropist will confer a lasting benefit upon old and young, and increase the wealth, health and happiness of a large portion of the population.

Every member of a society for the prevention of consumption must consider himself a worker and a missionary in a field as important as ever lay before anyone who went out to preach the gospel to the heathen. The field of work which lies open individually as well as collectively to members of societies for the prevention of tuberculosis is large. It is important, I may say it is inspiring, for there is no work more gratifying than to help the prevention of a disease which is preventable, to help to cure a disease which is curable, and to add indirectly through such work to the prosperity, health and happiness of our fellow citizens and increase the well being of humanity at large.

REPORT ON THE CASES OF TYPHOID FEVER TREATED IN THE ROYAL VICTORIA HOSPITAL DURING THE YEAR 1901.

BY

A. C. MCAULEY, M.D., Senior Resident Physician.

During the year 1901 there were treated in the wards of this hospital 168 cases of typhoid fever, 94 males and 74 females. Of these, 160 were treated to a conclusion and 8 are still under treatment. The latter are not included in the present report. The mortality was not so high this year as last. There were in all 9 deaths, that is, 5.6 per cent. Death resulted in three cases from perforation ; in three cases, from hæmorrhage ; in one, from profound intoxication and slight hæmorrhage ; in one, from profound intoxication, slight hæmorrhage and erysipelas ; and in one case, from accident during delirium.

During the year there were five cases of perforation, two of whom were operated upon successfully.

The following data are the points of interest :—

Age :—The average age of all the patients was 23.5 years, the youngest being 2½ years old and the oldest 56 years.

Arranged in decades they are as follow :—

Up to 10 years of age	10
Between 10 and 20 years	44
Between 20 and 30 years	79
Between 30 and 40 years	20
Between 40 and 50 years	5
Between 50 and 60 years	2

Season :—The largest number of cases were admitted during the months of August and September, there being 27 admissions each of these months, the smallest during March.

July, August and September 45 per cent.

October, November and December 23.1 per cent.

April, May and June 21.9 per cent.

January, February and March 10 per cent.

Duration of Cases :—The average day of disease on admission was 9.7.

The average number of days in the hospital was 40 days.

The average duration of the fever was 22.5 days.

The longest period of fever was 58 days.

The shortest period of fever while in the hospital was three days, the

patient having been admitted on the fifth day of the disease with a temperature of 102.4° F.

Infection :—One patient admitted had been nursing five of her children through typhoid fever.

In two instances, four members of the family were suffering from typhoid.

In one instance, three cases were admitted from one house.

In seven instances, two members of the family had typhoid.

Five patients admitted had recently been at the same summer resort.

Symptoms :—*Onset and Course* :—In 97 per cent. of the cases the onset was gradual, the most frequent symptoms being anorexia, general malaise, frontal headache, chilliness and pain in the back and limbs.

In one case the onset was very sudden and patient had severe diarrhœa and cramp-like pain in the abdomen. In another case of sudden onset the headache and weakness were extreme and came on abruptly.

In two cases the onset was chill and rigor. In one case the onset was severe headache and pain in the side.

Diarrhœa was present at some stage of the disease in 51 per cent. of the cases.

Constipation was present at some stage of the disease in 79 per cent. of the cases.

Vomiting was present in 30 per cent. of the cases.

Delirium was present during onset or course in 16.8 per cent. of the cases. In all except two cases it was of a low muttering character.

Epistaxis occurred during the onset in 13.7 per cent. of the cases.

Eruption :—The characteristic “rose spots” were present in 82.3 per cent. of the cases. The average date of appearance of the ‘rose spots’ was on the tenth day of the disease. The earliest appearance of the rash was on the fourth day of the disease, and the latest date at which it made its appearance was on the 33rd day of the disease.

Spleen :—The spleen was palpable in 70.8 per cent. of the cases. The third day was the earliest on which the spleen became palpable. In one case it was not palpable until the 33rd day of the disease. On the average the spleen became palpable on the tenth day of the disease. On the average the spleen was palpable for 17.3 days. In two cases the spleen was palpable for only two days. In one case the patient was in the hospital for 88 days and the spleen was palpable throughout. In another case the spleen was palpable for 59 days, but was not palpable when the patient was discharged.

Relapse :—A definite relapse occurred in 9.3 per cent. of the cases.

The longest duration of the fever of the relapse was 18 days, and the shortest duration of the fever of relapse was 5 days. The average duration of the fever of relapse was 11.2 days.

The average date of disease on which the relapse occurred was the 31st day.

In two cases there was a previous history of typhoid fever.

Fever :—The highest temperature recorded was 105.8° F., which occurred in two cases. In one case the maximum temperature was 100.8°. The temperature reached 105° or over in 9.3 per cent. of the cases.

Complications :—Jaundice and cholecystitis occurred in three cases.

Perforation occurred in five cases all of whom were operated upon, and two made good recoveries. One of the fatal cases developed a second perforation.

At the beginning of the year 1901 there was still in the ward a case which simulated perforation. He was operated upon but no perforation was present. An account of this case was given in the last year's report. He made a good recovery.

Intestinal hæmorrhage occurred in 16 cases. In three cases hæmorrhage was the direct cause of death, and one of these cases had hæmorrhages also into the rectus abdominalis and psoas muscles. In two other fatal cases intestinal hæmorrhage was present but not in sufficient amount to be considered a very important factor in causing the fatal issue.

Circulatory System :—In 40 cases there was a systolic murmur audible at the apex during the course of the disease. In two cases there was a presystolic murmur at apex. One case had a diastolic murmur at the aortic cartilage. This same patient also had a systolic murmur at the aortic cartilage and a presystolic murmur at the apex. He had albuminuria and casts and made a complete though slow recovery from his typhoid.

There were three cases of femoral and two cases of popliteal phlebitis.

Respiratory System :—Acute bronchitis was present in 10.6 per cent. of the cases.

Pleurisy with effusion occurred in six cases, one of which was a double pleurisy.

Lobar pneumonia was present in five cases, and broncho-pneumonia in one case.

Tuberculosis was present in one case.

Other Systems :—Febrile albuminuria was present in 42.7 per cent. of the cases.

Acute nephritis developed in five cases.

Hæmaturia was present in one case.

Retention of urine was present in four cases.

Cystitis was present in three cases.

Specific urethritis was present in two cases.

Secondary syphilis was present in one case.

Pyelitis was present in two cases.

Superficial abscesses were present in 11 cases.

Double parotitis was present in one case.

Suppurative otitis media developed in 10 cases.

Tender toes occurred in nine cases.

Periostitis occurred in one case, and arthritis in two cases.

Erysipelas was present in one case.

One patient admitted was about six months on in pregnancy. She had some albuminuria and pyelitis. She had three small intestinal hæmorrhages. She became jaundiced and developed a distinct cholecystitis which subsided without surgical interference. She made a good recovery from the typhoid and did not abort.

Widal Reaction :—The test is employed in all cases of suspected typhoid admitted to the wards. In ten cases of typhoid it was negative throughout the course of the disease. The reaction was tried in 109 cases on the day of discharge from the hospital and it was absent in 24.

The earliest date of its appearance was the third day of the disease ; the latest date at which it made its appearance was the 49th day of the disease. The average date of appearance of the Widal reaction was the 13th day of the disease.

Erlich's Reaction :—This was found present in 34.1 per cent of the cases in which it was tried. The average day of disease in which it appeared was the 11th. The average duration of its presence was two days.

Synopsis of Two Successful Cases of Operation for Perforation.

Case I.—D.D., aged 7 years. Case No. 5,200.

The patient was admitted to the hospital on the 31st December, 1900. For ten days previous to his admission he had the ordinary symptoms of typhoid, and was doing very well until December 29th, when he developed severe pain in the lower part of the abdomen, ac-

accompanied by tenderness, and he had some rigidity and distension. When admitted to the hospital, at 5 a.m., December 31st, the abdomen was tense but rigidity was not excessive and tenderness not very marked. Temperature 102.4° ; pulse, 132; and respirations, 36, on admission.

Patient was a bright boy, rather small for his age, and not very well nourished. Checks flushed; expression somewhat pinched. From his admission to his operation, 13 hours later, his temperature went up slightly, and pulse and respiration became a little slower.

On opening the abdomen, free seropus was found present. Perforation was found in the ileum about 18 inches from the ileocaecal valve. The perforation was closed, the abdomen irrigated, and a rubber drainage tube inserted. He did nicely after the operation and, apart from a faecal fistula which closed in a few days, and a ventral hernia at the sight of operation, which was attended to when he gained somewhat in strength, he got along very well and left the hospital in good condition.

Case II.—L.J., aged 23 years, male. Case No. 5628.

Patient was admitted to hospital on May 28th, 1901. At the onset of his illness, ten days previous to his admission, he had a feeling of general malaise, slight chilliness and disinclination to work, but was not ill enough to go to bed. His temperature when first seen by his physician was 101° and pulse 80. Rose spots appeared on the abdomen on the sixth day of the disease. Temperature some days reached 104° to 105° but he was not feeling particularly uncomfortable.

At 11 p.m. on May 27th, immediately after urinating, he complained of pain over the hypogastric region. This was relieved by hot fomentations. On 6 a.m. on May 28th, he again had severe pain over the hypogastrium and some tenderness. At 9 a.m. his temperature dropped to 99.4° and pulse to 90. At noon the area of tenderness was spreading. At 5.30 p.m. temperature was 102° pulse 108. Tenderness was marked over the lower part of the abdomen, and there was considerable abdominal distension, particularly marked over the epigastric region. At 8 p.m. facial aspect was decidedly anxious and liver dulness was obliterated. Patient was brought in the ambulance and taken to the operating room, where operation was performed about 11 p.m.

On opening abdomen, considerable pus was found in lower part of abdomen. About 14 inches from the ileocaecal valve a perforation was found, which was closed. He left the table in good condition and made an uneventful recovery.

Synopsis of Nine Fatal Cases.

Typhoid Fever with Purpuric Eruption, Hæmorrhages and Repeated Chills.

Case I.—M.S., aged 20 years, female. Case No. 5536.

Patient was admitted to the hospital on December 17th, 1900, complaining of weakness, loss of appetite, general malaise and headache. Headache had been severe for eight days previous to her admission.

On examination, the patient was found to be a moderately nourished girl, skin hot, dry, and pale, and mentally she was quite clear. Rose spots were present on the abdomen. The abdomen was not distended or tender; spleen was palpable; Widal reaction was positive. Temperature 104°, pulse 108, respirations 24. She had some mitral regurgitation. The urine contained a small amount of albumin and Erlich's reaction was absent.

The subsequent events, were as follows:—Sponges were ordered for day after admission and were very well borne. She got some stimulant regularly. On December 22nd she was feeling weaker,—pulse 120 to 150, and temperature reached 105°. She had occasional slight chills. The following day she developed a purpuric eruption about the nose and on the front of the abdomen, and had three small intestinal hæmorrhages varying from one and a-half to three ounces. Sponges were stopped; temperature continued high; and on December 25th reached 105.8°. The pulse was weak and rapid, 130 to 150, in spite of stimulation, and respirations 30 to 36. She had one or two chills every day and an occasional small hæmorrhage from the bowels. There was no abdominal pain or distension. She had some vomiting and delirium. The pulse gradually became weaker and the respirations more rapid. The temperature remained over 102.4°, and she died on the morning of January 1st, 1902.

Typhoid Fever with Perforation.

Case II.—G.A., aged 28 years, male. Case No. 5583.

The patient was admitted to the hospital on January 3, 1901, complaining of weakness, pain in stomach, legs and feet, and sore throat. The following history was obtained. For a week previous to his admission he felt so weak that he had to remain in bed. During this time he had some diarrhœa and slight abdominal pain. Pain in legs and feet and soreness of throat had been present only for two days. Anorexia was present.

On admission he was found to be rather dull and listless. There was no abdominal distension or tenderness. Rose spots were present;

spleen palpable. Temperature 98.6°, pulse 88, respirations 28, when admitted. Temperature soon rose to 101°.

Subsequent events were as follow :—On January 15th, he had some pain in the left hypochondriac region which was relieved by enema. On January 6th, he complained of pain in the splenic area in the forenoon, and about 6 p.m., on the same day, he began to complain of pain in the right lower quadrant of the abdomen. There was no increased distension and liver dulness was not diminished. Blood counts made from 9 p.m. to 3 a.m., showed from 12,000 to 14,000 leucocytes. Temperature 103°, pulse 104, respirations 24. On January 7th, the abdomen was more distended and there was considerable rigidity and tenderness in right iliac region. Blood count at 10.30 a.m., showed 33,000 leucocytes. Temperature came down to 97°, pulse 120, respirations 32.

Operation done at 3 p.m., January 7th. On opening abdomen dark coloured fluid and gas-escaped. A perforation the size of a five-cent-piece was found in the ileum one foot from the ileocæcal valve, and fæces were escaping into the abdominal cavity. The perforation was closed and the abdomen irrigated. He came off the table in fair condition, but got rapidly weaker, and died about seven hours later.

Typhoid Fever with Erysipelas and Hæmorrhage.

Case III.—J.W., aged 17 years, female. Case No. 5625.

Patient was admitted to hospital January 17, 1901, complaining of headache, weakness, dizziness, pain in the back and cough. She had had a cold from the first of the year. The headache, weakness, etc., had been present for a week previous to admission.

On admission patient was a stout well nourished girl, mental condition rather dull. Abdomen moderately distended and some general tenderness. Spleen was palpable; rose spots present; temperature 104.4°, respirations 32, pulse 120. Widal and Erlich reactions present. She had an acute vaginitis.

Subsequent events :—She was put on cold baths, which she required pretty regularly every three hours. The temperature kept up and the pulse rapid, 120 to 140. On January 30th, erysipelas of the face began to show itself. This gradually extended so that on February 7th, she was anæsthetised and multiple incisions made. On February 4th, she had two slight hæmorrhages from the bowels. On February 12th, 13th, and 15th, she had a small hæmorrhage from the bowels. On the 16th, an ischio-rectal abscess was opened and considerable pus evacuated. The temperature varied daily from 100° to 105°, the pulse

from 120 to 168, respirations from 36 to 62. She had an acute bronchitis. In spite of stimulation she got gradually weaker and died on February 18, 1901.

Typhoid Fever with Hæmorrhages.

Case IV.—A.R., aged 29 years, male. Case No. 6190.

Patient was admitted to the hospital August 10, 1901, complaining of headache, weakness, and fever. These symptoms had been present for a week. He had had some diarrhœa, no vomiting and no appetite.

On examination he was fairly well nourished and of muscular build. Skin hot and dry; rather dull mentally. Abdomen slightly distended; no rose spots; spleen not palpable. On admission temperature 100.8°, pulse 86, respirations 18.

On the day following admission the Widal and Erlich reactions were positive. On the next day rose spots were present and spleen became palpable. He was put on cold bath treatment and responded quite well. On August 24th, he became somewhat delirious and shivered a good deal, even when not having his baths. From this to the end he was very nervous and restless, and was delirious a good deal of the time. On August 26th, he had an intestinal hæmorrhage, two ounces of blood; and on August 29th, he had another small hæmorrhage. When this hæmorrhage occurred he had a temperature of 102.2°, pulse of 160, and respirations 28. The temperature fell gradually to 97.4°; the pulse became almost imperceptible at the wrist. The abdomen became much distended in the upper part, but no tenderness or pain. There was a constant twitching of the muscles of the face and limbs. He had some vomiting. He died on August 31st.

Post mortem examination showed ulceration of the ileum and colon with some blood in the intestines. There was hæmorrhage into the recti abdominis and ilio-psoas muscles and subacute nephritis.

Typhoid Fever with Perforations.

Case V.—W.C., aged 56 years, male. Case No. 6265.

Patient was admitted to the hospital September 7, 1901, complaining of headache, loss of appetite and weakness. His daughter had been suffering from typhoid fever about a month previously. Patient's symptoms had been present for a week. He had no diarrhœa but had slight abdominal pain.

On examination he was an average-sized, poorly nourished man, of fair intelligence. No delirium; head somewhat retracted; no abdominal distension. No rose spots; spleen not palpable; temperature 103.4°, pulse 128, respirations 28.

The subsequent events were as follows:—A few rose spots appeared on the abdomen on September 13th; Widal reaction became positive September 15th. There was nothing out of the ordinary in the course of the disease up to September 19th, and it was of a moderate type. In the afternoon of September 19th, he had some pain in the abdomen just before micturating. This lasted only for a short time. At 10.45 p.m. he complained of some abdominal pain. Temperature 102.6°, pulse 108, respirations 24. At 11.30 p.m. he had severe abdominal pain, slight rigidity, and no distension, liver dullness normal. Temperature 104.2°, pulse 120. He rested some during the night and at 6 a.m., September 20th, the abdominal pain was less severe. Tenderness was most marked a little below the umbilicus. Temperature 100.2°, pulse 132, respiration 36. Blood count showed 7,000 leucocytes.

He was operated upon at 8 a.m. On opening the abdomen there was some seropus. There was a small perforation in the ileum about 15 inches from the ileocaecal valve. Perforation was closed and the abdominal cavity irrigated with saline solution. He came off the table in fair condition, and for the next 16 hours his condition continued the same. Then he began to complain of abdominal pain at times; the abdomen became more distended and the pulse and respirations more rapid. He died September 22nd, 59 hours after the operation.

Post mortem examination showed some peritonitis and a second perforation had occurred, since operation, about eight inches from the ileocaecal valve.

Typhoid Fever with Hæmorrhages.

Case VI.—G.S., aged 36 years, male. Case No. 6271.

Patient was admitted to the ward September 10, 1901, complaining of headache, pain in the abdomen, and weakness. He had been ill for ten days previously and during this time had had some diarrhoea.

On examination, he was a well built muscular man, fairly well nourished. Skin dry and hot; no rose spots; spleen not palpable; Widal reaction negative. Moderate abdominal distension and slight general tenderness over the abdomen. Urine contained considerable albumin and granular casts. Temperature 103.2°, pulse 108, respirations 28.

Subsequent events were as follow:—He was put on cold bath treatment. Erlich reaction appeared on September 13th, and Widal on September 15th. Temperature kept pretty high, but there was nothing special in the course of the disease until September 28th, when he had a small intestinal hæmorrhage; and during the following day he had

several large hæmorrhages. His temperature fell from 103.4° to sub-normal. His pulse became weak and rapid. He did not recover from the effect of these hæmorrhages and died at noon on October 5th.

Typhoid Fever with Acute Delirium.

Case VII.—L.C., aged 32 years, female. Case No. 6281.

Patient was admitted to the hospital on September 12, 1901, complaining of headache, weakness, fever and backache.

On examination, she was of moderate build and fairly well nourished. Skin hot and dry; rose spots present; spleen not palpable; Widal reaction positive. There was moderate abdominal distension and some tenderness in the splenic region. Temperature 103.4°, pulse 108, respirations 20.

The following are the subsequent events:—The course of the fever was a moderately severe one, the fever ranging from 101° to 104°. During the day time she was always quite calm and contented; at night she was more restless and her mind would wander somewhat at times. On September 17, at 4.50 a.m., she was quite delirious for a time; after this, however, she calmed down, talked quite sensibly, and appeared perfectly rational. About 10 a.m., while her nurse was complying with her request to get her a drink of water, she jumped from the window and sustained injuries the result of which proved fatal.

Typhoid Fever with Perforation.

Case VIII.—H.P., aged 21 years, male. Case No. 6329.

Patient was admitted to the hospital on September 19, 1901, complaining of headache, weakness, loss of appetite and vomiting. At onset of illness, two weeks previous to his admission, he had a good deal of chilliness followed by fever and sweating, and he had frequent vomiting. He had no diarrhoea; headache was severe.

On admission, he was a fairly well built, moderately nourished man, of rather dull appearance. He had a cleft palate and a scar on the lip, the result of an operation for hare-lip. Skin warm and dry. There were a few rose spots present on the chest and abdomen. Slight abdominal distension; spleen not palpable; Widal reaction positive; temperature 102°, respiration 26, pulse 120.

The subsequent events were:—He was doing very well and responded well to the cold baths until the morning of October 5th, when he began to complain of abdominal pain at 8 a.m.; temperature 100.4°, pulse 96, respirations 26. The pain kept up all day and was general over the abdomen; there was slight abdominal tenderness. No rigidity. Temperature, pulse and respirations remained about the same as previous days. On the following morning, October 6th, he

still had abdominal pain but less severe. He had some tenderness all over the abdomen, but slight rigidity most marked over the lower zones. Temperature 100.6°, pulse 100, but of smaller volume than previously. During the forenoon he had a little vomiting. Repeated blood counts up to time of operation showed from 4,200 to 5,600 leucocytes.

He was operated upon at 3.30 p.m. On opening the abdomen there was evidence of considerable peritonitis. A large perforation was found in the ileum about 12 inches from the cæcum, and it was closed and the abdomen irrigated with saline solution. He came off the table in poor condition with pulse almost imperceptible, and it remained weak. Temperature rose to 105.8°. He died on October 8th, about 50 hours after the operation.

Typhoid Fever with Hæmorrhages.

Case IX.—J.B., aged 35 years, male. Case No. 6506.

Patient was admitted to the hospital December 13, 1901, complaining of weakness, general malaise, feverishness and flatulence. He had slight headache, no diarrhœa or vomiting. He had been quite ill for a week previous to his admission and had been delirious at night.

On admission, he was a slenderly built, rather poorly nourished man, of fair intelligence. Rose spots were present on the abdomen; spleen palpable; no abdominal distension or tenderness. Pulse regular but of low tension, temperature 100.6°, pulse 88, respirations 20. Albumin and casts in the urine.

Subsequent events were:—Widal reaction was positive on December 20th. Appetite remained very poor and he had some vomiting. He developed a good deal of abdominal distension and some pain, but not tenderness. Subsultus tendinum was quite marked. He had considerable cyanosis and in spite of the stimulation his pulse throughout his illness remained weak. Otherwise there was no special feature about his illness until 4.30 p. m. on December 30th, when he had an intestinal hæmorrhage of seven ounces. Temperature 101.2°, pulse 120. Three hours later the temperature was 99°, the pulse 120, and very weak. During the following night he had another hæmorrhage, about half the size of the previous one. In the early morning of December 31st, he was somewhat stronger, but about 7 a.m. he got suddenly weaker and died at 9.30 a.m.

Post mortem examination showed a good quantity of blood in the intestines. The ulceration from which the hæmorrhage occurred was in the ileum, about 20 inches from the cæcum. There was an early, bilateral, lobular pneumonia and a recent thrombosis of the femoral vein.

MALIGNANT PUSTULE.

BY

E. M. VON EBERTS, M.D.,

Medical Superintendent, Montreal General Hospital.

E. D., aged 50, was admitted to the Montreal General Hospital on 16th October, 1901, complaining of pain and soreness on the left side of the neck and general weakness.

Personal History.—A native of Germany. Served in the Prussian army in 1870-71, during which time he was invalided for two months with an attack of jaundice. A resident of Canada since 1891 and for the past eight years employed as a hide-dresser. The patient had been a heavy beer drinker for many years.

Present illness.—For three months previous to admission the patient had been employed in the scraping and dyeing of a large consignment of sheep skins imported originally from China.

On Saturday, 12th October, shortly after the noon hour, patient first felt a small 'pimple' on the left side of his neck which he squeezed, thinking it contained pus. He slept well that night but on the Sunday morning following chilly sensations were present, with distinct tenderness and some pain about the sore on the neck. Sunday afternoon patient remained indoor. Towards evening the swelling became much more marked: an oatmeal poultice was applied and the patient put to bed.

On Monday morning, 14th October, the patient was distinctly worse. Headache and loss of appetite were noted. The sore on the neck had become much larger, the pain more severe and attacks of chilliness succeeded at frequent intervals throughout the day. During the day the patient was seen by his physician, Dr. Hugh Lennon, who advised removal to the hospital.

On Tuesday, 15th, the margins of the sore had further extended, the left side of the neck was very markedly swollen with induration of the skin below the clavicle. Distinct chills occurred throughout the day with increasing severity; anorexia complete, constant headache, rapid irregular pulse and marked prostration. No vomiting or diarrhoea. Patient still refused to be removed to hospital.

On Wednesday, 16th, all the foregoing symptoms continued with increased severity and the patient's condition was so critical that Dr.

Lennon again urged his removal to the hospital. Admission, 3 p. m., Wednesday.

Condition on admission.—Patient below the average height and rather stout. Face and hands deeply cyanosed, the latter cold. Respirations rapid and shallow. Extreme general weakness. Pulse not obtainable at the wrist. Temperature subnormal.

Thorax.—Lungs resonant throughout; numerous fine rales over both bases. Heart dulness from 3rd interspace vertically, and transversely from mid-sternum to left nipple line: sounds distant and feeble: heart's action intermittent. Pulsations taken by stethoscope about 80 to the minute.

Abdomen.—Moderate distension. Liver dulness 6th interspace in right nipple line to subcostal margin: not palpable. Spleen not palpable.

Urine.—Sp. gr. 1018, neutral. No albumen, no sugar. Microscopically a few triple phosphates.

Lymphatic glands not palpable.

Skin.—Situated midway between the mastoid process and clavicle over the sterno-mastoid muscle on the left side of the neck was an ovoid, raised patch, $1\frac{1}{2}$ inches transversely by 1 inch in the vertical, the central portion flattened, somewhat depressed, dark brown in colour and of a granular appearance: the periphery raised above the centre and also above the surrounding skin and composed of numerous closely placed vesicles of a dark purplish color containing blood-stained fluid; the whole tumor resembling a nævus in general appearance. No discharge from the surface of the sore. Tenderness on manipulation not marked, underlying tissues infiltrated. The skin immediately surrounding the tumor was but slightly infiltrated and not at all reddened. Immediately above the left clavicle was a long narrow strip denuded of epidermis: a result of the poultice. In the upper zone of the thorax from the clavicles to the second ribs and extending across the sternum was seen a crescentic area of inflammatory infiltration with small purplish patches of extravasation. A few small vesicles were also present, chiefly to the left of the median line.

Over the front of the abdomen and legs could be seen a faint purplish, macular rash, and in either flank areas of acute dermatitis which showed on pressure numerous minute petechiæ with œdema of the subcutaneous cellular tissue. The anterior and posterior margins of these areas showed a well defined, irregular, raised border, closely resembling that of an erysipematous patch, but without glazing of the skin or the presence of bullæ.

Diagnosis.—Owing to the characteristic features of the local lesion and the early onset of severe constitutional symptoms a diagnosis of anthrax infection was at once suggested, and the fact that the patient was employed in the scraping of imported hides strongly confirmed this diagnosis. Bacteriological examination was delayed owing to the urgency of the case.

Treatment.—Immediately upon admission the patient was given 1-15 gr. strychn. sulph. hypodermically and an ounce of brandy by mouth. The left side of the neck was then prepared for operation in the usual way and with the aid of a 1 per cent. solution of cocaine the tumor was excised, the incisions being placed fully one-quarter of an inch beyond the outer zone of vesicles and carried directly down to the deep fascia. Beneath the central portion of the tumor the fascia was infiltrated and in its removal the superficial fibres of the trapezius muscle were exposed.

The wound was closed with silkworm-gut sutures and a gauze drain inserted at the anterior extremity. Dry sterilized dressings applied.

The patient was placed upon a fluid diet and strychn. sulph. gr. 1-30 and whiskey, oz. 1, every four hours, prescribed, together with one ounce of somatose in milk every hour.

Diary.—

Thursday, 17th Oct.—Patient's general condition greatly improved. Cyanosis of the face and hands less marked. Frequent cough with abundant serous expectoration, at times tinged with blood. Temperature range 102.2-5° at 6 p.m. on the 16th, to 99° at 8 a.m., on the 17th. Pulse present in radials about 60, very irregular in volume and rhythm. Moderate diarrhoea (4 stools in 24 hours). Abdominal distension marked. Spleen not palpable.

Skin over lower part of thorax and front of abdomen acutely inflamed and oedematous. In flanks the margins of inflamed skin well defined, irregular in outline, acutely tender and rapidly spreading backward. Over the zone of infiltration in upper part of thorax the extravasations had become more extensive with the formation of a few small transparent vesicles.

Nourishment well taken. Slept about two hours. Urine negative.

Friday, 18th Oct.—General condition showed further improvement. Cyanosis subsiding; cough less frequent, and expectoration mucoid. Examination of lungs negative apart from numerous fine râles at bases. Temperature range 101.4-5° to 98°. Pulse larger but still irregular.

Diarrhœa, 4 stools. Abdominal distension more marked. Spleen not made out to be enlarged.

The inflammation of the skin had extended across the small of the back in a narrow band. Rash less brilliant over the front of the abdomen and œdema subsiding. Appetite returning. Slept 6 hours. Urine negative.

Dressings changed and gauze drain removed. Smears from the latter showed a few cocci only. No swelling or tenderness about wound.

Saturday, 19th Oct., a.m.—Patient passed a good night. Temperature normal. 3 diarrhœa stools in 24 hours. Rash over abdomen, sides and back had faded and œdema lessened. A small purpuric area had appeared in the epigastric region. In upper part of front of thorax where cutaneous hæmorrhages had occurred, the absorption color changes were marked.

At 8 p.m., temperature rose to 100° ; the areas previously occupied by rash became inflamed and in addition the eruption spread rapidly for a distance of four inches below Poupart's ligament on the front of the left thigh, involving at the same time the root of the penis and upper margin of scrotum, and accompanied by pain and tenderness.

Sunday, 20th Oct., a.m.—Patient convalescent. Complained of being hungry. Moderate diarrhœa. Abdominal distension very marked. Percussion note over splenic area tympanitic, and spleen not palpable. Rash had again faded. In epigastric and umbilical regions œdema more marked. Urine negative. With evening rise of temperature to $100,2-5^{\circ}$, skin again became reddened, but no extension of the rash noted.

Monday, 21st Oct.—Temperature range $97,2-5^{\circ}$ to $99,3-5^{\circ}$. Patient felt much better all day. Less abdominal distension and arrest of diarrhœa. Rash fading rapidly.

Sutures removed from neck. Apparently perfect union. Dry dressing applied. Extensive herpetic eruption on lower lip.

Tuesday, 22nd Oct.—Temperature range normal to $99,1-5^{\circ}$. Rash entirely disappeared with the exception of a few petechiæ in lower axillary zones, and purpuric areas before noted.

Wednesday, 23rd Oct.—Dressing on neck changed; wound found gaping. Base of ulcer gray and glazed; no discharge; no tenderness or swelling about edges. Stimulating dressing of balsam of Peru and nitrate of silver applied.

14th November.—Patient discharged "well." Temperature remained normal after 23rd Oct., and convalescence was without event.



PLATE I. Showing area on front of thorax occupied by purpuric eruption. The degree of infiltration of subcutaneous tissues in this region seen better in Plate II.



PLATE II. I. Site of tumor after removal of sutures.
II. Ulcer following burn.
III. Crescentic area of infiltration ; side view.
Plate also shows the marked abdominal distension present throughout course of illness.

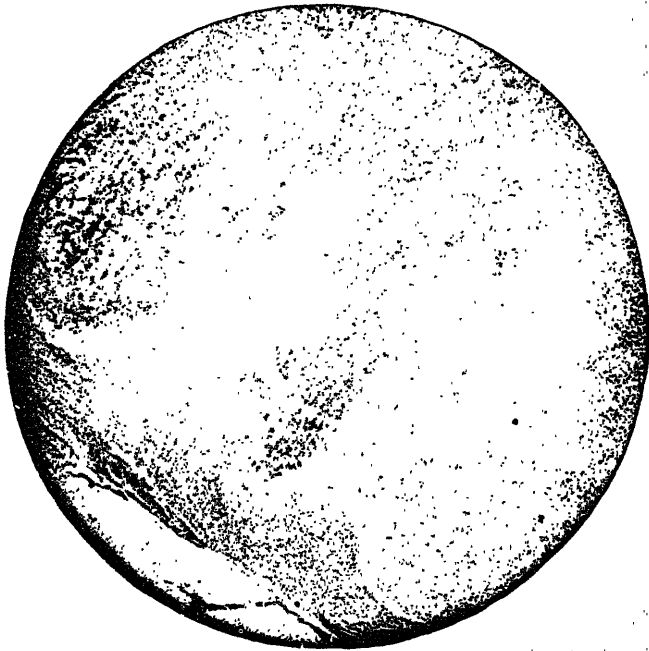


PLATE III. (No. 4, object. No. 1 eye piece.) Micro-photo. Skin section showing anthrax bacilli in large numbers.

Pathological report by Dr. John McCrae :—

“ Specimen consisted of skin and subcutaneous tissues. Tissue surrounding pustule was indurated, the induration being chiefly superficial. Smears from the blood expressed from the tumor showed small numbers of typical anthrax bacilli. On section abundant masses of long interlacing threads of anthrax bacilli, as well as numerous scattered bacilli found ; most numerous in the superficial layers, both epidermal and subepidermal. At a distance of one-quarter of an inch from the surface none were found.

Inoculations of fresh tissue made into white mice did not result in death of animals. Wounds reacted healthily, and when killed anthrax bacilli were not demonstrable in their tissues. Possibly the tissue inoculated did not contain bacilli in any considerable number as it was taken from the deeper parts of the tumor.

Blood cultures taken at operation, or various media, remained sterile.”

I am indebted to Dr. Geo. E. Armstrong, during whose service the patient was admitted, for the privilege of treating the case.

AN ANOMALOUS CASE OF LEUKÆMIA.*

BY

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AND

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The case which Dr. Gordon Campbell and I are to report to-night is an anomalous case of leukæmia, interesting from the early age of the patient, the rapidity of the course of the disease, the fatal termination, and the atypical appearance of the blood on microscopical examination.

W.M.P., male, aged six years, walked to my office with his mother on May 11th, 1901, complaining of poor appetite, weakness and marked anæmia. Sixteen days later he died.

Family History :—The mother is not strong. Patient has one sister and brother neither of whom are strong. Since the patient's death, the brother four years old has been anæmic and has had a number of attacks of epistaxis. Examination of his blood by Dr. Gordon Campbell showed nothing but a simple anæmia.

Previous History :—Patient contracted a cold in March, 1901, and never seemed to have entirely recovered his health. His appetite became impaired, and he began to show signs of anæmia.

April 1, 1901 :—Examination made to-day with following notes. Anæmic, submaxillary glands enlarged, appetite poor, bowels regular, no headaches. Mother says he seems flushed at night. Was given syrupus ferri iodidi, ten drops three times a day.

April 12 :—Has a slight attack of diarrhœa, temperature 100° F. Rest, milk diet, bismuth, liquor opii sedativi and mistura cretæ were prescribed.

April 16 :—Much improved. Pulse 124, temperature normal. After this date I did not see the patient until he was brought to me by his mother on May 11, 1901.

May 11 :—Patient anæmic, pulse 164, temperature 101°. Faint systolic murmur at the apex. Appetite poor, is grave and gay, tired and lively, alternately. Ordered rest in bed and a mixture containing ammonio-citrate of iron and nux vomica.

* Read before the Montreal Medico-Chirurgical Society, February 21, 1902.

May 13 :—Bowels loose, pulse 116, temperature 98.4°. Perspires a good deal at night and complains of pains in his legs.

May 14 :—Consultation with Dr. Blackader, who recommended atropine 1/400 of a grain at bedtime, gradually increasing the dose, and continuation of the administration of iron. The case was looked upon as one of anæmia.

May 15 :—Had a restless night from headache. Pulse 120, temperature 99°.

May 17 :—First attack of epistaxis commenced at 1.30 a.m. Saw the patient at 3.30 a.m. ; he vomited about half a pint of blood which had evidently trickled down the posterior nares and been swallowed. The left nostril was plugged with cotton soaked in alum and tannic acid and it soon controlled the hæmorrhage. Gave suprarenal capsules two grains every four hours for four doses. Extract of bone marrow was ordered. Patient is very weak, pulse 136, temperature 100°.

May 18 :—Rested well, takes food fairly well, temperature 100°, pulse 130, murmur seems less distinct.

May 19 :—Passed a restless night, weak, murmur louder. Ordered tincture of digitalis two minims every four hours.

May 20 :—Patient had another attack of epistaxis at midnight. Nostrils were plugged by Dr. F. E. Thompson, and later by Dr. H. D. Hamilton with adrenalin. Pulse 142, temperature 104°. Ordered strychnine, grain 1/100, four times daily. The iron, extract of bone marrow, and liquid peptonoids were continued.

May 21 :—Hæmorrhage from the right nostril plugged by Dr. Hamilton. Patient very weak and profoundly anæmic. Ears look like wax and lips and conjunctivæ very pale. Submaxillary glands enlarged. In the afternoon blood was oozing from the nostril again, and it was again plugged by Dr. Hamilton. Patient is very restless and was given liquor opii sedativi, three minims as required. Tongue had become very sore and the breath was offensive. A wash of ten grains to the ounce of argentic nitrate solution was ordered for the mouth.

May 25 :—For the past four days the patient's symptoms and condition has remained about the same, but he has become weaker and the anæmia is more marked. Temperature 103° to 104°, pulse 160. Tongue ulcerated and very offensive.

In the afternoon the patient was seen by Dr. Gordon Campbell and a blood examination made with the following result :—Erythrocytes 750,000, leucocytes 40,000, hæmoglobin 21 per cent.

May 27 :—Patient died, at 3 a.m., temperature 102°, pulse 180,

before death. He was very restless during the night. The sub-maxillary glands were noted as much swollen after death.

A few points worth noting about this case are :—The rapid course and fatal termination, the high temperature towards the latter part of the illness, the severe attacks of epistaxis, the indefinite cause, possibly following a primary anæmia, and lastly the age of the patient. Unusual features, also, are the absence of splenic enlargement, and the extreme diminution in number of the red cells of the blood.

The blood examination of this case of Dr. Stewart's reveals a condition which it is difficult to classify, as it does not correspond exactly to any of the well recognized forms of blood disease. The blood examination was made the day before death, and after the child had had repeated large hæmorrhages, factors which of themselves would tend to affect both the number and form of the blood cells.

The blood was taken from the lobe of the ear and the Thoma-Zeiss instrument was used for the estimation of the number of the corpuscles, the Fleischl instrument for the proportion of hæmoglobin, two estimations with the latter being made and the average taken. The finding was as follows :—

Hæmoglobin 21 per cent.

Erythrocytes 750,000.

Leucocytes 40,000.

The proportion of leucocytes to erythrocytes is about 1 to 19, and there is a relative increase in the hæmoglobin amounting to a colour index of 1.33.

At the same time that the above examination was made smears of the blood on coverslips were also obtained and fixed by allowing them to remain in alcohol and ether over night. They were then stained with Erlich's triacid stain, and with eosin and hæmatoxylin. Unfortunately the triacid stain was not in good order and the colours, although showing well enough to be distinguished, are not very distinct. Studying these slides under the microscope one sees the following cell forms :—

Lymphocytes :—These show a very deeply-stained nucleus in all the slides, but in no case is the nucleus evenly stained as in usual in normal blood, but contains numbers of darker spots, some of which in the hæmatoxylin specimens are coal black. In no case do the darker spots appear in the surrounding cytoplasm of the cell. The lymphocytes vary but little in size, being almost all smaller than the red cells and they are the most easy to determine of all the forms of leucocytes present.

Polynuclear :—One can easily recognize two distinct forms of polynuclear ; the first with fairly dark staining nucleus showing as separate divisions in the cell, and a larger form in which the nucleus is distinctly multilobate but occupies more of the cell body, while at the same time it stains much less deeply than normal. These latter cells are very abundant and form about 75 per cent. of the whole number of polynuclears. Both forms show neutrophile granulations, but the granules in the normal are larger and take the stain better than in the other form.

Large mononuclears :—I was not able to recognize any cells definitely as belonging to this class. In one slide which I stained with methylene blue there was no evidence of any basophilic granulation in any of the cells.

Eosinophiles :—Here again I was only able to recognize very few definite eosinophilic polynuclears ; the numerous cells containing eosinophile granules nearly all appeared to have but one nucleus.

Myelocytes :—These are fairly numerous and of two, perhaps three, distinct varieties. (1) Neutrophiles of about the size of a polynuclear, but with a single nucleus and well stained granulations, the myelocyte of Erlich. (2) A very large form containing a large faintly stained nucleus, and small, poorly-staining granules. Besides these are (3) a small number of mononuclear cells with eosinophile granules, and in some of these large and small granules can be seen in the same cell, a point which Ewing holds to be pathognomic of myelocythemia.

The red cells show considerable disproportion in size, but no poikilocytosis. Normoblasts are fairly numerous, one being seen in about every six fields or so, but there are no gigantoblasts.

A differential count of about 500 leucocytes was made, the percentages given are of the whole number of cells including the myelocytes.

Lymphocytes number about 25 per cent., polynuclears of all forms about 45 per cent., and the remaining 30 per cent. is made up of myelocytes, of which the eosinophilic ones form about 3 per cent.

With regard to the differential diagnosis, four diseases have to be considered :—Pernicious anæmia, anæmia infantum of von Jaksch, post-hæmorrhagic leucocytosis and leukæmia.

In the small number of red cells, the hæmoglobin index and the history of the case, the condition corresponds very closely to pernicious anæmia. When we consider, however, the proportion of leucocytes to red cells, the absence of gigantoblasts and the presence of myelocytes

in large numbers, I think we must exclude this disease, even supposing that the leucocytosis was in part due to the repeated hæmorrhages.

Anæmia infantum is a disease of early childhood up to four years of age. In the case reported by von Jaksch from which it got its name, the number of red cells was only 820,000 and the white 54,000, in this respect much resembling our case. On the other hand reported cases of this disease have shown relatively few myelocytes with increase in the large mononuclears and a great number of nucleated red cells. In many of these cases there is difficulty in differentiating them from pernicious anæmia.

Post-hæmorrhagic leucocytosis is also excluded by the character of the white cells present.

Leukæmia is, then, the disease to which we are narrowed down. Of the two forms, lymphatic leukæmia is excluded by the relatively small proportion of lymphocytes which, although here presenting about 25 per cent. of the total, and thus showing a relative total increase, are not sufficiently numerous to warrant our calling the disease lymphatic leukæmia. Is, however, the condition found consistent with our conception of spleno-myelogenous leukæmia? The microscopical examination of the blood corresponds very closely to the blood state of this disease, except in the presence of an unusually large number of lymphocytes. But it is well known that in all blood diseases, in fact in all acute diseases of infancy and early childhood associated with leucocytosis, the lymphocytes are more numerous than in similar conditions in later life. The absence of any enlargement of the spleen can be explained in one of two ways. The case was acute and the spleen may not have had time to reach any considerable degree of enlargement, owing to the rapidly fatal termination. Fibroid change is responsible for much of the splenic enlargement met with in this form of the disease, and it is necessarily of slow growth. The other explanation, and I think the more probable one, is that the pathological lesion was almost entirely in the bone marrow and the condition can be more correctly called a myelocythæmia. With regard to the great diminution in numbers of the red cells, I think this can be partly accounted for by the repeated hæmorrhages, a similar case having been reported in which the autopsy verified the diagnosis. The relative increase in hæmoglobin I am not prepared to explain, but as all who have used the Fleischl hæmoglobinometer will admit, it is extremely difficult to get accurate readings below 35 per cent., and it is not unlikely that it was my estimation which was at fault.

EXTENSIVE LACERATION OF THE CERVIX AS AN IMPORTANT FACTOR IN EARLY ABORTION.

BY

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For some years past my attention has been attracted by the frequency of abortion in early pregnancy, and I endeavoured to discover some possible or probable cause apart from the etiology generally laid down in our obstetrical literature. The further I pursued my enquiries, the more I became convinced that cervical laceration is responsible for a greater number of such cases than are usually attributed to that cause. As soon as I became deeply interested in this matter, I began to observe my cases more closely, and eventually found that where I had an early abortion, say in from four to ten weeks pregnancy, the patient was found to be a multipara, and on examination a laceration of greater or less degree was invariably discovered. The deep bilateral laceration is the one I have found most frequently associated with abortion. Such lacerations will usually admit the tip of the index finger up to the internal os, the integrity of the lower segment of the uterus being nearly or entirely destroyed. Many primiparous patients abort early, but this I have always found to be purely accidental, or due to some imprudent act, or to lack of knowledge of the care and precaution usually necessary to tide a woman safely over her period of pregnancy.

In these cases we generally experience more or less difficulty in getting the product of conception out through the cervix and os uteri, even when some degree of dilatation has been employed, whereas, in cases in which early pregnancy is interrupted in multiparous patients, who can give no account of any accident, blow, fall, mis-step, lift, over-exercise, nervous excitement, or any other known cause, the ovum will usually come away quite easily, and may often be found by the attending physician lying in the vagina, it having escaped from the uterus without the patient's knowledge, or possibly accompanied by slight pain or no pain at all. I have had several cases in which the first intimation the patient had of abortion taking place was a gush of blood from the vagina washing out the dislodged ovum. The frequency with which this condition occurs is at least somewhat singular and sets us looking about for a direct and constant cause. We are well aware

that in strong, healthy women, who have borne several children, the ovum should not separate from the uterine wall without some assignable accidental cause. There may be a combination of circumstances which facilitate separation of the ovum from its attachment to the uterus, but I am strongly disposed to the opinion that the laceration, especially when severe, is very largely, if not wholly, accountable for the interruption to pregnancy.

While practicing in the East and in this city (previous to 1894) I had a number of very interesting cases of very early abortion which I was able without doubt to attribute to severe cervical laceration, but the clinical records of these were destroyed in the fire of 1898. I am, therefore, unable to quote them here. I have collected a few cases from my clinical notes since 1894 which tend in a great measure, I think, to establish the ground of my contention. These I give below:

1896, February 25th, Mrs. McN. aborted in the 5th week.

1898, August 20th, Mrs. McN. aborted in the 6th week.

1899, September 21, Mrs. McN. aborted in the 10th week.

August 8th, Mrs. H. aborted in the 4th week.

August 21st, Mrs. M. aborted in the 9th week.

1900, April 3rd, Mrs. M. aborted in the 5th week.

March 15th, Mrs. D. aborted in the 6th week.

1901, April 6th, Mrs. L. aborted in the 7th week.

In all of the above cases the patients were multiparæ and all suffered from extensive cervical laceration. I am surprised that our literature is so meagre on this subject. There is little doubt that endometritis plays a considerable part in bringing about early abortion, but I am held to the conviction that in a large proportion of cases the cause is purely mechanical, owing to loss of sustaining power of the cervix.

In support of this opinion I cite a very noticeable case I had in the east where the patient a strong, healthy multipara, had aborted four or five times. When she consulted me she was pregnant several weeks. On examination I found an extensive bilateral laceration which I very carefully repaired under chloroform, and she recovered nicely and carried her child to full term. The usual procedure would probably have been curettage before repair, but for obvious reasons I omitted this, and I think it may be possible that though a condition of endometritis may have been present and contributory to her previous abortions, the repair to the cervix may have set up a healthier condition of the endometrium which together with the support given at the cervix, enabled the ovum to maintain its integrity to full term.

From a solely mechanical point of view and apart from any diseased condition of the uterus, the growing ovum, daily increasing in volume, must require the support of a sound intact cervix in order for the patient to be assured with any degree of probability that she will terminate her pregnancy normally. We know that when consulted by a pregnant woman suffering from an extensive laceration, as to the outlook, our prognosis must be particularly guarded.

I think it is the duty of every physician, on being consulted by a woman with a lacerated cervix, especially if she gives a history of one or more early abortions, to advise immediate repair with curettage if found to be necessary, instead of the useless palliative treatment so frequently recommended.

SOME VARIATIONS FROM THE TYPE IN PULMONARY DISEASE.

BY

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The following cases admitted under Dr. Martin at the Royal Victoria Hospital have seemed worthy of record as presenting features somewhat uncommon as regards the diagnosis and the course of certain forms of pulmonary disease.

CASE I :—*Enormous abscess of the right lung involving the lower lobe; no expectoration; physical signs of empyema; many unsuccessful exploratory punctures; pus finally obtained and found sterile.*

A. S., *æt.* 22, a patient of Dr. Vipond's, had been sent into the Hospital at first under Dr. Buller's care for lateral sinus thrombosis. The symptoms had been obscure for some two weeks previously with chills and fever, when suddenly pain developed in the left ear with definite signs of mastoid disease. Operation was performed on admission with a satisfactory result so far as the local condition was concerned. The fever, however, persisted and occasionally chills, and after five days, examination revealed in addition involvement at the base of the right lung. A friction rub could be felt, and there was dulness on percussion with diminution in the breath sounds, in the vocal resonance and fremitus.

Several exploratory punctures were made with a large sized needle in the hope of obtaining pus from the supposed empyema but with a negative result. At the end of a week or ten days examination revealed the condition unaltered; locally about the mastoid the wound was improving but the temperature and chills persisted. Exploratory puncture of the chest was again tried several times and the needle inserted up to the hilt and pus vainly sought for.

A few days later, that is some three weeks after the operation, infection of the skin surrounding the wound was observed and after being duly treated was thought a possible explanation of the persistent evidence of sepsis; but the general symptoms were still unallayed.

Cultures of the blood revealed nothing, and there was no peptone in the urine. Apart from the condition in the lungs no other physical sign was evident, to account for the general symptoms. In the fourth week of her trouble, convulsions suddenly developed and she was



Sarcomatous Metastases in Pericardial Sac.

thought then to have developed some complication in the brain. It was impossible, however, for Dr. Buller to detect any extension of the optic neuritis to confirm such a suspicion, and inasmuch as these symptoms subsided within 24 hours, not to reappear, abscess of the brain could not be considered as explanatory of her general septic condition, and the convulsions were regarded rather as a neurosis.

For this reason the lung was still looked upon as the only explanation of the septic condition and repeated punctures were made. That an abscess was present was rendered all the more likely from the presence of a marked leucocytosis, over 33,000 white cells being found; the absence of anything more than an irritating cough and absolutely no expectoration rendered it more than probable that an empyema rather than an intrapulmonary abscess was present, and yet only after eight or ten punctures was pus finally found, and that in small amount. Operation was recommended and performed by Dr. Garrow. In addition to an acute pleurisy there was found in the lower lobe a large gangrenous cavity containing but a few drops of pus. From this, cultures were taken and proved sterile. The patient failed to rally for more than a few days after the operation and only a partial autopsy was performed, sufficient, however, to show that apart from the lung condition there was nothing else to account for the course of the symptoms.

The case is interesting more particularly from the point of view of physical examination. With a cavity of such a size and which apparently communicated freely with the large bronchi there were at no time present the ordinary physical signs of cavity, neither cavernous breathing, cracked pot resonance nor even a tympanitic note on percussion. The presence of the pus was only ascertained after numerous explorations and the fault did not seem to be either in the size of the needle nor in the depth to which it was inserted. Perhaps the small quantity of pus present at the operation indicated the difficulty one might have in coming upon it, though it is hard to believe that a cavity occupying practically the whole lower lobe of the right lung should not have had during all those weeks more pus in evidence.

The absence of peptone in the urine here is an additional proof of how valueless this symptom often is as indicating the presence or absence of pus.

CASE II:—*Bilateral pulmonary sarcoma; secondary to mediastinal lymphosarcoma; pressure on the superior vena cava and right sympathetic and on the main bronchus giving signs of cavity; sarcomatous pericarditis.*

Mrs. G., æt. 22, admitted under Dr. Martin in October, 1901, com-

plained of cough, smothering sensations and swelling of the right breast. Her illness had begun 18 months previously with progressive pallor, dyspnoea and weakness. She had noticed some nodules in the neighbourhood of the right clavicle and had observed during some months that they very gradually increased in size. Apart from these symptoms and some loss of flesh there was nothing worthy of record till shortly before her admission, when she developed a right pleural effusion for which she was tapped by Dr. White. Her past history had been good as was also the record of her family.

On admission to the hospital she was found to be anæmic and suffering from orthopnoea; she was considerably emaciated except that the right arm and chest were unusually large owing to a fairly extensive œdema. The *right pupil* was much more contracted than the left. The *lymphatic glands* on both sides of the trachea were found to be distinctly enlarged, freely movable and fairly hard. So too were the glands in the axillæ, and, that those of the peribronchial and mediastinal regions were likewise involved seemed evident from the marked dulness on percussion over the sternum. The *veins* on the right side of chest and abdomen were very prominent as were also those about the right shoulder. Over the right scapula there were two or three *small subcutaneous nodules* one of which was subsequently removed for examination and found to be a fibro-sarcoma.

The examination of the *lungs* showed a bilateral pleural effusion, more especially on the right side, which when removed revealed in addition a marked consolidation of the right lung in its upper two thirds with the classical physical signs thereof. There was also consolidation of a small area in the left apex although the apparently great involvement of the mediastinal glands rendered it difficult to say to what extent some of the signs were due to their presence.

The *heart* was normal so far as auscultation could reveal; on percussion its outline could not be satisfactorily ascertained owing to the presence of the enlarged mediastinal glands. The *blood* showed a slight leucocytosis and otherwise the characteristic features of a secondary anæmia. In the abdomen there was slight ascites. The urine was normal.

Progress of the case.—The right chest would fill up almost daily after each tapping and with the progress of the disease, during some weeks, it was found that the œdema of the right arm and right side of the chest was likewise persistent, and the right breast became large and puffy and at times painful; there was evidently, then, *pressure upon the superior vena cava*.

The examination of the lung afforded still further evidence of in-

interest, for, about six weeks after admission, a tympanitic note was discovered behind at the level of the 4th dorsal vertebra extending downwards and to the right as far as the axilla. Cavernous breathing and Wintrich's sign of cavity were present though the coin sound was absent. There were no rales present whatever and the conclusion was that *one of the main bronchi leading to the lower lobe of the right lung was pressed upon by the surrounding neoplasm.*

Later on and some weeks before her death the patient developed a pericardial friction, not constantly present during the first few weeks of its detection, though later on persistent and progressively more intense, the conclusion being naturally that a secondary sarcoma had here developed.—(Fig. v.)

The larynx was carefully examined by Dr. Birkett and though displaced was not found to be involved in the new growth. *Examination with the X-Rays* revealed extensive shadows covering not only the right lung and the area of the mediastinum but likewise a portion of the apex of the left and extending downwards over the area of the liver which was subsequently found to have been extensively pushed down.

Progressive weakness followed the rapid extension of the disease and the patient succumbed some three months after admission.

A complete *autopsy* was performed by Dr. Adami and a generalised lympho-sarcomatosis found, with extensive secondary involvement of the lung in one large hard mass at its upper two-thirds with pressure directly upon the main bronchus as suspected and invasion of the superior vena cava to its almost complete occlusion, and a fairly extensive warty sarcomatous pericarditis.

A CASE OF EPILEPSY—APPARENTLY OF NASAL ORIGIN.

BY

ROBERT CRAIG, M.D.,

Laryngologist to the Western Hospital, Montreal; Associate Lecturer on Laryngology, University of Bishop's College.

Medical men who devote their lives to the study of a special branch of medicine or surgery, are occasionally accused by the general practitioner of attributing all the ills that flesh is heir to, as being caused by disease or abnormalities of the organs which they treat. In bringing this case before you I do not wish to give the impression that I consider epilepsy of nasal origin is a common occurrence, but the connection existing between the two in this case is, I think, apparent and interesting.

Hack was the first to draw the attention of the profession to the relationship existing between nasal disease and epilepsy, and since his case was published, many very similar ones have been recorded in medical literature by competent and trustworthy observers. The following case came under my observation in April last, being kindly referred to me by Dr. George Fisk.

W. M., aged 19 years, stated that he had suffered from "nose bleed, headaches, and epileptic fits for the past five years." For six months previous to consulting me the fits were becoming more frequent, appearing every alternate month with increasing severity. During the attack preceding the last one the patient was unconscious for seven hours.

Present Condition.—Poorly nourished young man with a sallow complexion, unable to concentrate his mind upon his daily work and inclined to feel despondent. He was suffering from a slight attack of indigestion when he first came under my observation, for which he was receiving appropriate treatment. The organs as far as could be ascertained were normal.

Nasal examination revealed a small ulceration in the right nostril on the anterior half of the septum, associated with a large septal spur extending almost from the anterior naris of the right nostril to the clivana, and pressing on the posterior half of the middle turbinal. The left nostril was normal. There was considerable congestion in the naso- and pro-pharynx.

I advised treatment of the nasopharyngeal condition and removal of

* Read before the Montreal Medico-Chirurgical Society, Jan. 17, 1902.

the nasal obstruction. Since the treatment of the nasopharyngeal condition the patient has been able to attend to his daily duties, he has gained considerably in weight and has had no recurrence of the headaches, nose bleeds or epileptic attacks.

When one considers the anatomical distribution of the nerves and vessels of the nose and their intimate relationship with the meninges and brain, they will readily understand why any abnormality in this region should be followed by a reflex neurosis in certain subjects. In this case, in all probability the nasal obstruction caused considerable interference with respiration and its resulting deleterious effects. The incomplete drainage of the nostril produced a nasopharyngeal catarrh, at the same time disturbing the normal functions of digestion. These factors were sufficient to upset the nervous equilibrium in a not too robust individual and manifested themselves by epileptic attacks.

Discussion.

DR. GEORGE FISK said he remembered the patient very well. He came to town about the middle of March to consult a physician. He went to a specialist who told him he had epilepsy. His condition now became worse; he had fits of crying and some hysterical symptoms. When he was called, he was recovering from one of these fits which took him while he was leaving the dining room of the hotel where he was staying. He was in a semi-conscious condition. Thinking that perhaps the gastric condition was a factor in the causation of the case he had treated him to find out if he had a tape-worm, as another member of the family had had tape-worm, but without result. Ten days later another attack came on and Dr. Fisk suggested that the nasal condition might be a possible cause and recommended him to Dr. Craig.

DR. H. D. HAMILTON said it was fortunate that Dr. Craig had been able to follow this case up and see the benefits of treatment. He had one or two cases where the removal of adenoids had been followed by improvement in cases of epilepsy, but it was only a year after treatment that the improvement was noticed.

DR. SHEPHERD thought that in true epilepsy a cure could not have been effected by this means and suggested that there was a hysterical element in the case reported.

DR. BIRKETT said that Dr. Shepherd has just expressed his ideas on the point. He thought that one had to be very careful about regarding such a result as being the effect of the operation, especially in cases of this kind.

DR. DEEKS thought that perhaps the import of the paper had been misunderstood, that all had met with cases where a spur in the

nasal passages or a condition of the throat had caused reflex conditions of this nature. He related a case of a young lady who had been under his care for undoubted epileptic attacks and she was very anæmic and covered with a bromide acne. Putting her on Bland's pills had had the effect of improving her general condition and the fits had ceased. He thought that one often gave too much bromide in these cases.

DR. HAMILTON said he ought to confirm Dr. Deck's remarks as he had attended the patient during Dr. Decks' absence and might be responsible for the bromide eruption. He also thought that sometimes we gave too much bromide.

DR. CRAIG in reply said that some of the members who had so warmly criticised his paper, had not listened very closely to it, for at the outset he had stated distinctly that all cases of epilepsy were not caused by nasal spurs. His treatment had certainly been very effective as the patient had been able to return to his occupation. Dr. Craig believed that in this case the nasal obstruction had caused interference with respiration and consequent anæmic effects, and thought that in the present instance he had been perfectly justified in removing it.

DISCUSSION ON VACCINATION BEFORE THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

THE BACTERIOLOGY OF THE SKIN AND OF THE GLYCERINATED LYMPHS.

BY

JOHN McCRAE, B.A., M.B.

As is to be expected, there have been found on the skin bacteria of all sorts, many of them naturally the forms which would be got by exposing plates to the air in which the person lives. Most of these it will be understood are adhering temporarily to the skin, and but three or four varieties are commonly found in the skin layers, or deep in the openings of the sweat glands and hair follicles. The forms which are of surgical importance are staphylococcus epidermidis albus, (which is an attenuated staphylococcus pyogenes albus), bacillus pyocyaneus, B. coli communis ; the first named is the only one of these which has at all a widespread distribution.

Of all sorts and conditions, one observer has found 23 varieties of bacteria on the skin ; the practical bearing of this fact upon our subject is :—

1. What is the importance of these on the vaccinated surface ?
2. How may they be removed or destroyed ?

Most of these bacteria are washed off by the usual soap and water wash, with brushing or even rubbing with a soft cloth ; the perfunctory and momentary application of antiseptic solutions of moderate strength does not generally allow the antiseptic sufficient time to do its work. The average washing leaves the surface presumably sterile, but in the hair follicles and in the mouths of the sweat glands the bacteria have lain unharmed, the more so because in each gland or follicle a little cushion of air has kept the solution from entering it.

Next by means of the lancet or the ivory point the sterilized cuticle is scraped off, the mouths of the sweat glands included ; the buried bacteria can now come to light and remain in the serum which bathes the scraped surface. If the skin be sterile and the point not so, the same result is brought about. Most vaccination wounds are to some extent infected in one of these ways ; but the site being a clear, smooth surface, not in a fold of the skin, the injury being comparatively slight, and most important of all, the wound having perfect drainage, the infection is generally of no importance. But where on account of unsound reasoning, a scab is allowed to cover and protect the bacteria, and obstruct drainage of the wound, a considerable loss of

tissue may occur, and the condition of local sepsis is sometimes allowed to continue because it is not recognized that a vaccination must be given treatment accorded to a similar lesion from any other source. There is, therefore, practical proof that the infections of the skin in vaccination are clinically and bacteriologically of little importance; but it will be readily allowed that without due precaution some one of these bacterial birds of passage may in the thousandth case prove to be a very virulent bacterium; and as in fabled history should the Snark turn out to be a Boojum, the most serious results may occur.

The removal of the bacteria of the skin is, on the plain surface, a matter of soap, water and friction; for the sweat glands and hair follicles this is inadequate, and it is probable that the best results will be obtained by the use of absolute alcohol, which can replace the air in the cavities more readily than any other fluid, ether included. From its ability to mix with water, it will more readily make its way in all the interstices which are already moist with water previously applied, or with the water of the tissues.

The bacteriology of the glycerinated lymphs in general may be briefly stated as follows:—They are probably not of necessity sterile at the time of sealing; in any tube a few weeks old, the pathogenic germs are found to have died out; non-pathogenic germs may be present.

In 1898, specimens of glycerinated lymph were sent out by Professor Copeland and examined by Drs. Adami and Yates. Some were sterile; the only bacterial forms found at all were *B. mesentericus* and *Sarcina*,—both normally inhabitants of the air and the soil.

Within the last three weeks I have examined bacteriologically samples of the glycerinated lymphs manufactured by three leading firms; all proved sterile.

The points were examined in the same way, and of the samples used, (again three of the most prominent were selected), but one proved to be sterile. The other ones showed each a growth of a single bacillus, which was in each case, one of those frequently found in air. For obvious reasons the names of the manufacturers of these points are not stated; from so little proof, an injustice would probably be done to one, and an inflated value given to another.

These observations do not prove, but merely point towards their conclusions; viz., that glycerinated lymphs are bacteriologically the purer, (though not necessarily sterile), but that the points if they carry germs, are likely to carry only those that may light upon the wound from the air, which as causes of infection are generally of little moment.

INTRACUTANEOUS VACCINATION.

BY

A. MACKENZIE FORBES, M.D.,
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Ever since Lister demonstrated the causes of suppuration the acquisition of perfect asepsis has been the desire of all whose duty it has been to perform even the most minor operation. As vaccination is probably, of all minor operations, that which is most commonly performed, a study of any means of performing this operation in a manner which will assure not only an aseptic operation but the post-operative retention of such desirable condition will be of interest. For an aseptic vaccination three conditions are necessary:—

- (1) The vaccine used should contain no pyogenic micro-organisms.
- (2) The seat of inoculation should be free from pus-producing organisms at the time of operation.
- (3) The seat of inoculation should remain sterile until the vaccination has been successful.

With reference to No. 1. Vaccine, as all know, can be procured in a solution in glycerine hermetically sealed in capillary tubes. This is nearly if not absolutely sterile, both from its preparation and from the fact that it is retained in glycerine, which is an antiseptic. This point has been proven by experiments made by many observers amongst whom are members of the pathological departments of both the Montreal General and Royal Victoria Hospitals.

With reference to No. 2. The sterilization of the superficial surface of the skin is easily effected by means of soap and water, alcohol, ether, or even strong antiseptics, removed later by the use of sterile water.

With reference to No. 3. The third essential to an aseptic vaccination has been, and is still, the most difficult problem connected with such operation, and it is because of this difficulty that it is desirable to discuss the possibility of procuring such retention of post-operative asepsis by the intracutaneous method of inoculation. This method aims at the placing of the vaccine used between the layers of the skin by means of a hypodermic needle.

Although vaccination by means of a hypodermic needle has always been considered theoretically sound, it has not been received with favour, as is seen by the words of J. H. Huddleston of New York in a recent article here quoted verbatim:—"The hypodermatic method is also objectionable on account of its uncertainty, on account of the greater care necessary with the instrument, and on account of the danger of injecting matter which may contain pyogenic bacteria." And again, to quote the same writer in a personal letter:—"Any method

of vaccination which does not produce an eruption on the skin must be, in the present state of our knowledge, unreliable, because it is only by the appearance of the vesicle that we are able to say whether the vaccination has been successful or not. The hypodermatic method is also objectionable, it seems to me, because perfectly efficient virus, which is fit for use, may contain skin cocci, which may produce suppuration when injected beneath the skin."

If it is permissible to criticize these remarks it may be said :—First, with reference to the contention "that perfectly efficient virus may contain skin cocci, which may produce suppuration when injected beneath the skin." It has been proven that most hermetically sealed vaccine is at least almost sterile. To this may be added in proof of the statement, that over thirty such hypodermic injections of vaccine have been made without the slightest untoward effect, while it is certain that vaccination by the open method often leads to a false sense of security, inasmuch as it may induce a local staphylococcal or streptococcal infection, which is entirely distinct from true vaccination, and such result is not protective against smallpox.

Unfortunately the contention made by Huddleson, that any method which does not produce an eruption must be unreliable is only too true, and this is the reason why this method has been received with so little favour. Recently, however, Dr. W. O. Rose of Nelson, British Columbia, has suggested that this objection may be eliminated by the superficial injection of the lymph used, and it is to a record of cases vaccinated by this method, that your attention is directed. It may be advantageous, however, to consider briefly before discussing this recent method of vaccination, what can be considered a successful operation. Many believe that the formation of one or more vesicles, appearing usually between the fourth and tenth day at the place of inoculation, is all that is necessary to assure a successful vaccination, and if such be true, are we not justified in preventing further reaction, with the infection which so frequently accompanies such reaction, either by the use, after the open operation, of strong antiseptic applications on the exhibition of such phenomena or better, by the prophylaxis of such condition by the intracutaneous method of inoculation?

Is it not possible that even if it be essential that a prolonged reaction from the vaccine should occur after the vesicular formation, such subsequent reinfection—and experiments seem to have proven that the pustular stage is that of a mixed infection—is deleterious to the further development of the toxins of the vaccine virus, and thus to the further and prolonged reaction due to the virus of vaccine?

The methods used and the results obtained in thirty cases vaccinated by the intracutaneous were as follow :—

The patient's skin at the point of election being thoroughly sterilized, a previously boiled hypodermic needle is introduced and inserted under the upper layers of the epidermis so superficially that the blue colour of the steel needle is perfectly discernable for its whole course. This needle is thus introduced for a distance of one-half to three-quarters of an inch, and at this point the vaccine taken from one or two capillary tubes is instilled after previous dilution with a few drops of distilled water. This instillation is immediately followed by an area of ischæmia slightly smaller than a five-cent-piece, and simulating an urticarial wheal.

At this point it may be interesting to note that the insertion of the hypodermic needle intracutaneously, while causing more pain than subcutaneously, as it is usually employed, does not give rise to a greater sense of discomfort than the open method.

The weal-like area is followed within a few hours by a like inflammatory area, which, in all cases resolves into a papule within twelve hours. With regard to the papule ; it is notable that the injection in like manner of any irritant will cause a similar manifestation, as has been demonstrated by experiments made. A similar quantity of distilled water and glycerine has been injected intracutaneously. The reaction which followed was much milder, however, and was of shorter duration than that following the injection of the same quantity of a solution of vaccine in the same individual, and at the same time.

The papule formed by such injection of vaccine is hard and shotty, and is surrounded by an area of hyperæmia varying with the susceptibility of the patient. It is also the seat of slight irritability and pain, which seems to vary in proportion to the measure of success or failure of the vaccination. This papule in three or four days becomes surmounted by, or changed into, a vesicle, which has in the past been considered the only certain evidence of success. It is conceivable, however, that certain inoculations followed only by papules, which never reach the vesicular stage, (perhaps through the mildness of the reaction) may be quite sufficient to give immunity against variola.

This intracutaneous method has been tried in over thirty cases, with the following results :—In 29 cases previously vaccinated one or more times, 16 were considered successful, 7 unsuccessful and 6 were doubtful. In 3 cases who had never been vaccinated, 2 were successful and one was unsuccessful. This unsuccessful case was possibly due to some fault in technique.

These suggestions are presented in the hope that they may be of

service to those who are desirous of vaccinating individuals who in the past have objected to the pain and reaction often following a successful vaccination by the open method.

DR. F. W. CAMPBELL :—My remarks with regard to vaccination will be perhaps more historical than scientific. It is perhaps only known to a very few medical men in Montreal, that nearly 50 years ago small-pox patients were admitted into the wards of the Montreal General Hospital. I will not say that it never extended to any persons who saw these patients, because I myself got it when a student, nearly 46 years ago ; the diphtheria patients were also admitted in the same way.

During the winter of 1862, the first by-law which compelled children to be vaccinated was put in force in the City of Montreal, and the late Dr. Leprohon, Ricard and myself were appointed public vaccinators. The East, West, Centre and St. Lawrence wards were visited and, including my public vaccinations and those in my private practice, 25,000 vaccinations and revaccinations were done. Now we have heard, and what we have heard we believe, that these arms of ours and the air which surrounds them, are in a very dangerous condition, but I want to say this, that I never washed any of those 25,000 arms, and I have never seen the slightest bad result in a single case. Now what was used ? I do not know that I ever saw a vaccine crust examined bacteriologically, but the ordinary scab was universally used by the profession of Montreal, and they were valuable because many a dollar have I made by selling them to the wholesale houses in the city. The way to catch these crusts was to attach a piece of net round the arm by a string, and when the crust fell off, it was thus saved. Twenty-five or thirty children could be vaccinated from this.

When you took the vaccination crust and held it up to the light you saw the central disc dark, dense and not transparent, the surrounding was semi-transparent. I invariably cut off the surrounding part, shaved this crust, mixed it with cold water and made a sort of paste, and with this smeared the tartan cut on the arm, as it was called. When it dried the baby went around with his arm exposed to the air and contamination.

Two marks I think are the number that have usually been made in this city, and, on looking up the matter, I think we will find that the number of marks bears a relation to the percentage of deaths. A person who has had smallpox is not as well protected as those who have had three good vesicles. The deathrate among the unvaccinated, according to Seaton, who is the best authority in the world, is 35 per

cent., among those said to be vaccinated but no mark found 23.57 per cent., with one mark 7.73 per cent., two marks, 7.70 per cent. three marks, 1.95 per cent. and 4 marks, 1.55 per cent. He gives the percentage of deaths of persons who had had smallpox and taken the disease a second time as 19 per cent. It is a singular fact that there are people who take smallpox more than once, medical men having to give up attending these patients on account of their susceptibility to the disease. Many assert that four marks should be given when an epidemic of the disease is threatened.

What is a good vesicle? More than once, more than three times, I have made a house to house visit in the wards mentioned, and then made a statement at the Board of Health that 90 per cent. of the French population in this city were unprotected, that they did not possess a good mark. An ordinary smooth, irregular cicatrix is a bad mark; a good one is one which is generally circular, but which shows that the vesicle is composed of a large number of depressions in the centre of this mark, perhaps 15 or 20.

What is vaccination? I have thought a good deal of the subject and make the statement that there are several thousand instances on record where the matter from smallpox has been taken and introduced into the cow and brought back to the individual, and you have the very best vaccine which has been taken from the human family.

When should a person be vaccinated?

Some say that a person should always be revaccinated at puberty, but no matter what the age it should be done when a smallpox epidemic is threatened. Is it a wise thing to rupture a vaccine vesicle during its progress? We know that there is a system of vaccination which is called arm-to-arm vaccination, where children are brought on a certain day to be vaccinated from the arms of those done on a previous stated occasion, and from whom at a later period new children are vaccinated. Now a great many hold, and I feel inclined to agree with them, that it is a mistake to rupture a vesicle, that a certain amount of this matter does not go through the individual when the vesicle is ruptured, it should be allowed to go through its progress untampered with until the very end.

The next thing is what is the best method to prevent pitting in smallpox? I do not propose to give my own views but something which has not been generally known. When I began the study of medicine I was an apprentice to Dr. James Crawford, Professor of Clinical Medicine, who advised the application of tincture of iodine. I have since, whenever I had a case of smallpox, used this with very satisfactory results. This was demonstrated in the *Medical Chronicle*,

by Drs. Wright and Macallum, by taking a case that occurred among the Indians and painting one side of the face, while leaving the other unpainted ; the side which was painted was not pitted at all while the other was deeply marked.

DR PERRIGO :—There has been all through England and the United States, in the medical societies, a thorough discussion on vaccination, and if you read these discussions carefully you can see through all a latent feeling that the present method of vaccination is not wholly protective. We are supplied with vaccine by commercial houses and just now, particularly on this continent, they are taxed to their very utmost. Vesicles are drained, and I have no doubt are overdrained, to arm as many points as possible, and there is no Government inspection or control ; the great desire is to supply all the demands that are made, and often I am sure we do not get that which we demand.

In company with the late Dr. Ross and Dr. Kennedy, during the epidemic of 1855, we were deputed to visit an institution on Cathedral Street. In this institution we saw what was a perfect revelation. We saw 25 or 30 children in the different forms of septic infection, erysipelas, etc., from which some died—one of the most pitiable sights I ever saw. At that time there was intense opposition against vaccination, so much so that it resulted in riots. I do not think that the bacteria of the skin were any more virulent then, than now ; we vaccinated from the brown mahogany scab, from the lymph, from the vesicle, and from points. With the scab as with the points, which I purchased from the New England Institute, I always had a typical vaccination vesicle from my vaccinations, and I had very few sore arms, and at the same time there were no precautions whatever taken against sepsis. From what I have seen in my own practice we have very seldom a typical vesicle from the points we are now using, and I have had a great number of sore arms. I may say also that I have refused in some 15 or 20 cases to vaccinate at all ; once I broke this rule in a delicate infant, smallpox being near them ; I was very careful about this case, treating the vaccination as a surgical operation in miniature, but I had an intensely sore arm. With the present vaccine points you have a very sore arm, a running sore, but do not get a typical vaccine vesicle. I think there are cases where we should not vaccinate unless there are cases of the disease in the neighbourhood. I do not want to deery the present method of points, but they are not always what they ought to be. As for supervision, in the United States, they say that this should not be under the control of the Federal Governments, but under the State, and we are almost in

the same position here. There is nothing to prevent our Government from exercising proper supervision over commercial houses who undertake the sale or procuring of vaccine. It is a subject which should be taken up, and would be the means of giving the public more confidence.

DR. GURD :—My experience is very different, I have used the crusts in the big epidemic of 1885, and have had lots of experience with the different methods and preparations of vaccine-crusts, points, tubes containing humanized lymph, and the present glycerinated tubes. Long ago one expected to have a large percentage of primary takes, 50 per cent. would be considered very good primary takes ; in the glycerinated lymph the failures have been nil, either in adults or children. One has to do quite a few adults for the first time, and these have taken admirably, such adults I think have a more severe arm, but there is a typical take. As to the first dressing I have tried everything.

The infants are generally washed and prepared for me so that I do not go to the trouble again of cleaning them, but immediately vaccinate with one mark, putting over this a piece of gutta percha tissue, $\frac{1}{2}$ inch square, and a section of zinc oxide adhesive plaster right over this again. I have timed myself, and it takes just 30 seconds from the time you begin your scarifications. I use glycerinated lymph and a needle, as it is easily cleaned. I tell the person to take off the plaster next day, and by that time it is perfectly dry.

DR. G. A. BROWN had had a considerable experience in vaccination and for a number of years had used the points only. During the past winter he had, on account of the number of failures with the points, tried glycerinated lymph. With that form supplied on points, however, he had not had much better results, but with the tubes had found it rare to have a failure. In his experience, glycerinated lymph as supplied in the tubes had many advantages. The pocks produced were not so severe and one could scarify with a needle and make a much smaller scarification, causing very little pain.

As to what constituted a "take" he was satisfied when the person vaccinated experienced some feeling of being ill from the effect of it. He had had very little trouble with sore arms, having seen only one case, that of a medical student who had been vaccinated by a fellow student, and whose arm was inflamed from wrist to shoulder. This case he had treated as one would a cellulitis and with good result.

Concerning the question as to what were the contraindications for vaccination, he thought that in anæmic persons of low vitality it was a mistake to expose them to the possible risks of sepsis following vaccination.

DR. D. J. EVANS raised the question as to the number of marks necessary for proper protection.

DR. GIRDWOOD related his experience in 1849 as an apprentice in vaccinating the poor. No attempt was made at cleansing the skin previous to vaccinating and the method was entirely arm to arm. He did not remember having much trouble with sore arms. The usual practice in those days was to make three marks.

DR. G. G. CAMPBELL thought that what many of the speakers had said regarding the infrequency of sore arms before the days of antiseptics was in accord with what Dr. McCrae had stated in his paper, that the danger of infection from skin cocci was almost nil. The danger of arm to arm vaccination came from the possibility of conveying disease such as erysipelas and syphilis, through the lymph. Where one was absolutely certain of the state of health of the subject from whose arm the lymph was taken it was possibly the best method.

With respect to the question raised by Dr. Perrigo of governmental supervision of establishments supplying vaccine, the speaker did not think the danger of a poor product being put on the market was as great here as might at first sight appear. Vaccine was mostly prepared by the manufacturing pharmacists who also supplied us with drugs, and while it was a comparatively easy matter to test the efficacy of vaccine it was by no means easy to do so of drugs, such as ergot and digitalis, and yet these products were generally reliable, the firm manufacturing them having a reputation to keep up.

DR. MORROW, speaking of the conditions under which it was not advisable to vaccinate, related the case of a man who was just recovering from a poisoned finger when it became necessary to vaccinate him. The operation had been done on the other arm and no trouble followed. Dr. Morrow also related the history of mental disturbance coming on in a boy just at the time a vaccination sore reached its height, and lasting for six or eight months at least. He expressed his preference for glycerinated lymph as giving a much larger percentage of takes.

DR. MAUDE ABBOTT stated that she had examined a sample of glycerinated lymph in October last, and obtained cultures of staphylococcus epidermidis albus and bacillus mesentericus.

DR. HOWARD CHURCH drew attention to the point that in giving a certificate of vaccination many physicians used the words "successful vaccination" when the operation had just been performed and one was unable to tell whether it would take or not.

DR. FOLEY called attention to the many different forms of eruption which occasionally followed vaccination, and mentioned that he had seen a case of syphilis following vaccination.

DR. SHEPHERD thought that the present eruption was remarkably free from these general eruptions. Syphilis, of course, could only come from humanized lymph and this was the principal reason why humanized lymph had been given up. He referred to the surgeon of St. Thomas's Hospital, who was so confident that syphilis could not be conveyed in that way that he had himself vaccinated from a person suffering from syphilis and thus contracted the disease. He held that the eruptions following vaccination were only precipitated by vaccination and not caused by it.

RETROSPECT OF CURRENT LITERATURE.

Medicine.

UNDER THE CHARGE OF JAMES STEWART.

Cardic Hypertrophy and Dilatation.

THOMAS CLIFFORD ALBUTT, M.D., LL.D., D.Sc., F.R.S. "Hypertrophy and Dilatation of the Heart." *The Practitioner*, January, 1902.

Valvular diseases and Bright's diseases are outside the subject included in the title of this paper, and while the two conditions of the heart thus designated above are commonly found together, dilatation may be found without hypertrophy, while hypertrophy is rarely ever found without dilatation, or without increase of capacity in either auricle or ventricle or in both. The insufficiency of the normal heart on excessive and protracted bodily exertion, since there is no conclusive proof that the walls of the normal heart are susceptible of strain under stress of muscular effort, such as to give the structure a new set, is accounted for by, (1) the accumulation of waste products, (2) the need of nutrition. As a safeguard preventing the heart from working itself to death, suffocation and exhaustion, thus induced, may be considered. While that incapacity which so often persists may be designated rather than explained as "nervous exhaustion," which has its source not in the quality of the heart muscle, but in some nervous disorder, that amount of dilatation found in such hearts is to be considered rather as the result of influence through the vagus or depressor nerve than as a molecular strain.

Dr. Allbutt reduces more and more the factor of blood pressures in cases of apparent heart strain, and attributes the symptoms in the cases described to intercurrent causes, syphilis, tobacco, tea, alcohol, and improper or insufficient diet.

The total mass of blood is a factor of much importance in the labour of the heart. With increase in the bulk of the blood, especially in those engaged in active and often heavy work, the heart has more work to do, and the left ventricle dilates and hypertrophies. Many

subjects of this increase in the total bulk of the blood, which induces with the increased work both the capacity and size of the heart, are beer drinkers, and the muscle of the heart is one *poisoned by alcohol*—a degenerative change of toxic origin.

Dr. Allbutt further states that there is but little evidence that a heart duly hypertrophied and dilated will degenerate, unless its muscle be poisoned or be the seat of some more intrinsic degeneration, or be submitted, as in valvular diseases, to stresses increasing beyond its possible resources.

Again dilatation and hypertrophy of the heart result in the middle aged and elderly from increased peripheral resistance or from arterial disease. The writer holds that degenerative disease does, no doubt, invade the heart and arteries as a system, but the cardiac changes are conservative, and often it is only after the heart can no longer strive, that stretched and spoiled degenerative changes occur in it, and finally death ensues. Arterial blood pressure is by no means constantly increased with arterial disease. Many modifying factors may enter to explain this rather unexpected condition, *e. g.*, a wider arterial bed, less velocity, less friction, or localized degenerative changes, or diminished blood mass.

J. BURNEY YEO, M.D., F.R.C.P. "The Treatment of Cardiac Dilatation and Asthenia." *Ibid.*

In approaching the subject of the treatment of such conditions as are above designated, the more recent causes are considered. Dr. Burney Yeo finds that dilated hearts have been more common since we "fell under the sway of the 'influenza fiend.'" In addition, "the growth of the cycling and golfing crazes and the general cult of excessive muscular exercise," must be considered, and as a contributory influence in the production of cardiac dilatation and asthenia, "the excessive use of tobacco," should be mentioned. The necessity of a "prolonged period of physical rest" after an attack of influenza is emphasized. Baths, in the experience of the writer, are of far more value in chronic cases of cardiac dilatation than "resisted exercises."

RICHARD CATON, M.D., F.R.C.P. "Cardiac Dilatation and Hypertrophy." *Ibid.*

This article deals in a general way with the etiology of such conditions including myocardial and endocardial changes as factors productive of dilatation and compensatory hypertrophy. Under treatment, it contains a brief discussion of the Oertel and Schott methods, and here the writer points out that, while the principles of the Oertel

treatment have long been prescribed by British physicians, those of the Schott system are more original. A warning note is sounded against routine in the application of these systems. Each cardiac case must be treated after its own peculiarities.

ARTHUR FARWELL, M.D., F.R.C.P. "Points in the Prognosis and Treatment of Hypertrophied and Dilated Hearts." *Ibid.*

The remarks contained in this paper apply to conditions found in adults of thirty years and over, when the period of development is at an end. After pointing out the necessity of most tactful dealing with all patients afflicted with heart disease, Farwell passes on to show that if rheumatic valvulitis have arisen late on in life, forty and upwards, when the power of producing hypertrophic growth of the heart muscle is small, the outlook is naturally much gloomier, and only in those where the lesion is small can the complete compensation be expected.

"Of large hearts produced by rheumatic valvulitis those suffering from mitral regurgitation have, no doubt, the best future. . . . Aortic regurgitation next, then mitral stenosis, double mitral, double aortic, and worst, so far as one has a right to judge so rarely occurring a lesion, uncomplicated tricuspid disease." "Enlargments of the heart due to lesions of the pericardium are of far less hopeful outlook." It would appear that pericardial disease was grave because of the fact that such pericardia no longer act as supporting structures, and all sudden strains upon the heart muscle must needs be borne unsupported. In the author's opinion, universal pericardial adhesions are not so dangerous.

Cases of cardiac enlargement not due to pericarditis or endocarditis are myocardial in origin, and may be classified into, (a) where the myocardial disease is primary and, (b) where it is secondary and due to either arterio-sclerosis or nephritis. Those found in the arterio-sclerotic group have the best prognosis, while the prognosis in the nephritis group is that of nephritis, the patients usually dying of uræmic symptoms. In the first or primary myocardial cases, "prognosis is almost impossible." In these cases the writer remarks that "it is more a quiet settling down to sleep than the agonized warfare of failing hearts." The patient is the sport of external circumstances and any slight shock may cut the thread of life.

Treatment.—All chronic heart sufferers are most prone to be introspective, and such patients have most troublesomely retentive memories, and moreover, pertinaciously seek a full explanation of any dictum not quite clear to them. "In meeting such," Dr. Farwell sug-

gests, "the best way is to tell the truth, but not the whole truth." "What the physician needs is to gain the confidence of, and some parental control over his patient, so that he may be able to pass by some questions and refuse some explanations without causing distrust or a sense of slight." Safety for the physician lies in two things:— "the constant practice of logical accuracy, and a careful consensus of language."

One great reason why those who have survived a cardiac damage acquired in childhood, bear it so well throughout adult life, is because long before they reach the introspective age it has become a part of themselves, and therefore no more a thing to be pondered over. The patient must not only be got to live down to the strength of his heart, but at the same time to live up to it. This implies regulation of work in short spells of two hours each with periods for rest and meals between. The food may with advantage be taken five times in the day, and usually be eaten dry.

Massage, baths and resisted movements possess in selected cases great advantages. The tepid saline bath is a far more powerful therapeutic measure than resisted movements.

Dr. Farwell outlines his treatment of a serious case of heart disease when the patient is completely confined to bed. Massage is begun, fifteen minutes effleurage once daily. This is gradually increased to one hour's vigorous massage, chiefly kneading, twice daily. Then, instead of the evening massage, resisted movements are employed at first for five minutes, later for half an hour, and finally the massage is replaced by two half-hours of resisted movements. And as soon as this is well borne the patient is allowed to sit up out of bed for half an hour in the evening. This is gradually increased to two hours, with a little walking about the room. As the time for being out of bed in the morning grows longer, the need for the resisted movements grows less, a return to massage at that time proves the better treatment. Gradually the improvement admits of the return to ordinary avocations. One great advantage of such a course of treatment is its discipline.

Strychnine and bromide are far better than digitalis or strophanthus in cases of rapidity and irregularity without valvular lesions.

EUSTACE SMITH, M.D., F.R.C.P. "Dilatation of the Heart in Children." *Ibid.*

This condition is common in early life. The heart in childhood is said to dilate with exceptional ease. When this complication arises

early in acute rheumatism it may be mistaken in signs and symptoms for pericarditis with effusion. In acute illness, when dilatation is rapid and may be extreme, there is marked increase in the dull area, the apex is feeble and diffuse, the first sound is faint at the apex, the second sound is accentuated at both aortic and pulmonary orifices. (Lees). Some degeneration of the cardiac muscle is the rule in all these cases of dilatation. The degeneration of the myocardium is carried to a greater degree in diphtheria and influenza than in rheumatism. (Poynton).

Vomiting accentuates the gravity in prognosis of other signs of cardiac dilatation, the importance, therefore, of careful observation of the heart in such diseases is apparent, and the food and muscular movements should be carefully regulated, lest a degenerated heart muscle be overwrought. In rheumatic cases the salicylate of soda may be combined with five or ten grains of ammonio-citrate of iron to counteract the lowering effect of the soda salt. Iron and strychnine afford the chief resource, and the perchloride of iron given with solution of strychnine in full doses, well diluted with an aerated water, has seemed to be followed by the best results. Alcohol must not be forgotten.

A. E. SANSOM, M.D., F.R.C.P. "On Hypertrophied and Dilated Hearts as Studied and Treated in Recent Times." *Ibid.*

DR. SANSOM does not agree that hypertrophy of the heart muscle or dilatation of its chambers must be in all cases of the nature of disease. There is such a thing as athletic hypertrophy. Dilatation of the left ventricle is not always a bad thing. There is good ground to believe that the bulk of the heart varies somewhat at different periods of the day and night. The rôle of lesions of the nervous system in the pathogenesis of hypertrophy and dilatation of the heart is of much importance, and recently, it would appear, this factor is more potent than heretofore. To influenza and the disturbing influence of the war in South Africa are ascribed the modifying influences in these cardiac conditions.

Throughout the greater portion of this instructive article, Sansom lays much stress upon the part played by the nervous system, and insists upon the examination of a patient being undertaken and conducted in such a way as to avoid all chance of unduly exciting the patient, and thus being led astray in our conclusions. Irregularity of the pulse does not indicate structural disease of the muscle of the heart, but a disorder of the nervous mechanism of the cardiac reflex.

The disturbance of rate and rhythm of the heart are especially likely to occur in the subjects of osteo-arthritis. The subjects of influenza are often liable to such attacks as well as those whose history shows a sudden or severe strain of the emotional or nervous system. Dr. Sansom holds that in all these cases some alteration has occurred in the nervous mechanism of the cardiac reflex, and since there is not that relation between degree of disturbance and degree of dilatation which some have averred, it would appear that for the production of dilatation there must be some effect upon the trophic nervous mechanism, and not only upon that portion which regulates rate and rhythm.

In the treatment of these cases "the policy of coddling has given place to the policy of training" and there is no doubt that after all errors are eliminated, "massage, baths, exercises, and pleasant air cures, have done much good."

The medical treatment which best suits such dilated and hypertrophied hearts is not digitalis but alkaline bicarbonates with bromides, phenacetin, antipyrine, and in some cases hypodermic injections of morphine. Cod liver oil, some arterial relaxant, and careful dieting, often produce good results in those cases where arterio-sclerosis is the condition which is associated with forcible ventricular action, inadequate renal functions, urine of low specific gravity and albuminous.

W. F. Hamilton.

Ophthalmology.

UNDER THE CHARGE OF FRANK BULLER,

Sympathetic Ophthalmia.

GASPARRINI. "Researches in Sympathetic Ophthalmia." *Annali di Ollalmologia*, XXX., 4.

DE WEAVER. "Extra-ocular Complications of Sympathetic Ophthalmia." *Annales d'Oculistique*, Oct., 1901.

Gasparrini found that after inoculating attenuated cultures of the diphtheria bacillus in one eye of a rabbit, symptoms developed in the other eye similar to sympathetic ophthalmia in many. Later investigations of two clinical cases have convinced him that the sympathetic disease is due to toxins evolved by the bacteria, rather than to the bacteria themselves. The toxins are conveyed along the sheath of the optic nerve, setting up an inflammation of the optic nerve and also probably of the ciliary nerves.

The toxicity of the urine in these two cases increased as the sympathetic inflammation reached a maximum, and diminished as the eye symptoms improved, thus differing from those cases of neuritis of renal or cardiac origin. In the latter form of neuritis the toxic products accumulate from deficient elimination by the kidneys, the intoxication being general: whereas in the former the neuritis is due to local infection and the toxic products are promptly eliminated by the kidneys.

De Wecker cites a series of cases, including one of his own, in which sympathetic ophthalmia was complicated by the sudden development of nerve deafness. The deafness attacks both sides with equal intensity, irrespective of the eye first attacked. It is associated thus also with parenchymatous nephritis. The possible explanation is that the deafness is the result of a migration of microorganisms along the optic nerves to the auditory nerves, producing changes similar to those produced in the eye.

Corneal Lesions.

PERRIN. "Intra ocular Injections in Suppurative Keratitis, Hypopyon Iritis, and Irido-Choroiditis." *Recueil d'Ophthalmologie*, Sept., 1901.

PFLUGER. "Subconjunctival Injections of Hctol." *Klin. Monatsbl. f. Augenheilkunde*, Sept., Oct., 1901.

MASUGI. "(Japan) Action of Cocaine on the Healing Process of Corneal Wounds." *Ibid.*, Aug., Sept., Oct., 1901.

MAYNARD, SURGEON-MAJOR. "Ophthalmic Complications of Plague." *Indian Medical Gazette*.

KALT, J. "(Paris) Corneal Lesions secondary to Neuralgia of the Fifth Nerve." *Annales d'Oculistique*, Oct., 1901.

HORN, J. "Corneal Lesion after Extirpation of Gasserian Ganglion."

Perrin advises the intraocular injection of one in five thousand solution of cyanide of mercury in cases of suppurative keratitis, hypopyon iritis and irido-choroiditis. He injects one or two drops into the anterior chamber by means of a hypodermic needle, inserting the needle at first at the corneal margin in front of the iris. The treatment is as useful in streptococcus and pneumococcus as in staphylococcus infection.

In cases of herpes corneae, keratitis dendritica, deep ulcer of cornea, and in various forms of uveitis, Pfluger injects half a cubic centigramme of a one per cent. solution of hetol. The success has been most marked in all these chronic lesions. Pfluger has more recently tried it in cases of parenchymatous keratitis and relapsing scleritis.

Masugi states that cocaine muriate occasions alteration in the corneal cells, interfering with karrickesis by extracting water from the cell substance, and possibly by a special toxic effect. It thus certainly interferes with the healing of a corneal wound.

Kalt mentions the well-known fact that lesions of the ganglion of Gasser are followed by ulcerations of the cornea, and lesions of the fifth nerve beyond the ganglion occasion anaesthesia. Baudry mentions a case of ulcer of the cornea complicating neuralgia of the fifth nerve.

Kalt holds that lesions of the cornea short of ulceration are associated with fifth neuralgia, and cites a case of his own of middle interstitial trouble resembling the onset of the ordinary neurokeratitis. He also mentions another case with detached retina in the one eye and peripheral chorioretinitis in the other.

Hohn reports the case of a woman from whom the Gasserian ganglion had been removed and who persisted in working on a farm in all weathers. The cornea was anesthetic at once, and in two weeks a hypopyon keratitis developed, with one large ulcer and one or two small spots of ulceration.

Surgeon-Major Maynard mentions twelve cases of plague with ocular complications. The lesions were hazy and sloughing cornea, iritis of varying types and severity, scleral and ciliary staphyloma.

Hemeralopia.

TRANTES. "Treatment of Essential Hemeralopia by the Injection of Cooked Liver." *Archives d'Ophthalmologie*, Nov., 1901.

Trantes has cured forty cases of essential hemeralopia by feeding with boiled or roasted sheep's liver, and of these cases twenty-four occurred as an epidemic, with associated xerosis of the conjunctiva. Cure resulted in from twenty-four to forty-eight hours except in one case, which required six days treatment. Even chronic cases of years standing were successfully treated after other means had failed.

Three or four meals of two hundred grammes of liver each were given as a rule, and in order to prevent recurrence, liver was given at intervals. One case associated with chronic hepatic affection, and one with the cachexia of gastric sarcoma, were improved as regards the eye-symptoms.

Jequirity.

LAPERSONNE. "Researches in regard to the action of jequirity." *La Clinique Ophthalmologique*, Dec. 10., 1901.

After applications of jequirity to the eye there is enormous leucocytic infiltration with transudation of serofibrinous fluid. There is also leucocytic thrombosis of the small veins of the conjunctiva and cornea, this explaining the rapid disappearance of the pannus.

Lapersonne further holds that Merck's carbolized abrin is unreliable, and prefers using a fresh one-in-twenty infusion of the bean applied with a swab. The antiabrin serum is of but little service, as it will only control the action of the jequirity when applied within forty-eight hours of the application of the jequirity, and it is only after this that the dangerous action of the jequirity develops.

Xanthona.

LEVISEUR. "Treatment of xanthoma of the eyelids." *Med. Record*, Dec. 7, 1902.

In small superficial patches incision suffices to effect a cure, but in large and deep patches excision may be followed by ectropion of the eyelid, and here Levisieur uses electrolysis. Introducing the needle horizontally under the skin, a mild current is used, gradually increasing to two or three milliamperes, and lasting thirty seconds, repeating in the larger patches for two or three separate sittings. A light powder is dusted over, and in two days a light firm scab forms, which may take some time to drop off. The parts treated should not during this interval be rubbed or washed.

Sarcoma of the Optic Nerve Sheath.

F. ANTILL POCKLEY. "(Sydney N. S. W.) Removal of Neoplasm of Optic Nerve Sheath by means of Kronlein's Operation, with Retention of Eye and Good Vision." *Australian Medical Gazette*, 1901.

The patient was a healthy boy aged thirteen, suffering from proptosis which had been gradually increasing for six or eight months. The left eye projected three-eighths of an inch in front of its fellow, but was freely moveable; tension was normal, pupil active, and vision 5/12. On deep pressure with the finger at the lower outer angle of the orbit a sensation of resistance could be made out. Diagnosis was made of a tumour within the muscle cone, probably attached to the optic nerve but not implicating it.

Kronlein's operation was performed, when a tumour was found attached to the optic nerve sheath for about three-quarters of an inch. No division of the muscles was necessary and the tumour was easily stripped off the sheath. The tumour was found to be an encapsulated round-celled sarcoma. After replacing the bone and closing the wound, the eye went back into position and retained its movements as before.

J. W. Stirling.

Reviews and Notices of Books.

RHINOLOGY, LARYNGOLOGY AND OTOTOLOGY AND THEIR SIGNIFICANCE IN GENERAL MEDICINE. By E. P. FRIEDRICH, M.D., Privatdozent at the University of Leipzig. Authorized Translation from the German. Edited by H. Holbrook Curtis, M.D. Philadelphia and London. W. B. Saunders & Co., 1900.

"In these days of specialism there is a laudable tendency to unite the daughter to the mother of science. On every hand we see the publication of works destined to show the correlation between various branches of medicine and to awaken the interest of representatives of the various specialties for one another's work by defining the lines where their respective provinces meet. The present book belongs to this category and the author's object has been to point out the interdependence between disease of the entire organism and disease of the nose, pharynx or larynx."

Thus the writer in a few words explains the reasons for producing his work and also explains its scope. The book is extremely interesting, well written, and also up to date. The section on the nervous affections of the larynx is especially able.

The profession is under a debt of gratitude in placing this work within reach of those not conversant with the German language. We strongly recommend its perusal not only by those especially interested in these branches of medicine, but to the profession in general.

H. S. B.

LARYNGEAL PHTHISIS OR CONSUMPTION OF THE THROAT. By RICHARD LAKE, F.R.C.S. With Thirty-six Illustrations, Thirty-one of which are coloured. Philadelphia. P. Blakiston's Son & Co., 1901.

The object the writer has in presenting this small work to the profession is to bring before us the exact status at the present time of the subject under consideration as regards the pathology, prognosis and treatment. The conclusions formed are based upon the very careful consideration of over three hundred cases, coming under the writer's

observation at the North London Hospital for Consumption. A series of illustrative cases is included, among which are several reported cured. Appended is a number of prescriptions found of value to the writer in his treatment of these cases. The illustrations, many of which are coloured, accompanying the text are well executed, and add materially to the value of the work.

H. S. B.

THE JOHNS HOPKINS HOSPITAL REPORTS. Vol. VIII., Nos. 3 to 9.
Pages 155 to 552.

This volume contains studies on typhoid fever and is a mine of information. Among the more important topics presented are:—The Surgical Treatment of Perforating Typhoid Ulcer, by John M. Finnie, and Laparotomy for Intestinal Perforation, by Harvey W. Cushing; on Hæmorrhagic Typhoid Fever, by L. P. Hamburger; Unusual forms of Infection with the Typhoid Bacillus, with special reference to Typhoid Fever without Intestinal Lesions, by Simon Flexner; Gall-Bladder Complications of Typhoid Fever, by C. N. Carnac; Hepatic Complications of Typhoid Fever, by William Osler; a Study of the Widal Reaction, in 265 cases of Typhoid Fever, by Norman B. Gwyn; Analysis and General Summary of the cases, from 1889 to 1899, by William Osler; Special Features, Symptoms and Complications, by William Osler; and Observations on the Blood in Typhoid Fever, by W. S. Thayer.

While the majority of the articles enumerated, deal with the statistics compiled from the records of a single hospital, and the detail is so overwhelming as to make a critical summary almost impossible, yet in many instances a comparison is made with observations in other countries, and the exceedingly full bibliography appended to many of the sections, makes the whole series invaluable as a work of reference. It is indeed a monument to the industry of the staff of the hospital.

AMERICAN EDITION OF NÖTHNAGEL'S ENCYCLOPEDIA. Vol. 1, Typhoid and Typhus Fever. By DR. H. CURSCHMANN of Leipzig. Edited, with additions, by WILLIAM OSLER, M.D., Professor of the Principles and Practice of Medicine, Johns Hopkins' University. Pages 646. W. B. Saunders & Co., 1901. Canadian Agents, J. A. Carveth & Co. Cloth, \$5.00 net.

No apology is needed in introducing this latest addition to the already voluminous literature of the continued fevers. As remarked by the editor in his preface—"the original edition is recognized by all

special students of typhoid fever as the standard authority on the subject," and one might add that the standard has undoubtedly been raised by the judicious incorporation into the text of the many important advances in our knowledge contributed by American authorities. Among these may be specially mentioned the bringing up to date of the bacteriology of typhoid fever, additions to the chapter on pathology with regard to the extra-intestinal lesions, and a full consideration of the blood in the diseases.

The chapter on perforation and peritonitis has been enriched by the addition of the experience of American surgeons, and the section on the hepatic complications has been likewise extended. In the chapter on diagnosis, the principle additions are in regard to the bacteriological diagnosis of blood cultures and the detection of typhoid bacilli in the urine. In the chapter on prophylaxis, a note on anti-typhoid vaccination has been added. The chapter on treatment is extremely judicious, though short compared with the space allotted the symptomatology. Its value, might, we think, have been enhanced by a fuller statement of the methods employed in the different clinics of America, and especially by the addition of the convincing statistics of hydrotherapy.

The remaining portion of the work (pp. 475 to 628) is devoted to Typhus Fever. There are two excellent coloured plates of the rashes of typhoid and typhus fevers, and a number of charts illustrating the various forms of temperature curves in both diseases.

A carefully selected bibliography, dealing chiefly with epidemiology, and a carefully compiled index complete the volume. As a work of reference embracing every point of interest, this publication is indispensable to anyone who wishes to have an adequate knowledge of typhoid fever.

ANATOMY DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S., Edited by PICKERING PICK, F.R.C.S., and ROBERT HOWDEN, M.A., M.B., C.M. Revised American from the 15th English Edition, with 780 Illustrations, many of which are new; 1,272 pages. Lea Bro. & Co., Philadelphia and New York, 1901.

The continued popularity of this work is creditable alike to the name of the author, and to the work of his successors who have supervised all recent editions and kept the student world supplied with the very best and latest in the study of anatomy. The English Edition from which this one is taken has been thoroughly revised. The section on Embryology is amplified and made more intelligible by the intro-

duction of some 60 additional illustrations, many of which are coloured and of very neat appearance. Throughout the work a number of diagrams have been redrawn and some new illustrations added.

This last edition differs from previous ones in having returned to the older method of introducing the subject of Anatomy, by discussing first the bony skeleton; Histology and Embryology coming in at the end of the work, an arrangement which we believe will commend itself to the sense of fitness with most readers. The volume is a very handsome one and admirably printed.

THE

Montreal Medical Journal.

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

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VOL. XXXI.

APRIL, 1902.

No. 4.

AGAINST TUBERCULOSIS.

It will be known to our readers that Dr. Knopf of New York has, through his writings, attained world-wide reputation. His Paris thesis upon sanatoria for consumptives, their mode of construction, their methods and results, immediately attracted attention; and, expanded somewhat and translated into English and other languages, is regarded as the authoritative work upon the subject. Another essay of his secured an important international prize offered for the best account of tuberculosis, its cure, prevention and treatment; and so admirably has it fulfilled the needs of the case, that already, in a few months, it has been translated into fourteen languages, the last, we hear, being Hebrew, and that for the benefit of Jewish immigrants in New York, London, and other great centres, who, in their ignorance and fanaticism, pay no attention to writings and ordinances in the language of the country of their adoption, but hail anything in Hebrew as the written word.

The address recently delivered at Ottawa before the Canadian Association for the Prevention of Tuberculosis, published in this num-

ber, explains how it is that Dr. Knopf has so swiftly attained the position of a recognized leader in the campaign against tuberculosis. The sure knowledge of his subject, command of a clear simple style, an apostolic enthusiasm, combined with a common-sensible appreciation of what is practicable and what are the limits of possible and immediate advance, form a combination that is bound to secure attention.

We are delighted to have the opportunity to publish the address, not merely because it will afford our readers an insight into the state of the combat against tuberculosis here and in Europe, but in the hope that, passing from our pages into the lay press, it will kindle a widespread interest in the work of arresting the spread of consumption and tuberculous diseases.

For let it be clearly understood that this crusade against tuberculosis cannot be conducted purely through the pages of medical journals, or by our profession alone. We can accomplish nothing without the cordial co-operation of the laity; indeed it is the laity which must move in this matter, we, at most, advising and directing. It is through the daily press that most can be accomplished to secure the needed popular appreciation of what tuberculosis means to the country, and the action necessary to reduce its ravages. The crusade, that is, must be a popular crusade, yet it must inevitably be influenced and guided by our profession.

Now we know that both in the old country and here the participation of medical men in a popular movement has been met with a certain amount of disapproval and ill-concealed opposition. Not a few members of our profession hold that it is against the ethics of our body to take a public part in the discussion of medical matters. But surely this is a mean and narrow view to take in the present case. Over and above, nay dominating and determining our code of ethics, is the higher spirit or ideal of our profession, to do whatsoever will lessen suffering and sickness and will add to the health and happiness of mankind. And obviously, we can best accomplish this in connection with tuberculosis by stimulating the public recognition and knowledge of what consumption means to the community, how each one by his mode of life can lessen its dangers, and how the community as a whole can help in reducing the misery of those afflicted, and can gain for those not afflicted safety from contagion.

Thus, under the circumstances, it is clearly the duty of medical men throughout Canada to associate themselves with the Association for the Prevention of Tuberculosis, for if they as a body whole-heartedly help in the good work inaugurated by it, if, that is, it be made a matter

of common professional interest, then there can be no ground for anyone to suggest, as some of narrowed horizon and no charity have suggested, that membership indicates a desire for personal advertisement and advancement. What is taken up by the profession as a body cannot be so construed, while, in addition, a majority of medical men, interesting themselves in the affairs of the Association, will ensure that everything accomplished by it will be along the right lines.

Politically and municipally speaking the individual physician has curiously little influence; combined as a body with the most broad minded laymen of the country (who indeed in this matter must depend upon our support and counsel), we can bring so strong an influence to bear upon public opinion, upon municipal provincial and federal authorities, as to remove from Canada the reproach of being far behind Germany, France and England in our care and provision for the improvement of the public health. What is the use of our priding ourselves upon being more advanced and more eager to advance than the peoples of the old world, if, as a fact, we are far behind them in such vital matters?

CANADIAN MEDICAL ASSOCIATION.

The annual meeting of the Canadian Medical Association will be held in Montreal on the 16th, 17th and 18th days of September, 1902. The President is Dr. Francis J. Shepherd, 152 Mansfield St., Montreal, the Local Secretary, Dr. C. F. Martin, 33 Durocher St., Montreal, and the General Secretary, Dr. George Elliott, 129 John St., Toronto. Dr. William Osler, Professor of Medicine in Johns Hopkins University, will deliver the address in Medicine and Dr. John Stewart, Halifax, Nova Scotia, the Address in Surgery. Arrangements are already well in hand for a very large meeting.

Dr. John Stuart of Halifax has been appointed Secretary of the Medical Society of Nova Scotia in succession to the late Dr. W. S. Muir.

Drs. C. F. Wyld and F. B. Jones have been appointed Demonstrators in Clinical Microscopy in the Faculty of Medicine, McGill University.

Surgeon Lieut.-Col. F. W. Campbell of Montreal, after forty-three years service in the Canadian Militia, has received the "officers" long service decoration.

The Library of the Medical Faculty of McGill University is now open every evening from 7 to 10 p.m. except Saturdays. It is hoped

that this arrangement will enable many members of the profession who cannot spare the time in the afternoons, to make use of the library.

Dr. David Shirres, Clinical Assistant in Neurology to the Royal Victoria Hospital, has been appointed Professor of Nervous Diseases in the University of Vermont. Dr. Shirres will still reside in Montreal, visiting Burlington during each winter term for the purpose of delivering a course of lectures upon his subject.

The Committee on Pathologic Exhibit for the American Medical Association is anxious to secure materials for the coming session at Saratoga, June 10th to 13th, inclusive.

This exhibit was accorded much praise and comment during the sessions at Atlantic City and St. Paul respectively, where were collected valuable exhibits from all parts of the country. The materials included not only pathologic specimens but the allied fields, bacteriology, hæmatology, physiology and biology were well represented.

It would also be desirable to secure exhibits of new apparatus, charts, etc., used by teachers of pathology and physiology in Medical Colleges.

This exhibit has already become a permanent feature of the annual sessions of the American Medical Association and the Committee is desirous of securing its list of exhibits as early as possible, and to this end asks those having desirable materials to communicate with any member of the Committee.

To contribute to the value of the work, it is suggested that as far as possible each contributor select materials illustrative of one classification, and by such specialization enhance the usefulness of the display.

Those lending their materials may feel assured that good care will be given their exhibits while in the hands of the Committee, and due credit will be given in the published reports.

Very respectfully,

F. M. Jeffries, 214 E. 34th St., N.Y. City.

W. A. Evans, 103 State St., Suite 1403, Chicago, Ill.

Roger G. Perkins, West. Res. Med. School, Cleveland, O.

Committee on Pathologic Exhibit, American Medical Association.

The Fourteenth International Medical Congress will be opened in Madrid, Spain, on April 23rd, 1903, and close on the 30th of the same month.

Dr. Abraham Jacobi, having been requested by the officers of the

Congress to form the American Committee, has arranged that the plan devised by Dr. William Osler, which worked so well in preparation for the Thirteenth Congress, shall be followed also for the Fourteenth.

Invitations to accept places on the Committee have therefore been sent to the President of the American Congress of Physicians and Surgeons, the President of the American Medical Association, the presidents of the fourteen constituent societies and associations of the American Congress, the Surgeons-General of the Army, Navy and Marine Hospital Service, the President of the Canadian Medical Association and the President of the National Dental Association. Acceptances have been received from nearly all of those invited.

Dr. Howard A. Kelly of Johns Hopkins University will deliver the address at one of the general meetings of the Congress, and has chosen for his subject "The passing of a Specialty."

Dr. Ramon Guiteras has been appointed delegate to the Congress by the New York Academy of Medicine.

The Committee to date consists of W. W. Keen, M.D., of Philadelphia, President of the American Congress of Physicians and Surgeons; John C. Wyeth, M.D., of New York, President of the American Medical Association; R. H. Chittenden, M.D., of New Haven, President of the American Physiological Society; Walter S. Christopher, M.D., of Chicago, President of the American Pediatric Society; Joseph Collins, M.D., of New York, President of the American Neurological Association; John W. Farlow, M.D., of Boston, President of the American Laryngological Association; Samuel A. Fisk, M.D., of Denver, President of the American Climatological Association; S. C. Gordon, M.D., of Portland, Me., President of the American Gynaecological Society; Geo. T. Jackson, M.D., of New York, President of the American Dermatological Association; Horace G. Miller, M.D., of Providence, President of the American Otological Society; Presley M. Rixey, M.D., of Washington, Surgeon-General of the Navy; F. J. Shepherd, M.D., of Montreal, President of the Canadian Medical Association; George M. Sternberg, M.D., of Washington, Surgeon-General of the Army; O. F. Wadsworth, M.D., of Boston, President of the American Ophthalmological Society; DeForest Willard, M.D., of Philadelphia, President of the American Surgical Association; H. August Wilson, M.D., of Philadelphia, President of the American Orthopedic Association; James C. Wilson, M.D., of Philadelphia, President of the Association of American Physicians; Walter Wyman, M.D., of Washington, Surgeon-General of the Marine Hospital Service; Abraham Jacobi, M.D., of New York, Chairman.

John H. Huddleston, M.D., Secretary,

126 West 85th St., New York City.

NEW BOOKS, ETC., RECEIVED AND NOTED.

P. Blakiston, Son & Co., Philadelphia.

System of Physiologic Therapeutics—Cohen. Vols. III. and IV. Climatology and Health Resorts. Weber and Hinsdale. 1901.

A Laboratory Guide to the Study of Qualitative Analysis. By E. H. S. Bailey and Hamilton Cady. Fourth Edition. 1901. \$1.25 net.

William J. Doran, Philadelphia.

Transactions of the American Surgical Association. Volume the Nineteenth. Edited by Richard H. Harte, M.D. 1901.

Lea Brothers & Co., Philadelphia and New York.

Lea's Pocket Series. Venereal Diseases. By James R. Hayden, M.D. Third and Revised Edition. 1901.

J. B. Lippincott Company, Philadelphia.

International Clinics. Eleventh Series. 1901. Vols. I, II. and III. Edited by Henry W. Cattell, A.M., M.D.

Macmillan & Co., Limited, London. The Macmillan Company, New York.

The Healing of Nerves. By Charles A. Ballance, M.S., F.R.C.S., and Purves Stewart, M.A., M.D., M.R.C.P. 1901.

The Year Book Publishers, Chicago.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress. Issued monthly. Under the general editorial charge of Gustavus P. Head. Vol. I, General Medicine. By Frank Billings. October, 1901. Vol. II, General Surgery. Nov., 1901. Edited by John B. Murphy, M.D.

W. B. Saunders & Co., Philadelphia, New York and London.

American Edition of Nothnagel's Encyclopædia. Variola, Vaccination, Varicella, Cholera, Whooping Cough, Erysipelas, Hay Fever. By different authors. Edited by Sir J. W. Moore. Cloth, \$5.00 net.

Lea Brothers & Co., Philadelphia and New York.

The Medical News Pocket Formulæ for 1902. By E. Quin Thornton, M.D. Fourth edition, revised.

The New Era Printing Company.

Outlines of Anatomy. By Edmund W. Holmes, A.B., M.D. Second Edition. 1902.

The Year Book Publishers, Chicago.

The Practical Medicine Series. Under the editorial charge of Gustavus P. Head, M.D. Vol. III, Eye, Ear, Nose and Throat. December, 1901.

H. K. Lewis, London.

Handbook of Bacteriological Diagnosis for Practitioners. By W. d'Este Emery, M.D., B.Sc., Lond. 1902.

Rough Notes on Remedies. By Wm. Murray, M.D., F.R.C.P., Lond. 1901. Fourth edition.

Obituary

WILLIAM SCOTT MUIR.

Little did any of us dream that Dr. Muir, the big, hearty, magnificent Nova Scotian, whom we met at Winnipeg last August, would so soon be numbered with the dead ; and none of us, who had the good fortune to be in his company on steamer and train from Montreal to the west, will ever forget the pleasant hours spent together, for Dr. Muir was distinctly a vivid personality, and we loved him for his strong, rugged virility, which at all times radiated from the man like the flashing of a precious stone under the beams of the morning sun.

Dr. Muir was a sentinel who seldom asked for exchange of guard ; a medical soldier who rarely deserted his post of duty, save to perfect himself still further in the art dear to him as the breathing of his life, that life, public and private, which all might read and reading approve ; therefore it is not surprising that to the people of Truro, his native town, Dr. Muir's death came as a veritable calamity, bowing every head in grief. Not a man, woman or child but felt the loss of a personal friend, a man to whom all could look up to for guidance or counsel, in joy or distress, a human oak, upon whose giant form the weak ones might fling their twining tendrils in full confidence of support. But the oak has tottered and fallen, seemingly long before its natural term of life, and Dr. Muir has passed away in the midst of a loyal and devoted people. Extraordinary it is in these prosaic days to witness such scenes of grief and lamentation as were exhibited in the town of Truro during the passage of the funeral cortege to the burial ground, every store, factory and place of business being closed, while the streets were filled with mourning citizens desirous of paying their last sad tribute of respect to the devoted physician, whom all had worshipped, and wondering if ever they might look upon his like again.

Dr. Muir died almost literally in harness. Only three days before his death and while suffering considerable abdominal pain, he was unwillingly deterred from a long professional drive by the wild spring weather and rough state of the country roads, but, at the solicitation of friends, he was finally compelled to retire to bed, where he remained until his life-long friend, Dr. John Stuart of Halifax, had been called in, who at once recognized the presence of appendicitis

and that immediate surgical interference was imperative. The operation was performed on Sunday morning, the ninth of March, by Drs. Stuart, David Muir, brother of the deceased, Yorston and Kent; but, unfortunately, complications of such a character were discovered that the surgeons realized that there was little or no hope for their patient who, conscious to the last and speaking lovingly to those around him, passed away the following morning at 11 o'clock, his surviving son, Walter, a student at King's College, only entering the death chamber a few minutes after the big heart of the father had ceased to beat.

Dr. William Scott Muir was born in Truro in 1853. He was a son of the late Samuel Allan Muir, M.D., L.R.C.P., who was born at Cookstown, County Tyrone, Ireland, and lived subsequently at West River, Pictou Co., and from 1843 to the time of his death in Truro. His mother was formerly Miss Esther Crowe, of Onslow. She died in 1875.

He was educated at the old Model School under Principal Calkin, and the Normal School under the lamented Dr. Forrester. He studied medicine with his father, and at the Halifax Medical School of Dalhousie University, where he graduated in 1874. He then filled the position of House Surgeon in the Provincial and City Hospital, Halifax, now the Victoria General Hospital. Shortly afterwards he proceeded to Edinburgh, where he spent some time in study, and took the L.R.C.P. & S. of the Edinburgh College in 1877. He also took a post graduate course in Edinburgh in 1879, and another in London in 1891.

Ever since he commenced the practice of his profession in Truro, he has been eminently successful. From time to time he visited the chief centres of medical education in Britain and America and took a keen interest in the advancement of the medical science.

He was a most active member of the Nova Scotia Medical Society. He was elected to the position of Secretary-Treasurer in 1887, and was annually re-elected to that office. It is not too much to say that the present flourishing condition of that Society is chiefly due to his untiring efforts on its behalf. He was Secretary of the Colchester Medical Society on its formation in 1883, and continued until its re-organization in 1889, when he was elected President. In 1901 he was President of the Maritime Medical Association at its meeting in Halifax, and he also held office in the Canadian Medical Association, at whose meetings he was a frequent attendant. He held the position of examiner in Materia Medica and Therapeutics in both Dalhousie

and King's Colleges, and was also an examiner for the Provincial Board. He was a fellow of the New York Medical Society.

Among the valuable papers written by our late friend were :—

- (1) Cocaine, its use and abuse.
- (2) Fracture of the Patella.
- (3) Notes on Midwifery cases.
- (4) An Address on Therapeutics.
- (5) Thrombosis of the Vulva.
- (6) Tuberculosis of the Arm cured by an attack of Erysipelas.
- (7) Infectious Pneumonia.
- (8) Typhoid Fever.
- (9) Presidential Address, Colchester County Medical Society, 1900.
- (10) Presidential Address, Maritime Medical Association, 1901.

In order to further and appropriately perpetuate the memory of the late Dr. Muir, his townsmen are now engaged in subscribing money for the purpose of erecting in Truro a Muir Memorial Hospital, and although the individual contributions are limited to the sum of one dollar, already a considerable amount has been secured. Mr. E. A. Randall, Treasurer of the fund, will gladly receive from members of the profession subscriptions to the amount indicated, and every medical friend of our departed brother should avail himself of this opportunity of contributing towards a monument, which will preserve, long after we have passed away, the memory of one of the noblest men that ever dignified our profession.

W. E. Drummond.