



THE PROVINCIAL BOARD OF HEALTH
ONTARIO

Ne pereat populus Scientia absente

1910-20
A Review of Ten Years'
Progress

BY

JOHN W. S. McCULLOUGH,

Chief Officer of Health



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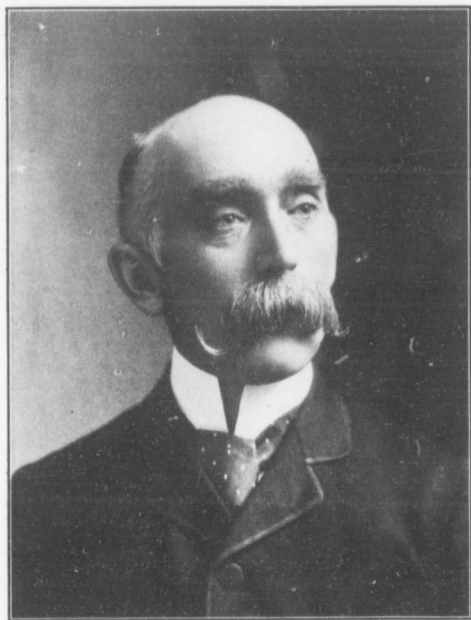
HON. WALTER R. ROLLO,
Minister of Labour.

INTRODUCTION.

The writer, having completed ten years' service in charge of the Provincial Board of Health, deems it fitting briefly to review that period, and to indicate the lines along which progress has been made. It is thought desirable that this review should be preceded by a very brief outline of the earlier history of public health in Ontario. This information has been culled from reports of the Board, and from material furnished by former officials of the Board. It is repeated here in order to afford something of continuity to the Public Health History of the Province of Ontario.

JOHN W. S. McCULLOUGH.

December 1st, 1920.



PETER HENDERSON BRYCE, M.A., M.B., L.R.C.P.&S. Edin.,
1st Secretary, Chief Officer of Health and Deputy Registrar-General, 1882-1904.

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A. E. BERRY, B.A.Sc. Assistant Engineer.
A. V. DELAPORTE, B.A.Sc. Chemist in Charge of Experi-
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C.P.H. Bacteriologist
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EDNA L. MOORE, R.N.....	Social Service Nurse.

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J. GRANT CUNNINGHAM, B.A., M.B., D.P.H.....	Director.
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BERYL KNOX, R.N.	Assistant Director.
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Consulting Staff.

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Pediatrics	Alan Brown, B.A., M.B.
Obstetrics	B. P. Watson, M.D., F.R.C.S. (Edin.).



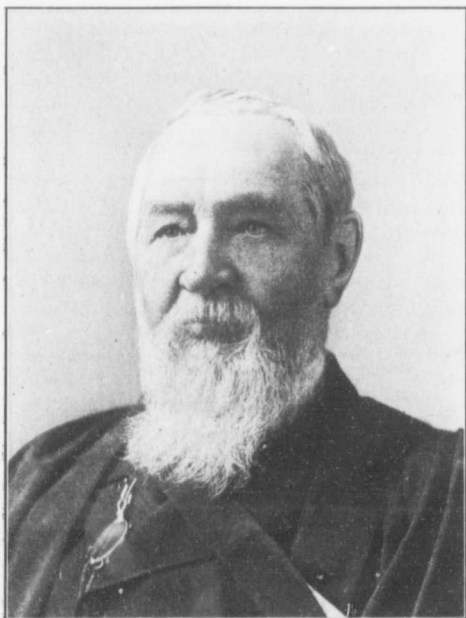
WILLIAM OLDRIGHT, A.B., M.B.,
1st Chairman, 1882-1884.

EARLY HISTORY OF PUBLIC HEALTH IN UPPER AND LOWER CANADA.

The earliest evidence of the recognition of Public Health in Canada was the enactment of the Quarantine Act in 1794.

The epidemic of cholera (1832-4) stimulated the Legislature of Upper Canada to action, and an Act to establish Boards of Health was passed by that body. From this time to 1848 there was little or no activity in respect to public health matters. (The Provinces of Upper and Lower Canada were united in 1840). There was a typhus epidemic in Canada in the years 1845-47, and of cholera in 1849, and again in 1854-5. It will be of interest in passing to note that in 1847 immigrants to the number of 98,106 passed through the port of Quebec. Of these 8,691 were admitted to Grosse Ile Hospital. Three thousand two hundred and twenty-six of these and two thousand one hundred and ninety-eight others on ships in quarantine died of typhus fever, and are buried at Grosse Ile. The outbreak of cholera was doubtless the reason for the enactment establishing "A Central Board of Health" in 1849. The public mind remained undisturbed in respect to public health until 1866, when the outbreak of cholera in that year induced the Government to enact new regulations looking to the control of the disease. Confederation of the provinces of Canada occurred in 1867, and in 1873 a Public Health Act passed in Ontario permitted the appointment of members of municipal councils and trustees of police villages to act as health officials (Local Health Committees). These were the forerunners of the present local boards of health.

Apparently our forefathers (something like ourselves) needed an epidemic of some sort to create interest in health matters. There was a severe outbreak of yellow fever in the United States in 1877. In the following year a select committee of the Legislature of Ontario was appointed to consider the report "on the subject of sanitary measures for maintaining and promoting the public health." This committee having reported, agitation became quite general about 1881 for the creation of some permanent central health organization in Ontario. Various commissions were appointed. These reported favourably, and in 1882 the Provincial Board of Health was established under the authority of 45 Victoria, Chap. 29, R.S.O. A permanent



CHARLES WILLIAM COVERNTON, M.D.,
Chairman, 1884-1887.

secretary in the person of Dr. Peter H. Bryce was appointed. He continued in office until the year 1904, when he resigned to become Chief Medical Inspector to the Department of the Interior and Indian Affairs at Ottawa.

It will be remembered that the enactment of 1873 permitted the appointment of local health committees, but up to 1882 only fifty of these committees have been appointed.

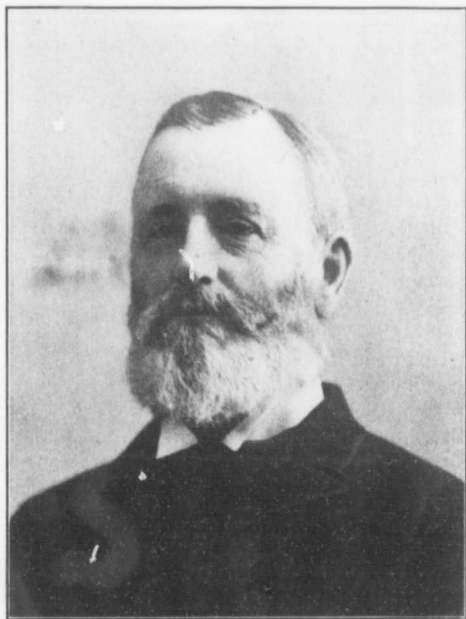
The first meeting of the Provincial Board of Health was held in Toronto *on May 9th, 1882*. The first chairman was Dr. Wm. Oldright, and the other members were Dr. C. W. Covernton, Dr. J. Hall, Dr. J. J. Cassidy, Dr. F. Rae, Dr. H. P. Yeomans, and Dr. P. H. Bryce, Secretary.

The first annual report was published in 1882-3. From the earliest days the reports of the Board are filled with interesting material showing that the members of the Board were fully alive to their duties. In November, 1882, Principal John Galbraith, C.E., of the School of Applied Science, was appointed to succeed Dr. J. Hall, who had resigned. Of the early members of the Board the sole survivor is Dr. Peter H. Bryce.

The Premier of the day, Mr. (afterwards Sir) Oliver Mowat, speaking to Dr. Bryce (the first Secretary of the Provincial Board) said: "We have passed this health legislation but have little knowledge of just what there is to do, or of its extent, but in any case, Dr. Bryce, its success will wholly depend upon your energies." These words were spoken thirty-eight years ago, and as Dr. Bryce says: "The comparison of the grant of \$4,000 in 1882 for the payment of the half-time Secretary of the Board and for travelling and other expenses with the half million or more voted in 1920, will serve to illustrate the evolution of Public Health as a part of the social activities of a progressive modern community."

The original Act passed in 1882 had in addition to the establishment of the Board the following objects:—

- (1) Collection and dissemination of sanitary information.
- (2) Health legislation.
- (3) Investigation of the causes of diseases.
- (4) Dealing with outbreaks of disease.
- (5) Dealing with food and drink supplies.



FRANCIS RAE, M.D.,
Chairman, 1887-1890.

- (6) Concerning school hygiene.
- (7) Sanitary Supervision of Public Institutions.

It needed considerable courage to enact what were considered drastic health laws in those days, and it was with some misgivings, and undoubtedly acting under the advice and pressure of the energetic Secretary and his Board that the Premier of the day introduced and passed in 1884 the Public Health Act, which with succeeding amendments is the basis of the excellent Health Code existent at the present time. The Public Health laws of Ontario, like most of our laws, are founded on those of England, and we who are concerned with public health work at the present time have reason to be grateful for the wisdom and courage of our predecessors. These laws are also the basis of much of the Public Health law of the other provinces of Canada. There is, perhaps, no public health law in America any more concise and satisfactory than that of Ontario. The value of the Act was submitted to an early test in an outbreak of smallpox which occurred in the autumn of 1884 in the Township of Hungerford. There were 204 cases with 33 per cent. of deaths. Dr. Bryce took charge of matters and succeeded in having over 4,000 of the population vaccinated. By this means the epidemic was promptly checked. The powers of the Act were enlarged from time to time: in 1885 to allow the Board to deal more effectively with contagious diseases, in 1886 for the expropriation of land for isolation hospitals, and in 1887 for notification of Public School teachers in cases of contagious diseases. In the same year provision was made for inspection of slaughter houses, and of dairy and ice supplies. The position of Chief Officer of Health, including that of Secretary of the Board, was created in this year. In 1889 Stipendiary Magistrates were made Health Officers for the unorganized districts, and still hold this office. In 1900 the Act to establish County Sanatoria was passed, providing for assistance in the cost of building and for a per capita grant in the maintenance of patients. The effect of this legislation upon the mortality of tuberculosis in Ontario is dealt with elsewhere in this review. In 1892 the Registration of Births, Marriages and Deaths was placed under the control of the Secretary of the Provincial Board, who became Deputy Registrar-General.

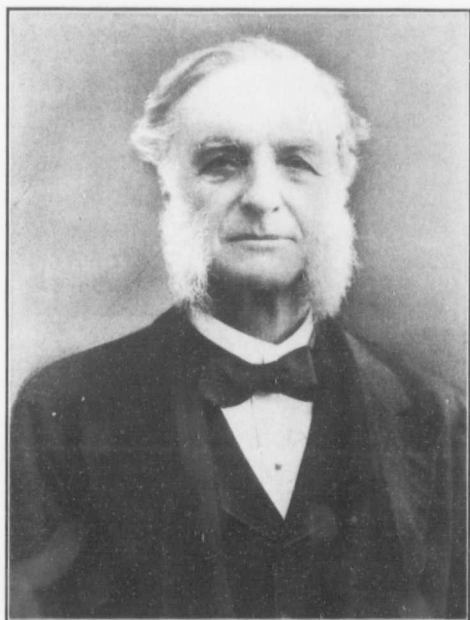


JOHN JOSEPH CASSIDY, M.D.,
Chairman, 1890-1894.

The year 1890 was prolific in important additions to the Act; such, for example, as inspection of meat and milk, and of animals suffering from contagious disease. In this year provision was made whereby County Health Officers might be appointed. This enactment failed to enlist the encouragement it deserved. This may have been due to hesitation on the part of the County Councils to incur the expense hitherto and still borne by the municipalities. Another reason may have been the large size of our counties. Greater results might possibly have been attained if the Government had been wise enough to have given some financial assistance for public health purposes to the counties. The provision for County Health Officers remained on the statute books until the revision of 1912, when it was dropped. Some changes were made in the appointment of local boards in 1895, and in this year the important step of placing *the approval of plans for water supplies and sewerage works* in the hands of the Board was made law. The present satisfactory condition of a large proportion of our public water supplies may be traced to this enactment, and to the subsequent stiffening of the law in this respect.

In the years 1896 to 1900 further provision was made in the licensing and inspecting of meat and milk supplies. The recognition of the increasing importance of the lumber trade in the immense forest areas of Ontario, as well as the mining industry led to the enactment in 1901 of *provisions for the sanitation of industries in unorganized territory*. This was the first recognition of industrial hygiene in Ontario.

Up to 1890 the office of the Board was located on the upper floor of Philip Jamieson's shop, at the north-west corner of Queen and Yonge Streets, and in the same year the first Public Health Laboratory was established under the direction of Prof. J. J. Mackenzie, now Professor of Pathology and Bacteriology in the University of Toronto. The laboratory was situated above John Wanless's jewellery shop in the west side of Yonge Street, between Queen and Richmond Streets. Later it was moved to the Biological Building of the University, then to the Medical Building, and in 1911 to No. 5 Queen's Park. Before these lines are read we shall probably have moved to more commodious quarters of which some future historian may write.



JOHN DUFF MACDONALD, M.D.,
Chairman, 1894-1900.

Professor Mackenzie has been good enough to write as follows:—

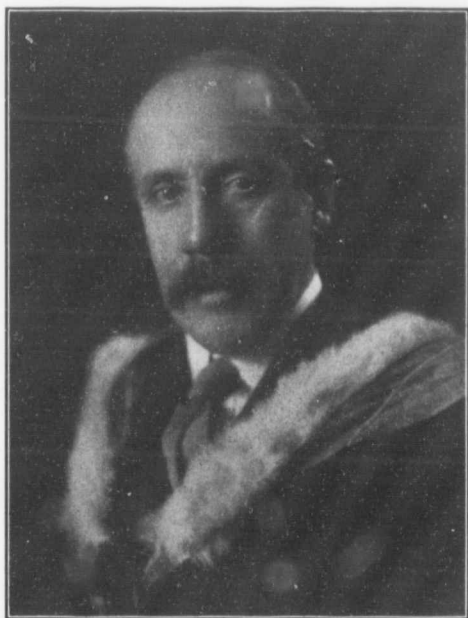
“The Board of Health, at that time (1890) was in the Department of Agriculture, and the offices of this branch of the service were in the upper floors of the building upon the north-west corner of Queen and Yonge Streets. With the establishment of the laboratory, the Board of Health moved into rooms on the top flat of the Wanless Building, a few doors below Queen Street on Yonge Street. The Board remained in these quarters until the present Parliament Buildings were opened, when the laboratory was moved to a room in the Biological Department of the University.

“There was no special appropriation at first for the equipment and maintenance of the laboratory, but this expense was met from an appropriation in the Department of Agriculture for the investigation of diseases of animals.

“Almost the first work undertaken by the laboratory was the investigation of outbreaks of rabies. An interesting point about this was that in 1895 I saw the structures afterwards described as ‘Negri Bodies’ in the brains of rabbits dying from rabies, in dogs and in the brain of a child who had died of rabies in Hamilton. I thought the structures were degeneration products, and so described them at the meeting of the British Association in Toronto in 1897. In the annual report of the Association for that year there is a brief abstract of the finding.

“The work gradually extended to systematic bacteriological and chemical examination of water supplies. The systematic examination of suspected diphtheria swabs, suspected tuberculosis sputum and blood from cases of suspected typhoid fever, *was begun by the laboratory earlier than anywhere else in America.*

“An interesting study of a local outbreak of typhoid fever near Innerkip was made in 1896 when one of the earliest suggestions of the role of the typhoid carrier, in the causation of circumscribed outbreaks of typhoid, was made. In this epidemic the Widal test was made on all the cases and the contacts. Tuberculin testing of cattle was initiated by the laboratory, and for a time, tuberculin and mallein were imported from the Pasteur Institute, Paris, and distributed where required in the



PROF. J. J. MACKENZIE,
First Bacteriologist.

province. About 1895 the laboratory also imported diphtheria antitoxin from the Pasteur Institute and for a few months distributed the supply.

"Throughout this time, as head of the laboratory, I did all the bacteriology and chemical work without assistance except that of a boy to look after the animals and clean up the glass-ware."

Dr. Mackenzie remained in charge of the laboratory until 1900, when he was succeeded by Dr. John A. Amyot, who, following his appointment as Deputy Minister of Health at Ottawa, was succeeded in 1919 as Director of Laboratories by Mr. H. M. Lancaster, B.A.Sc. Dr. Bryce was succeeded as Chief Officer in 1904 by Dr. Chas. Hodgetts, who for some years previously had been Provincial Medical Inspector. The latter position was in the same year taken by Dr. R. W. Bell, who is still in active service. In the same year a branch laboratory was established in connection with Queen's University, Kingston. This laboratory was for many years in charge of Dr. W. T. Connell, who resigned in 1920, to be succeeded by Dr. James Miller. Dr. Wm. Oldright (1882-4) was succeeded as Chairman of the Board by the following:—Dr. C. W. Covernton (1884-7), Dr. Francis Rae (1887-90), Dr. J. J. Cassidy (1890-4), Dr. John Duff Macdonald (1894-1900), Dr. Henry Edward Vaux (1900-3), and Dr. Edward E. Kitchen (1903-6).

In 1906 Dr. Chas. Sheard, the present Dominion member for one of the Toronto ridings, became chairman. Dr. Sheard had been for some time Medical Officer of Health for the City of Toronto, holding the latter position for 18 years. He was succeeded in 1911 by Dr. Adam H. Wright, the present chairman.

Dr. Bryce, to whom the writer is indebted not only through the reports of twenty-two years, but by personal communications for the greater portion of this review says: "It is a pleasure to me to have recalled these stages in the growth of Public Health in Ontario and to feel, like Æneas relating to Queen Dido his wanderings till he reached the dear Lavinian shores and founded his new home, that I have been an important part of it all."

"Et quorum pars magna fui."

Relative to the laboratory Dr. John A. Amyot writes as follows:—



HENRY EDWARD VAUX, M.D.,
Chairman, 1900-1903.

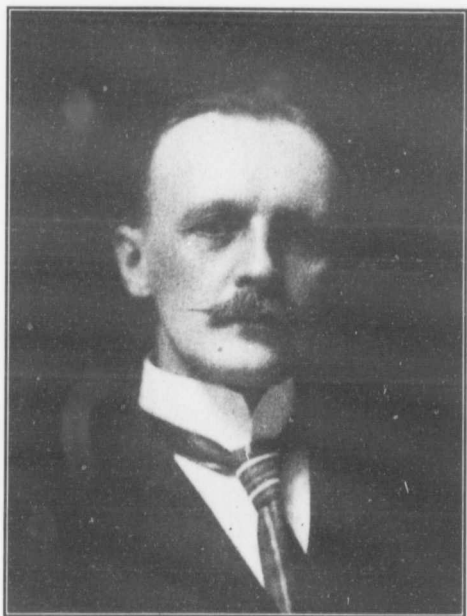
"When I took over the laboratory in 1900 I was alone, I cleaned the glassware, fed the animals, made up the media and standard solutions, did the examinations, the results of which (1,250 that year) I reported in longhand. When we moved into the Medical Building we had both bacteriological and chemical assistants and a cleaner. We lacked a stenographer, but signalled to the Parliament Buildings with a white towel when we wanted one. This plan did not work well. In 1902 our first field work in sewage disposal was done in Berlin (now Kitchener). When we moved to 5 Queen's Park the first Pasteur vaccinations were done, the vaccine used being sent by special delivery mail from New York daily. An Experimental Plant (for sewage and water) was established in Stanley Park; the Laboratory in London set up; and the first laboratory 'check off' of a municipal water plant was done at Lindsay in connexion with the 'Ozone' purification scheme there."

George G. Nasmith, Ph.D., was the first chemist on the staff of the Laboratory. He was appointed in 1902 and continued in this position until the year 1910, when he became chief of the laboratories of the health department of the City of Toronto. Despite none too robust health, he served overseas in the war for several years, reached the rank of Colonel, and for distinguished services was awarded a C.M.G.

Dr. Chas. A. Hodgetts, who became Chief Officer of Health in 1904, had previously been Provincial Inspector of Health, and brought to his new position a thorough practical training in the Board's work. The experimental station was established during his period of office, and he points out that in 1904 no fewer than 35 sewerage problems and 25 water situations were investigated, clearly showing the necessity for such an experimental station. In the same year the first official investigation of the sanitary condition of the Muskoka and Kawartha Lakes districts was made. Every year brings to these and the other summer resorts of Ontario thousands of visitors from all over the continent. It is to the credit of the sanitary supervision maintained by the Board that it is only very rarely that a case of typhoid fever can be traced to any of these summer resorts.

The Health exhibit was originated by Dr. Hodgetts in 1908.

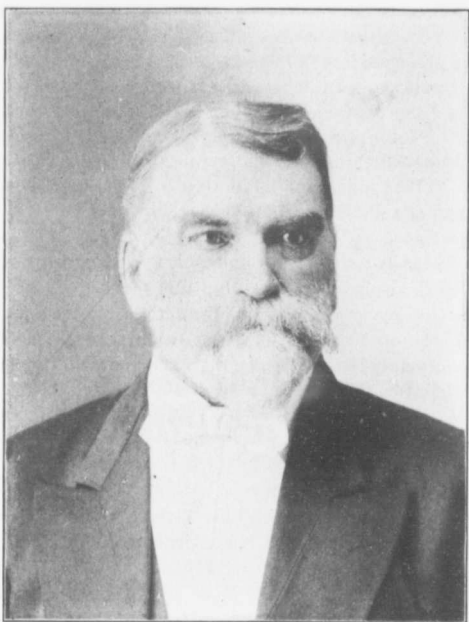
The complete history of the Board's service may be found in the reports published from year to year.



CHARLES ALFRED HODGETTS, M.D., L.R.C.P.,
Chief Officer of Health and Deputy Registrar-General, 1904-1910.

MOTTO OF THE PROVINCIAL BOARD OF HEALTH.

The motto of the Provincial Board of Health, "Ne pereat populus Scientia absente" (Let not the people perish for lack of Knowledge) is peculiarly fitted to be the aim of a Public Health Department. It was first proposed by Mr. Irving H. Cameron, M.B., F.R.C.S., Eng., for many years Professor of Surgery in the University of Toronto, who, though not actively engaged in public health work, has been and still continues to be profoundly interested in the field of preventive medicine. The use of this motto has heretofore been overlooked, if not almost abandoned. It is intended to revive its use in this and future publications of the Board.



EDWARD E. KIRCHEN, M.D.,
Chairman, 1903-1906.

THE PROGRESS OF TEN YEARS

The progress of public health in Ontario has necessarily been slow. This has been due chiefly to the immense area of the province (some 403,000 square miles), the comparatively small and scattered population, and the difficulty of securing financial support for what many people have considered a useless expenditure of money. Thanks to the energetic spirit of the members of succeeding Provincial Boards, and particularly to the exertions of my able predecessors, Dr. Peter H. Bryce, the father of public health in Ontario, and Dr. Chas. A. Hodgetts, C.M.G., as well as to Dr. John A. Amyot, for some time Professor of Hygiene in the University of Toronto, wide knowledge of the value of preventive medicine had been spread among our people. The writer joined the Board in 1906 under the ministry of a broadminded member of the Government, the late Hon. W. J. Hanna, K.C. In 1910 Dr. Hodgetts resigned the position of Chief Officer of Health to become Medical Adviser to the Commission of Conservation, and was succeeded by the writer. One of the earliest duties at this period was to secure a consolidation of the public health laws, which had been for some years under consideration by the Board. This was accomplished in 1912. An important addition to the Act provided for the appointment of ten District Officers of Health. At the outset seven were appointed, five of whom were assigned to the older portion of Ontario and two to the newer and less organized portion. The District Officers are legally qualified medical practitioners, who were given a special training for their work. They are full-time men, who have given the greatest satisfaction in their respective areas. An additional officer was appointed for the area adjacent to Sault Ste. Marie this year.

The Board ordinarily meets at intervals of three months, and it was found that many matters, such as the approval of the plans of water and sewerage works, were unduly delayed by having to wait for a meeting of the Board. To obviate this difficulty an amendment was secured in 1911, giving the Chief Officer all the powers of the Board in the interval between meetings. The status of the local Medical Officer of Health has been much im-

proved by the new Act, which provides that he can not be dismissed, except for cause and with the approval of the Board. In addition the Medical Officer of Health is made a member of the local Board of Health and its executive officer, and an additional amendment, passed in 1918, referred disputes as to the salary of the Medical Officer of Health to the County Judge. An annual conference of health officers was established by the Act, and since 1912 local Medical Officers of Health have met every year.

The several amendments respecting the Medical Officer of Health have served to secure some continuity in his tenure of office. The emolument, never very large, has been increased in the majority of cases, and the general personnel has been improved so far as could be expected in a part time service given by men busy in practice. There are some 830 municipalities in Ontario. These are served by about 730 Medical Officers of Health.

In the year 1919 the Board, which had heretofore been a part of the Department of the Provincial Secretary, was transferred to the Department of Labour, of which the Hon. Walter R. Rollo is Minister. In the following year the plan of divisional administration was adopted.

DIVISION OF LABORATORIES.

The Public Health Laboratories of the Board at Toronto and Kingston were supplemented in 1911 by one at London in connexion with the Institute of Public Health in that city. An Experimental Station in Stanley Park, Toronto, was opened in 1908, and has grown to extensive proportions. At this plant the various types of water purification and sewage disposal are shown, and experiments carried on in this important work. Additional public health laboratories were established at Fort William in 1919, and at Sault Ste. Marie and North Bay in 1920. Each of our laboratories is now in charge of a competent full-time director and carries on public health laboratory work of every variety. Thus our laboratory system has grown from the modest unit of 1890, established under Prof. J. J. Mackenzie over a shop in Yonge Street, Toronto, to seven extensive and well-equipped ones placed at strategic points all over Ontario. Many of the larger cities now have laboratories of their own. The various labor-



CHARLES SHEARD, M.D., M.R.C.S., Eng.,
Chairman, 1906-1910.

atories of the Board supply a free service to the medical profession and public. In addition to the ordinary work of a laboratory, the Toronto Laboratory prepared and supplied free of cost to the Department of Militia and Defence, the major portion of the T.A.B. vaccine used in the Great War for the protection of Canadian soldiers against enteric diseases. The cost of the vaccine supplied would at ordinary commercial prices approximate to a million and a quarter dollars, and what is of infinitely greater value, may fairly be claimed to have saved thousands of lives which might otherwise have, as in former wars, succumbed to typhoid fever. The Laboratory prepares pertussis vaccine, preventive treatment for babies' sore eyes, and provides the Pasteur preventive treatment for rabies. Within the last year the preparation of arsphenamine has been undertaken, and our product (called Phenarsenamine) is in general use in all our Venereal Disease clinics. In 1899 there was a total of 1,370 specimens examined in the only laboratory (Toronto) then in existence. In the present year, notwithstanding the fact that six other of our laboratories are carrying on public health work in Ontario, the Toronto laboratory averaged about 1,000 specimens a week.

FREE DISTRIBUTION OF BIOLOGICAL PRODUCTS.

In the year 1914 the Board began a practical demonstration of the possibility of supplying to the people of Ontario biological products, such as diphtheria antitoxin, at prices much below those of commercial houses. This plan had been anticipated to some degree in 1910 when there was an outbreak of rabies in the western portion of Ontario. Previous to that date the nearest available Pasteur Institute was in New York City. The expense for the preventive treatment of persons bitten by rabid dogs under such circumstances was frequently beyond the means of any but wealthy persons, and in some instances had to be borne by the municipality. Arrangements were made whereby this treatment was afforded at a cost of twenty dollars per person. In 1914, when Dr. J. G. FitzGerald, with the very cordial and hearty cooperation of Sir Edmund Osler, then Chairman of the Medical Section of the Commission of Conservation and a Governor of the University of Toronto, established in the University of Toronto

the Antitoxin Laboratory, the Board was able to make arrangements for the supply of antitoxins and vaccines at an extremely low price. This plan was in 1916 succeeded by a system of free distribution of biological products of all kinds. This contribution to the public health service is largely due to the generosity of Col. Albert E. Gooderham, a public-spirited citizen of Toronto. This gentleman donated a farm of some 51 acres with suitable buildings to the University of Toronto for an antitoxin laboratory. This property is known as the Connaught Laboratories, and here the various biological products are prepared. They are sold practically at cost to the Board, which in turn supplies them free to the public. The establishment of these laboratories has made diphtheria antitoxin, etc., of first-class quality available at cost price, not only to Ontario, but to all of Canada. Carefully collected statistics of late years have shown that the mortality from diphtheria among us has been greatly reduced. For example, in 1903 there were 31 deaths in every 100,000 of population, while in 1918 the rate had been reduced to 12 in the 100,000. If the knowledge of the value of antitoxin were widespread and every case treated by this means on the first day of the affection the mortality from this dreadful disease would soon be reduced to nothing and the disappearance of the disease itself would be within the range of possibility.

MATERNAL AND CHILD HYGIENE AND PUBLIC HEALTH NURSING.

Just before the commencement of the Great War a beginning was made towards the establishment of a Child Hygiene Bureau. Progress during the war period was necessarily slow because of lack of funds. The subject was actively taken up during 1919, and in the present year a Division with the aforementioned title established.

In forming this Division the Board had in mind the excellent results attained by a somewhat similar movement in New Zealand, begun years ago by Lady Plunkett, and carried into successful operation by the efforts of Dr. Truby King. This movement among our kin on the other side of the world has had remarkable success in reducing the infant death rate, etc., making New Zealand the premier nation of the world in the care of the



DR. J. A. AMYOT, C.M.G.,
Formerly Chief of Laboratories.

health and lives of its babies. There is no reason why similar success may not be attained in Ontario.

A director, assistant director and a pediatrician were appointed, and a group of nurses trained for the purpose of establishing community health centres and baby clinics throughout Ontario. A travelling clinic was organized and the "Child Welfare Special" secured. The work is now in active operation and promises splendid results.

The saving of child life does not depend altogether upon work among the babies themselves. Efforts in this direction are commendable and of great value. Much in addition may be accomplished by supervision of the pregnant mother. Our work is not among the well-to-do, who are likely to have medical supervision during pregnancy. There is greater need among the middle and poorer classes of people. What the pre-natal clinic will accomplish is strikingly illustrated by the records of the Burnside Lying-in Hospital in Toronto during the last two years. These are as follows:—

	Semi-private cases.	Public Ward cases unsupervised.	Public Ward supervised by a clinic.
Number of cases...	1,198	505	416
Death of mother...	10 (0.8%)	18 (3.5%)	2 (0.4%)
Still-births	45 (4.0%)	40 (7.9%)	6 (1.3%)
Eclampsia			
(Convulsions) ...	20 (1.6%)	16 (3.0%)	2 (0.4%)

The comparison is made plainer if one analyses the different groups in terms of 1,000. Thus it will be seen that in the semi-private cases which were unsupervised the mortality was 8 per 1,000 births, in the public ward unsupervised cases 35 per 1,000, while in the supervised public ward cases the rate was only 4 per 1,000. In still-births the rates for the corresponding groups were 40, 79 and 13 respectively. In the case of eclampsia the ratios were 16, 30 and 4 per 1,000. Is there any better argument for medical supervision of pregnant mothers? To secure proper attention for the mothers and their babies in the field assigned this Division.

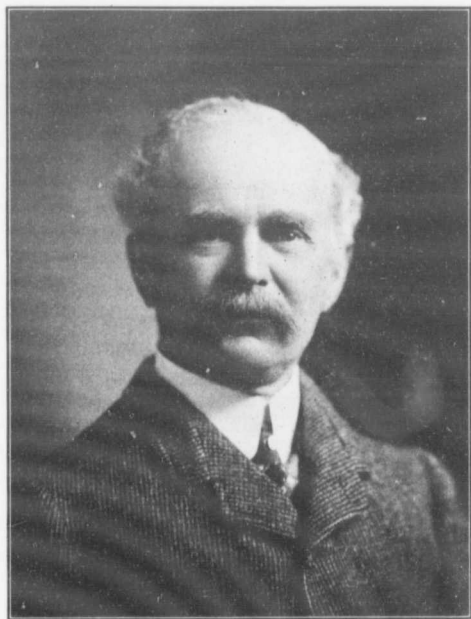
Miss Mary Power, B.A., is the Director and Miss Beryl Knox, R.N., Assistant Director. Dr. W. J. Bell is Pediatrician.

Much of the initial effort in formulating the plan of the Division is due to the Board's Consultant in Pediatrics, Dr. Alan Brown. To him and his associates is due the credit of training our nurses and other officers of the division. The addition of a dietitian, and of a *Consultant in Obstetrics, will prove of further assistance. It is scarcely necessary to point out the value to any country of the proper care of infant life. Not only will an immense proportion of child life be saved by suitable measures, but it is safe to predict that the physique of our people will in future years be found to have been greatly improved by the efforts in this field of preventive medicine. Viewed in the light of our present knowledge this is probably the most promising field of public health work in this country.

EDUCATIONAL.

The Board has long recognized that the education of the people in the value of public health measures is the surest way to stimulate interest in this subject, and to gain the financial support necessary to carry out modern sanitary measures. The Health Exhibit referred to is one means, the distribution of sound literature upon topics of preventive measures another. It has been found to be comparatively easy to gain public support of sanitary measures when the public understand their value. So the Board has systematized the distribution of literature by making the public schools, the Women's Institutes, and other voluntary agencies the means of distribution. The publication of Health Topics in the weekly papers, and advertising to some extent have been utilized. In the present year a Division of Public Health Education has been established and its direction placed in the hands of a competent physician, who is charged with the work of disseminating useful public health knowledge. J. J. Middleton, M.B., D.P.H., is Director of this division.

* (B. P. Watson, M.D., F.R.C.S., Edin., Professor of Obstetrics in the University of Toronto, has just (1920) been appointed Consultant in Obstetrics)



ADAM H. WRIGHT, B.A., M.D., M.R.C.S., ENG.,
Chairman, 1906, to the present.

PUBLIC HEALTH EXHIBITS.

From a small beginning originated by our predecessor the exhibit feature of the Board's educational programme has grown to large proportions and includes a general exhibit in all phases of public health work, including motion pictures, models, child hygiene, tuberculosis, venereal disease, sanitary engineering, etc. The exhibit has been shown in almost all parts of the province accessible by rail, and forms a splendid feature at the great exhibition held for two weeks each year in Toronto. This year we added a "Child Welfare Special," of which greater details are given in the remarks upon maternal and child welfare:

The following remarks from one of our Toronto papers indicate public opinion regarding the exhibit:—

"The stress being put on the importance of health by the Drury Government is much to the credit of the Administration. Whether the Provincial Health Officer, Dr. McCullough, is being given a freer hand by Hon. Walter Rollo, the Minister of Labour and Health, than he had under previous Ministers, or there is some other explanation, the fact is that between them the province is taking greater strides towards improving conditions throughout its bounds. The exhibit of the Health Board at the Canadian National Exhibition affords tangible evidence of the enterprise of the authorities.

"Among the exhibits is a splendid large motor car that is to provide travelling clinics in the rural districts. Municipalities wishing to have demonstrations in ways and means of improving the health of their communities are invited to list themselves for that purpose.

"Another feature of the exhibit is made up of sample meals for children at various ages, and the preparation of menus giving milk and fruit a prominent place. At certain hours of the day talks are given to the children visiting the Fair by their friend, the community nurse.

"One more evidence of the increased activity of the provincial authorities is the appointment of a Director of Public Health Education."

DIVISION OF SANITARY ENGINEERING.

Nothing of a sanitary nature is more conducive to health and comfort than good water and satisfactory sewerage facilities. The early members of the Board were, fortunately, alive to the necessity of gaining control by legislation of the lavish natural



Public Health Exhibit—Canadian National Exhibition, 1920.

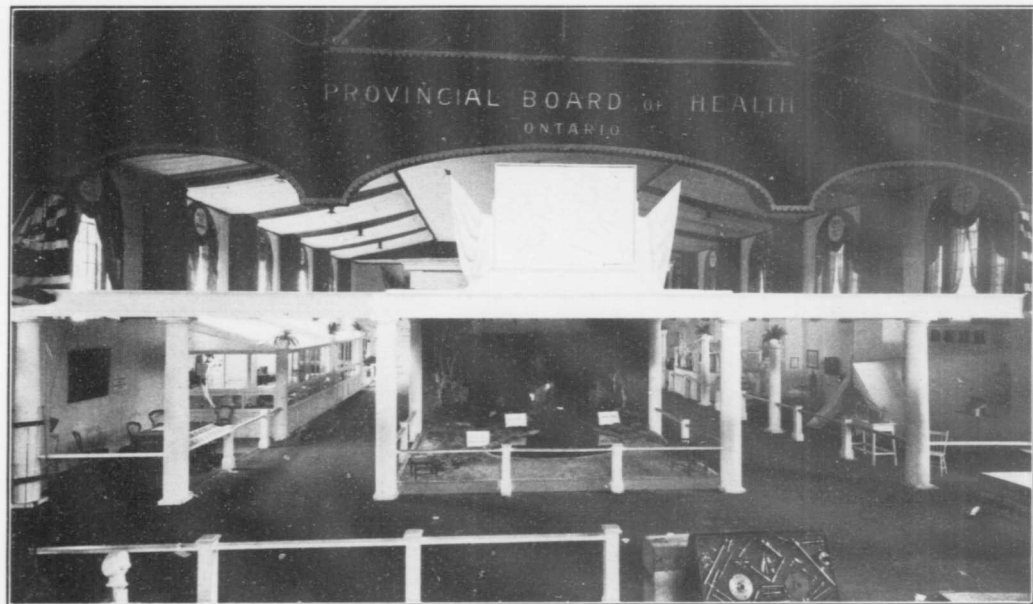
water supplies of Ontario. In brief this legislation provides severe penalties against the pollution of lakes and streams, and places under the control of the Board the installation of water and sewerage works.

The plans and specifications of all water and sewerage works come before the Board for approval, without which such works cannot be financed. For the protection of the public health the Board may order the construction of filtration plants, sewage disposal works, improvements in construction, etc.

For many years the Board has encouraged the construction of water purification works, and the establishment of the most modern means of sewage disposal. Meticulous attention has been paid to the preservation in their pristine purity of our lakes and rivers. In 1910 there were ten water purification plants in Ontario. In 1920 these had increased to the extent that 42 per cent. of public water supplies are now protected by filtration works, and 82 per cent. are protected by chlorination. The supervision of the water stretches in the Muskoka districts, among the Kawartha Lakes, and other summer resorts, has had our constant attention.

The sanitary engineering service has been carried on under a competent engineer since 1911. It has this year been established as a Division, which has supervision of the Experimental Plant already referred to. F. A. Dallyn, C.E., has charge of this Division.

One of the most important pieces of work undertaken by this service was the sanitary investigation of the international waters. This was carried on during the season of 1912-1913 for the International Joint Commission, in association with engineers and chemists of the United States Public Health Service, the Superior Board of Health of Quebec, and the State Boards of Health of New York and Michigan. All the waters from the Lake of the Woods to Cornwall on the St. Lawrence were thoroughly examined by the joint service. The results are tabulated in a voluminous report issued by the Commission. This report, as well as further studies in relation to sewage pollution of water, form the basis of a plan for the care of the sewage of certain large urban centres on the international waterways lying between the United States and Canada. Each season the Board



Public Health Exhibit—Canadian National Exhibition, 1920.

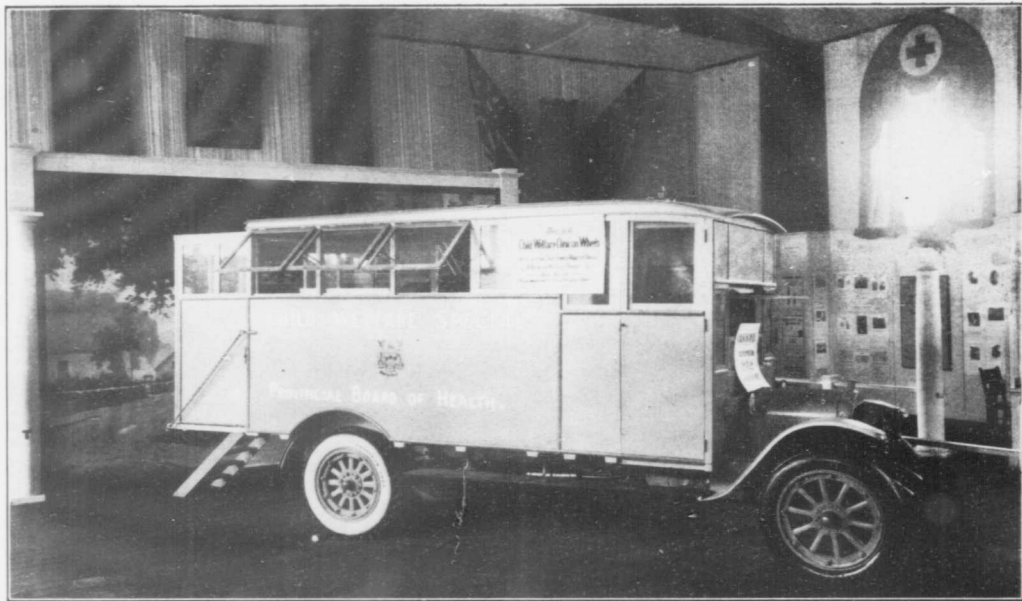
employs a number of engineers in making sanitary surveys throughout Ontario. Arrangements have been made with the University of Toronto for the training of a number of young graduates in sanitary engineering. In order to note public appreciation of the service of the Division, the following article from one of our metropolitan dailies may with propriety be quoted:—

“Ontario has good reason to be pleased with the advances that have been made in ten years to insure pure water for domestic use from municipal waterworks systems. The broad statement that pure water is essential to good health does not express the full meaning. Prior to the development of the science of bacteriology the association of water with enteric diseases was largely conjecture from coincidences of the prevalence of the disease and the use of water from a particular source. Recent investigations have suggested that diseases other than typhoid are associated with water impurity, and that a reduction in the typhoid rate means improvement in the general mortality rate.

“A movement for the improvement of water supplies in the United States and Canada naturally followed laboratory findings, but was handicapped by an uninformed public. The Province of Ontario was affected by the prevalence of the disease in the State of New York, the States of the Middle West, and the flow of population across the boundary. Improved legislation was granted the Provincial Board of Health in 1912, and a renewed effort to improve existing water supplies was undertaken. What has been accomplished places Ontario in a leading position so far as typhoid reduction is concerned. With a mortality from this disease in 1919 of only 5.2 per 100,000 of population, as compared with 31.5 ten years ago, Ontario may be said to be making big strides in sanitation.”

DIVISION OF VENEREAL DISEASES.

Previous to the war the problem of the control of syphilis and gonorrhœa had received little attention in Canada. No part of Canada had any legislation bearing on this subject. Conditions in the army focussed public attention upon the question, and there was some discussion in the press as to whether or not the soldiers sent overseas were being sufficiently protected against the venereal evil. It soon became apparent that the measures of control adopted in the army were of greater value than those in effect among the civil population. Enlistments showed that, proportionately, there was more venereal disease in the civil population than in the army. In September, 1916, out of nearly 42,000 Canadian troops in Great Britain there were 960 venereal



"Baby Clinic on Wheels"—Canadian National Exhibition, 1920.

disease cases. During the month of September, 1918, of 110,000 Canadians in Great Britain there were but 750 cases, a reduction in the admissions during this interval of 66 per cent. The evidence of effective measures used in the army, the report of the Sydenham Royal Commission in England, and the efforts of an Honorary Advisory Committee in Military District No. 2, and of the Toronto Academy of Medicine influenced the Ontario Government to appoint the Hon. Mr. Justice Hodgins as a Royal Commission of Investigation in 1917. The result of the report of this commission was that in the Session of 1918 the Government passed the Venereal Diseases Prevention Act, the earliest comprehensive legislation of the kind in Canada. In the summer of 1917 the Committee referred to, associated with the Provincial Board of Health of Ontario, had taken up with the Dominion Government the question of issuing a license to the Board to produce an arsphenamine product under the War Measures Act in order to reduce to reasonable proportions the cost of this remedy. This license was granted in March, 1920, and our product (which we have named Phenarsenamine) is now in use in our clinics and Boards of Health. With the assistance of the public health officers of other provinces of Canada, and of social workers interested in the question of venereal disease, pressure was brought by the Board to bear on the Dominion Government to give financial aid to the provinces in the care of venereal cases, and at the recent session of Parliament the sum of \$200,000 was voted for this purpose. This money is to be distributed to the provinces in proportion to population on condition that an equal amount is voted by the several provinces. In the present year Ontario voted \$115,000 for venereal disease work, a Division of Venereal Disease was formed, and ten clinics have been established. Our plan of procedure in forming clinics is as follows:— To a hospital or Board of Health we offer a grant of \$1,000.00 for the equipment of a clinic; \$500.00 annually towards the expense of a social worker, and \$500.00 annually towards the pay of the specialist in charge of a clinic. For treatments we pay fifty cents each in case of either gonorrhœa or syphilis, and in case of bed patients twenty-five cents additional. We also furnish standard history sheets and report forms, and free Phenarsenamine. A strong National Council for combating venereal

disease along the lines of that established in England has been formed with the Hon. Mr. Justice Riddell, a broad-minded Canadian as the President. The Board appreciates the assistance already afforded by this organization. The indefatigable Secretary, Dr. Gordon Bates, possesses the energy of several persons, and is an active worker in promoting everything likely to assist in curbing the ravages of venereal disease.

As in respect to all other phases of public health work the Board has strong views on the value of education in venereal disease work. A number of excellently written booklets on various phases of the subject have been prepared, and in addition a little volume entitled "To-day's World Problem in Disease Prevention," donated by Dr. John A. Stokes, of Rochester, Minn., U.S.A., has been widely circulated among the medical profession. We are happy in having the co-operation of the various medical societies of Ontario, and plans are under way for lectures and the presentation of motion pictures at society meetings. Dr. R. Roy McClenahan has charge of this Division.

DIVISION OF INDUSTRIAL HYGIENE.

This is one of the newest of the Board's activities. Ontario, while in the main devoted to agriculture, is rapidly becoming, particularly in certain localities, a great industrial centre. We have extensive timber areas, our mining resources, notably in iron, silver, gold and copper, are of enormous extent. Our nickel mines are probably the largest known. The development of cheap electricity from the utilization of our immense water powers has stimulated industrial growth, particularly in Toronto, Hamilton and places in the Niagara Peninsula. Milling, pulp, paper and agricultural implement manufacture, etc., give employment to a large proportion of our population.

For these reasons it became evident that attention should be given to maintaining safe sanitary conditions for the employees, the prevention of occupational diseases, and to afford information to employers of labour respecting the sanitary conditions arising in connexion with their works.

A division of Industrial Hygiene was established this year, and the Director and his assistants are formulating plans de-

signed to form a basis for future development. The legislation upon the subject of health in relation to labour, for Great Britain, the United States and Canada, has been compiled and published. Steps are being taken to collect a reference library on this subject. Studies are being made of the work of this character established in Great Britain and other countries. The subject is one of extensive scope, and future reports will probably record wide development in this field of work. J. Grant Cunningham, B.A., M.B., D.P.H., is the Director of this Division.

TUBERCULOSIS.

The campaign against tuberculosis has received invaluable assistance from various municipalities, such as Toronto, Hamilton and Kitchener, from voluntary societies, such as the National Sanitarium Association, from the Health Associations of Ottawa, Hamilton, London, Peterboro, Essex, St. Catharines, the Heather Club and the Children's Preventorium, the latter two being under the control of the Daughters of the Empire. Excellent educational work has been done by the Canadian Association for the Prevention of Tuberculosis, through their indefatigable Secretary, Dr. Geo. D. Porter. The number of sanatoria has increased in the decade from ten to twenty-five, the accommodation having grown from 615 to upwards of 2,000 beds. The Ontario Government provides an amount up to \$4,000 towards the erection of a sanatorium in a county or group of counties, and 75 cents per day for each patient under treatment. The annual grants have risen in the ten years from \$26,073 to \$279,049.22. The spread of the policy of milk pasteurization has materially helped to prevent the incidence of glandular, bone and joint tuberculosis, which are regarded as being largely of the bovine type. While army experience seems to have shown that the stress of war conditions greatly excited latent tuberculosis among the soldiers, it is gratifying to note that the reduction in the mortality of this disease among our people during the period is a substantial one, the mortality rate having dropped from 102 to 78 per 100,000 of the population. There are certain diseases, and tuberculosis is one of them, in the prevention of which the Dominion Government should lend greater assistance to the provinces. The entire

cost of the tuberculosis work in Canada, with the exception of the \$10,000 voted to the Canadian Association, is borne by the provincial Governments. The prevention of this disease is a national question, which can only be solved by the earnest support of the whole country. The notification of tuberculosis was established by law in 1912.

CANCER.

It would be gratifying if the story in reference to cancer were as bright as that of tuberculosis. The facts in respect to cancer are, indeed, serious. Leaving out the consideration that the apparent increase may be accounted for to some extent by the improvement in diagnosis and more satisfactory death records, the fact remains that the mortality, according to statistical reports, has grown in the ten years from 65 to 77 per 100,000 of population. Hoffman, who has made an extensive study of this subject, points out that his investigations prove that cancer is increasing, and that it is a real menace to all civilized mankind. The figures show that upwards of 80,000 persons annually die of cancer in the United States. Taking the mortality for Ontario as a basis it is probable that the number of deaths yearly in Canada would be not less than 7,000. Cancer comes fourth in our table of mortality. At ages over forty it kills one in eight among women and one in fourteen among men. It is a disease of adult life, and at ages over forty is more destructive of life than either tuberculosis or pneumonia. Its insidious onset often occurs at the most useful period of life, when the father and mother are of the greatest service to society. It occurs when the man or woman, from their industry and thrift, might otherwise have had years of ease and comfort before them. Discovered in the earliest stages it is usually readily cured. Once established, the future is hopeless.

The laity know almost nothing about cancer; the medical profession knows little enough. The chief hope of controlling the disease seems to lie in a well-planned campaign of public education, embracing facts such as the following:—

(1) That cancer in the early stages gives rise to no pain or symptoms of ill-health.

(2) That the early signs are:

- Any lump or mass in a woman's breast after forty.
- Any bleeding, however trivial, after the change of life.
- Any wart or sore on the lower lip of a man forty-five years of age.
- Any sore on the tongue of a man of forty-five years.
- Any bleeding from the bowel in a man or woman after forty years.

(3) It should be pointed out that warts, moles or growths on the skin liable to irritation should be removed and that irritation of the tongue and cheeks by jagged teeth, or of the lower lip by clay pipes, etc., should be avoided.

INFLUENZA.

There was a widespread and virulent epidemic of influenza in the autumn of 1918 and early winter of 1919. The same affection prevailed to a lesser degree during the corresponding seasons of 1919-1920. Not since 1889-90 had this affection appeared in epidemic form. It spread from Europe and became general all over this continent. The mortality, due chiefly to the accompanying broncho-pneumonia, was exceedingly high. In the 1918-19 period there were upwards of 10,000 deaths. In 1920 there were 24,284 cases reported with 2,411 deaths from influenza and pneumonia, and 3,482 deaths from acute primary pneumonia. Contrary to the rule of thirty years ago, when the very young and the aged suffered most, the severest results were seen in young adults. No specific form of treatment beyond early taking to bed appeared to be of any great value in the disease.

The recent report by the Minister of Health of Great Britain indicates that the cause of the epidemic is unknown. In a few months it was the cause of death in Europe and Asia alone of more persons than fell during the whole course of the Great War. The total deaths in England and Wales reached the number of 151,466. Much resulting loss of vitality is found in those who have recovered from the actual disease. The mortality is shown to have been the greatest, as might be expected, in crowded and insanitary districts. All competent observers are agreed that

Pfeiffer's bacillus is associated with influenza, but it is not regarded as the actual cause. The report states:—

“The generation of a great pestilence, such as influenza or pneumonic plague, is dependent upon disturbance of social order, involving for large numbers of human beings the endurance of conditions of insalubrity, which afford for invading parasites a suitable field of modification. No impartial spectator can doubt that at the present time, and almost certainly for a generation to come, there will exist in many nations and over wide tracks of country precisely the type of misery which we suspect to be the appropriate forcing house of a virulent and dispersive germ.”

Thus it will appear that an underfed people will continue to be more liable to outbreaks of this nature. In this country, where the means of sustenance, expensive as they are, are readily obtainable, we may expect to suffer less. The report emphasizes the necessity of avoiding overcrowding for the reason that the disease is transmitted in coughing and talking in the form of a fine spray and through dust and unclean hands. This is an additional reason for better housing and transportation conditions.

INFANTILE PARALYSIS.

It is painful to see walking about our streets unfortunate children and adults, one or more of whose limbs are deformed, and in consequence the whole body deranged by neglect in the treatment of infantile paralysis. This disease is a dangerously infective one. The family involved should be placed in quarantine, and the healthy children protected against infection as they are in, say, diphtheria or scarlet fever. The early treatment is usually in the hands of the family doctor. In order to lessen or prevent deformity the treatment requires *complete and absolute rest of the nerves and muscles*. No matter whether pain is present or not the head and spine should be at rest just as if an inflamed area were under treatment. If the muscles are sore, as will be indicated by pain on movement, no movement should be allowed. A sore muscle in such cases means an inflamed spinal cord and pressure upon nerve cells, which will subside in most cases if rest is enjoined. The family doctor may materially shorten the course of the disease and prevent infec-

tion by early rest and isolation of the patient. The risk of paralysis and future deformity can be greatly lessened by recognizing as a principle that the paralysed muscle must not be allowed to stretch. After the acute stage has been treated by rest, *without* the use of electricity, massage, or mechanical contrivance, any remaining paralysis may be limited by placing the treatment in the hands of a well-qualified orthopaedic surgeon. But it is absolutely essential that *rest*, and rest only, is the only means of preventing future deformity and disability.

THE COMMUNICABLE DISEASES.

The common communicable (contagious) diseases, such as diphtheria, measles, whooping cough, scarlet fever, tonsillitis, mumps, etc., are regarded all too lightly by most people. The same is true of the "growing pains" of children. They are all infectious processes, and are at the bottom of many of the gravest diseases of after life. For example, organic heart disease, one of the four great groups of disease causing our highest death rate, frequently may be traced to an attack of tonsillitis or "growing pains," the latter of which is the so-called rheumatism of childhood; attacks of scarlet fever, so mild as to show little or no rash and the slightest signs of illness in children, are frequently neglected, suffered to mingle at school or elsewhere with well children, and thus spread a virulent type of infection. These mild, and consequently neglected cases of scarlet fever are often the forerunner of grave kidney disease or of convulsions in pregnant women. Many parents think it advisable to allow their children to contract measles, whooping-cough, etc., with impunity, ignorant of the danger of resulting lung disease.

Practically all the affections just named are more dangerous and more difficult of prevention than smallpox. Their immediate death rate (in this country) and the after-effects are infinitely greater than those of smallpox. Every reasonable means should be taken to protect children against every variety of infection.

THE FEDERAL DEPARTMENT OF HEALTH.

In 1919 a new and important chapter in the public health history of Canada was begun by the inauguration of the Federal Department of Health with a former official of the Provincial Board, Dr. John A. Amyot, C.M.G., as Deputy Minister. The plan of organization includes a Dominion Council of Health. The provinces are represented on the Council by their respective executive officers, and there are five additional members representing agricultural, labour, women's and public health educational interests. The scope of the new department embraces a wide range of subjects, not ordinarily within the control of the provinces. It is the intention to develop research laboratories. Undoubtedly the formation of the department will be of great value in the promotion of public health.

For upwards of half a century (1865-1920) previous to the formation of this Department the public health work of Canada had been carried on almost single-handed by the Director-General, Dr. Frederick Montizambert, C.M.G. Under his direction the quarantine and marine hospital service of both coasts and at Grosse Ile in the St. Lawrence was developed. The figure of this courtly gentleman has been conspicuous at the public health gatherings of North America since their earliest days. He has been President of both the American and Canadian Public Health Associations, and to his energy and ability much of the progress of public health work on this continent must be ascribed. The younger generation of us owe much to the fine public spirit, the wise counsel and the friendship of the Director-General who has just retired from the service. Dr. Montizambert is a notable example of the public servant found all over the British Empire, whose greatest reward is commonly to be found at the end of his career in a sense of duty well done.

The Canadian Public Health Association was organized in 1911 when the first meeting was held in Montreal under the patronage of His Royal Highness the Duke of Connaught, Governor-General of Canada. The Association has managed, despite the difficulties of war and the lack of financial resources, to have a meeting each year since that date. Its further prospects are bright, the membership is enthusiastic and increasing

in numbers, and its object, the welfare of preventive medicine in Canada, deserves success.

Each of the provinces has now a well-organized public health department, fully capable of dealing with sanitary problems of every description.

MEDICAL AND DENTAL INSPECTION OF SCHOOLS.

Adequate medical and dental inspection of schools is of the greatest importance from a public health point of view. In the absence of such inspection the future life of thousands of school children is handicapped by the fact that these children may be ill-nourished, suffering from decayed teeth, bad eyesight or defective hearing, etc. The school is the breeding ground for communicable diseases of all kinds. Many school premises particularly in country districts are insanitary, the closets are out of doors and filthy, the water supplies lacking or unfit for use. Often no facilities are provided for the washing of hands, and in consequence lunches have to be eaten from dirty hands, a ready means of conveying infection. Medical inspection of schools in Ontario, except in cities of 200,000 and over, is under the control of the Department of Education and of local Boards of Education. Medical opinion is strongly of the view that all public health activities are more efficiently and economically managed under the Health Department. In some countries—England for example—the public view is the same, and in that country medical inspection, after a long period under the Education Department, has within the last two years been transferred to the Ministry of Health.

Ten years ago the annual amount spent on public health and vital statistics was under \$50,000. In the present year the appropriations for these purposes are approximately \$550,000.

The foregoing pages briefly tell the story of public health progress since the earliest days of Ontario. Fair advancement has been made, particularly in recent years. Good laws have been enacted, and considerable appropriations voted. Much, however, remains to be done before our public health conditions can be considered satisfactory. The greatest necessity is the education of the public in the value of preventive measures.

Municipalities are called upon to spend large sums from year to year in curbing outbreaks of smallpox, the need for which would immediately disappear if people would take the precaution to be vaccinated and to have their children vaccinated in infancy and at the end of seven years. The mortality from diphtheria has been greatly reduced by the use of diphtheria antitoxin. Not only this mortality, but the incidence of the disease would rapidly disappear if antitoxin were used at the onset of each case and in those exposed to the disease.

Ninety per cent. of our medical officers of health are part time officers, and poorly paid at that. The public must learn that prevention of disease is purchasable and that, like everything else, cheap service is generally the dearest in the long run. It cannot be expected that a busy medical man who is paid little or nothing for his services as medical officer of health, will risk treading on the toes of his patrons by enforcing laws and regulations, which are often regarded by the latter as an interference with their freedom. It is a case of serving two masters, his own interests or that of the municipality, which the Divine word declares impossible.

Prevention of disease is by far the greatest field of modern medicine. It is not only the most economical, but the most reasonable, successful and satisfactory plan of procedure in respect to disease. To be effective it is essential to have an educated public and a highly refined and educated profession of medicine. All the insidious attempts to foist upon the public untrained practitioners of medicine of every description are a fraud upon our people and a menace to the State. It is the paramount duty of every government to protect the health of its citizens. In order to carry this duty into effect medical education should be fostered in every way, money voted with a free hand for public health measures and education, and medical quackery suppressed in the most vigorous manner.

In concluding this review the writer desires to express his appreciation of the hearty co-operation of every member of his staff, of the chairman and members of the Board, of the medical societies and individual members of the medical profession, to many of whom he is indebted for friendly counsel, and to the various Ministers of the Government under whom he has had the honour to serve.