Annual report of the Department of Health, Ontario, Canada.

DEPARTMENT OF HEALTH

Sixteenth Annual Report

OF THE

Department of Health

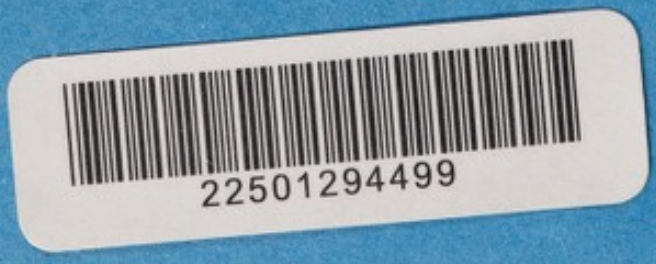
Ontario, Canada

FOR THE YEAR
1940

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

ONTARIO

TORONTO
Printed and Published by T. E. Bowman, Printer to the King's Most Excellent Majesty
1941



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To The Honourable Albert Matthews, LL.D.,

Lieutenant-Governor of the Province of Ontario.

May It Please Your Honour:

I herewith beg to present for your consideration the Sixteenth Annual Report of the Department of Health, for the year 1940.

Respectfully submitted,

Harold J. Kirby,

Minister of Health.

To The Honourable Harold J. Kirby, K.C.,
Minister of Health.

Sir,—I have the honour to submit for your approval the Sixteenth Annual Report of the Department of Health, made in conformity with and under the provisions of The Public Health Act, for the year 1940.

I have the honour to be, Sir,

Your obedient servant,

B. T. McGhie,
Deputy Minister of Health.

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Solicitor to Department

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Division of Medical Statistics

A. H. Sellers, M.D., D.P.H. — Director

Division of Sanitary Engineering

A. E. Berry, M.A.Sc., C.E., Ph.D. — Director
A. V. Delaporte, B.A.Sc., Chem. E., F.C.I.C. — Chemist in Charge of Experimental Station
O. V. Ball, B.A.Sc. — Assistant Sanitary Engineer
G. A. Burn, B.A.Sc. — Assistant Sanitary Engineer
E. W. Johnston, B.A.Sc. — Assistant Sanitary Engineer
A. T. Byram, B.A.Sc. — Assistant Sanitary Engineer

Division of Venereal Disease Control

A. L. McKay, B.A., M.B., D.P.H. — Director
W. H. Avery, M.D — Consultant

Division of Epidemiology

H. A. Ansley, M.B., D.P.H. — Epidemiologist
R. P. Hardman, M.D., D.P.H. — Associate Epidemiologist

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K. M. Shorey, M.D. — Clinical Specialist
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Division of Child Hygiene and Public Health Nursing

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E. L. Barton, M.D. ..... Assistant Bacteriologist
J. W. Bell, M.B. ..... Assistant Bacteriologist
J. E. Fasken, B.A.Sc. ..... Assistant Analyst

Branch Laboratories:

A. J. Slack, Ph.C., M.D., D.P.H., Director ..... London
James Miller, M.D., F.R.C.S. (Edin.), Director ..... Kingston
A. D. McClure, B.A., Director ..... North Bay
A. E. Allin, M.D., D.P.H., Director ..... Fort William
N. F. W. Graham, B.A., M.B., Director ..... Sault Ste. Marie
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Division of Industrial Hygiene

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A. R. Riddell, B.A., M.B., D.P.H. ..... Clinical Specialist
F. M. R. Bulmer, M.B., B.Sc.M. ..... Special Research
H. E. Rothwell, B.A.Sc., F.C.I.C. ..... Chemist
C. M. Jephcott, M.A., Ph.D., F.C.I.C., A.I.C. ..... Assistant Chemist
L. B. Leppard, M.A., Ph.D. ..... Physicist
D. S. McKee, C.S.I. (C.) ..... Chief Sanitary Inspector
J. Richardson, Sanitary Inspector ..... North Bay
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S. Harris, C.S.I. (C.), Sanitary Inspector, on Active Service ..... Geraldton
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W. L. Smith, Sanitary Inspector, on Active Service ..... Toronto
J. S. Pye, Sanitary Inspector (acting) ..... Toronto

Division of Dental Services

F. A. Kohli, D.D.S., on Active Service ..... Director
H. J. Hodgins, D.D.S. (acting) .....

Division of Nurse Registration

A. M. Munn, Reg. N. ..... Director
E. R. Dick, Reg. N. ..... Inspector of Training Schools for Nurses

Health Education

Mary Power, B.A. .....

Honorary Consultants

Public Health Administration .....
Pediatrics ..... Alan Brown, B.A., M.B.
Obstetrics .....
Dental Services ..... Harold Keith Box, D.D.S.
Pathology ..... James Miller, M.D., F.R.C.S. (Edin.)
Public Health Nursing ..... Miss Elizabeth Smellie, C.B.E., Reg. N.

ANNUAL REPORT

of the

Department of Health

For the Calendar Year Ending December 31st, 1940

PUBLIC HEALTH ADMINISTRATION

J. T. PHAIR, M.B., D.P.H., *Chief Medical Officer of Health.*

With the continued increase in the health obligations of the community, there has been an associated increase in the administrative responsibilities of the Medical Officer of Health. The day has gone when the Health Department staff consisted of a man with a tack hammer and an arm full of coloured cards, and a physician employed part-time, whose chief responsibility was to explain to the public the health significance of the various physical phenomena which seasonably presented. This type of official health concern has gradually given way to a programme which includes not only communicable disease control, in all its aspects, but a sustained interest in such matters as maternal, infant and child hygiene, school health supervision, mental and oral health, health education and medical statistics; while the adoption of such practical measures as are necessary to ensure a safe food supply, sanitary living and working conditions, and acceptable places in which to play have been added to the previously defined responsibilities of the local health authorities. Today, the personnel of the health department is composed of a group of individuals with special qualifications and experience. The regulations of the Department are designed to ensure uniformity in such qualifications. While these regulations were implemented in 1939, it was not until early in 1940 that arrangements were made with the School of Hygiene, University of Toronto, for the staging of the necessary courses of instruction.

The first course held was one for part-time health officers. The course was of five weeks duration and was designed to meet the requirements of health officers in municipalities, both urban and rural, in which the population was 4,000 or over. A second course was held in August and September. Eight physicians attended and all satisfactorily completed these courses. Every effort was made to ensure that the courses were both practical and informative and at the same time all aspects of a well planned community health programme were kept in their proper perspective. Lectures, discussion periods, demonstrations and field experience were happily combined. The fact that on both occasions the physicians attending formally expressed their approval of the Department's effort has been construed as justifying the setting up of what has appeared to some to be not only arbitrary but unnecessary standards.

Provision was made to meet the requirements of the regulations in the matter of those health officers appointed to smaller municipalities; the three days preceding the annual conference of medical officers of health being devoted to this purpose. Those aspects of a community health programme which were of special interest to them were emphasized. Forty-seven physicians attended this course.

The interest of the Department in securing for the health officer a background of administrative experience is not limited to supplying academic instruction only. An opportunity to see an effective but unextravagant community health service actually functioning is an essential requisite to any course of training. The Department, therefore, has subscribed whole-heartedly to the plan agreed upon by the School of Hygiene, University of Toronto, and the Township of East York, whereby funds should be jointly provided which would be sufficient to ensure a health programme designed to meet the needs of an urban community of 35,000-40,000 people. The personnel of this health staff has been carefully selected. Dr. W. Mosley, formerly of the Department staff, is medical officer, and Miss E. Wheler, also formerly with the Department,

is director of public health nursing services. The Department was particularly impressed with the interest shown by the members of East York Council in this proposal.

While the union of municipalities for public health purposes is not new, and has long been advocated as the logical solution of the problems of ensuring more effective public health supervision in rural and small urban municipalities, no such health unit had been formally set up in Ontario prior to April 1, 1940. On this date the United Counties of Stormont, Dundas and Glengarry established a health service designed to meet the needs of that area. The staff consists of Dr. M. G. Thomson, as Medical Director; four part-time physicians, Doctors Milligan, MacDonald, Hamilton and Clayton; three full-time Sanitary Officers; eight Public Health Nurses, under the direction of Miss M. V. Lowry, and a clerk-statistician. While the unit has been functioning for only some nine months, popular approval of this forward-looking project is evident throughout the area being served. The Department shares in the operating costs of the unit to the extent of fifty per cent.

While numerous enquiries have reached the Department as to the possible extension of such a programme through the Province generally, there is as yet no provision for the establishment of a unit in any other combination of interested communities.

During the year the following Medical Officers of Health joined either the Army or the Air Force Medical Corps: Dr. C. G. Bell, Lion's Head; Dr. P. Poisson, Tecumseh; Dr. F. Adams, Windsor; Dr. R. R. Burnett, Durham; Dr. J. B. Aiken, Fisherville; Dr. W. R. Crowe, Minden; Dr. C. C. Misener, Crediton; Dr. W. A. McKibbon, Wingham; Dr. G. L. Bell, Sioux Lookout; Dr. R. P. Dougall, Petrolia; Dr. R. L. Norris, Wyoming; Dr. H. G. Burleigh, Bath; Dr. J. B. Willoughby, Napanee; Dr. J. P. McManus, Tamworth; Dr. F. A. Strain, Gore Bay; Dr. S. English, Simcoe; Dr. W. P. Marshall, Colborne; Dr. T. B. Feick, New Hamburg; Dr. G. A. Montemurro, Streetsville; Dr. R. B. Gillrie, Mitchell; Dr. J. G. Kirk, Listowel; Dr. Wm. Aberhart, Mitchell; Dr. G. M. Fraser, Peterborough; Dr. O. VanLuven, Consecon; Dr. G. Allison, Picton; Dr. C. W. McCormack, Renfrew; Dr. R. W. Male, Tottenham; Dr. J. Feller, Warren; Dr. G. E. McCartney, Fort William; Dr. L. V. Shier, Lindsay; Dr. K. B. Waller, Rockwood; Dr. L. M. Stuart, Guelph; Dr. C. V. Mulligan, Forest Hill Village; Dr. W. L. Carruthers, Mt. Albert; Dr. H. R. Adams, Long Branch; Dr. C. D. Kilpatrick, Blyth; Dr. J. D. Colquhoun, Seaforth.

The following retired from the office of Medical Officer of Health: Dr. J. A. McAsh, Tara; Dr. P. J. Scott, Southampton; Dr. C. Morrow, Metcalfe; Dr. J. A. R. Biron, Cochrane; Dr. D. F. Webster, West Lorne; Dr. J. W. Brien, Essex; Dr. N. S. Freeman, Battersea; Dr. J. G. Burrows, Tweed; Dr. R. C. Redmond, Wingham; Dr. H. O. Singer, Markdale; Dr. F. F. Carr-Harris, Apsley; Dr. A. T. Shannette, Everett; Dr. G. McDonald, Little Current; Dr. E. Blanchard, Cannington; Dr. R. Lanoue, Belle River; Dr. D. A. Coon, Elgin; Dr. H. O. Boyd, Bobcaygeon; Dr. W. E. George, Galt; Dr. J. A. Rannie, Chesley; Dr. P. McG. Brown, Camlachie; Dr. A. Galloway, Woodbridge; Dr. F. T. Green, Stoney Creek; Dr. R. A. Burns, Inglewood.

It is with regret that we report the death of the following former Medical Officers of Health: Dr. T. D. Rutherford, Burford; Dr. A. B. Hyndman, Carp; Dr. Robert Johnston, Tamworth; Dr. G. S. Sadler, Combermere; Dr. H. R. Hay, Wiarton; Dr. E. W. McNeice, Aylmer; Dr. R. D. Dewar, Melbourne; Dr. J. F. Rigg, Niagara-on-the-Lake; Dr. J. B. Stallwood, Beamsville; Dr. G. W. O. Dowsley, Beaverton; Dr. D. C. McKenzie, Fort Frances; Dr. N. W. Rogers, Barrie; Dr. D. McKay, Collingwood; Dr. James Roberts, Hamilton; Dr. G. W. Hall, Little Britain; Dr. C. E. McLean, East York Township; Dr. J. G. McKee, Elk Lake; Dr. C. H. Carruthers, Florence.

REPORT OF THE SOLICITOR

K. G. GRAY, K.C., M.D., *Solicitor to the Department.*
F. T. EGENER, *Acting.*

The Solicitor assisted with the defence in certain actions in the Supreme Court brought against Officials of the Department.

One application for *habeas corpus* was brought during the year on behalf of a patient in an Ontario Hospital.

The Solicitor acted in enforcing contracts for goods sold to the Department.

The Solicitor acted as secretary for the Cancer Commission under the terms of *The Cancer Remedy Act, 1938.*

In a number of estates the Solicitor acted to protect the Department's position as a creditor.

The *Statute Law Amendment Act* as passed by the Legislative Assembly in the 1940 Session, affected statutes administered by this Department, as follows:

Chap. 22:—Amending *The Public Health Act.*

Chap. 23:—Amending *The Public Hospitals Act.*

Chap. 28:—Amending:—
The Cancer Remedy Act.
The Cemetery Act.
The Maternity Boarding-Houses Act.
The Mental Hospitals Act.
The Private Hospitals Act.
The Sanatoria for Consumptives Act.
The Venereal Diseases Prevention Act.

The following regulations and amendments to regulations were approved by the Lieutenant-Governor in Council on the recommendation of the Minister of Health. Regulations under the following Acts:

A. *The Athletic Commission Act*, September 18th, 1940.
B. *The Cemetery Act*, May 10th, 1940.
C. *The Pharmacy Act*, June 11th, and September 18th, 1940.
D. *The Public Health Act* (Bedding regulations), September 18th, 1940.
E. *The Public Health Act* (Health Unit—Stormont, Dundas and Glengarry), January 23rd, 1940.
F. *The Public Health Act* (Pasteurization of milk in specified areas), November 1st, 1940.
G. *The Public Health Act* (Qualifications for M. O. H., etc.), September 18th, 1940.
H. *The Public Hospitals Act*, August 19th, 1940.
I. *The Public Hospitals Act*, October 24th, 1940.
J. *The Venereal Diseases Prevention Act*, January 3rd, 1940.
K. *The Public Health Act* (Regulations for Summer Camps), June 11th, and July 26th, 1940.

A. Copy of an Order-in-Council approved by The Honourable the Administrator of the Government of the Province of Ontario, dated the 2nd day of October, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations hereto attached made by the Ontario Athletic Commission at a meeting of the Commission held on the 18th day of September, 1940, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

REGULATIONS FOR THE CONDUCT OF CONTESTS AND EXHIBITIONS OF BOXING AND WRESTLING

PART I. INTERPRETATION

DEFINITIONS

1.—(1) In these Regulations:

(a) "Amateur" shall mean amateur according to the requirements of the Amateur Athletic Union of Canada;

(b) "Appearance forfeit" shall mean the amount of money which, under the terms of a contract of any boxer or wrestler to appear in any contest or exhibition, he undertakes to pay to his opponent upon his failure to so appear;

(c) "Catch weights" as used in relation to any contract shall indicate the absence from such contract of any requirements regarding the weight of the contestants;

(d) "Commission" shall mean Ontario Athletic Commission;

(e) "Committee" shall mean Boxing and Wrestling Committee;

(f) "Contest or Exhibition" shall mean professional boxing or wrestling contest or exhibition;

(g) "Contestant" shall mean a boxer or wrestler taking part in any contest or exhibition;

(h) "License" shall mean a license issued by the Commission;

(i) "Official" shall include referee, judge, master of ceremonies and chief timer;

(j) "Permit" shall mean a permit issued by the Commission;

(k) "Person" shall include club, corporation and association; and

(l) "Weight forfeit" shall mean the amount of money which, under the terms of a contract of any boxer or wrestler to appear in any contest or exhibition, he undertakes to pay to his opponent upon his failure to comply with the weight requirements contained in such contract.

(2) A person who cannot qualify as an amateur shall be deemed to be a professional.

APPLICATION OF REGULATIONS

2.—Every boxing or wrestling contest or exhibition shall be conducted in accordance with these regulations, and these regulations shall apply to boxing and wrestling contests and exhibitions, and such other contests and exhibitions as the context may indicate.

PART II. THE COMMISSION

BOXING AND WRESTLING COMMITTEE

3.—(1) There shall be a Boxing and Wrestling Committee of the Commission, which shall consist of three members of the Commission designated by the Commission.

(2) Wherever any power is conferred or duly imposed upon the Commission by these regulations in regard to boxing and wrestling, it may be exercised or performed by the Boxing and Wrestling Committee.

(3) Two members of the Boxing and Wrestling Committee shall constitute a quorum.

RESPONSIBILITY FOR OFFICIALS

4.—The Commission shall not be responsible for the payment of any official, whether appointed by the Commission or not, nor for any other financial or other obligations or responsibilities incurred in connection with or arising out of any contest or exhibition.

PAPERS FILED WITH COMMISSION

5.—All contracts, agreements, documents and papers filed or lodged with the Commission shall thereupon become the property of the Commission.

ENTRY TO CONTESTS AND EXHIBITIONS

6.—Every member of the Commission, the secretary of the Commission, and every duly appointed representative of the Commission, shall have free entry to every contest or exhibition of boxing, wrestling or other sport or game over which the Commission has jurisdiction, and may take charge of the box office or any other department of such contest or exhibition.

FIXING PRICE OF ADMISSION

7.—The Commission may fix the price of admission for any contest or exhibition.

INTEREST OF MEMBERS IN CONTESTS

8.—No member or official of the Commission shall have a personal financial interest, either directly or indirectly in any contest or exhibition.

GENERAL POWERS

9.—(1) The Commission shall have power to make or give such orders, rulings and directions as it deems proper regarding any matter relating to the holding of any contest or exhibition, including the impounding of forfeits, the exclusion of persons from the hall or building where the contest or exhibition is held, and generally any order, ruling or direction as is reasonably necessary for the proper carrying out of these regulations.

(2) Any member, official or representative of the Commission may direct that any purse or other remuneration of a professional boxer or wrestler shall be impounded and paid to the Commission, or may levy a fine or other pecuniary penalty against any person who is the holder, or is by the regulations required to be the holder, of any other class of license issued under the Act, where such boxer, wrestler or other person has violated any provision of the Act or these regulations.

(3) Any permit or license issued under these regulations may be suspended or cancelled by the Commission, where the Commission deems that such suspension or cancellation is in the interests of organized sport.

PART III. REGULATIONS APPLICABLE TO AMATEUR BOXING AND WRESTLING

PERMITS

10.—(1) No person shall hold or take part in any contest or exhibition of amateur boxing or wrestling unless a permit therefor has first been obtained from the Commission.

(2) The fee for a permit issued under this regulation shall be $5.00, provided that

(a) In the case of a contest at which an Ontario or Canadian championship is at stake, the fee shall be such larger amount as the Commission may determine, and

(b) In the case of any other contest or exhibition where special circumstances so warrant, the Commission may reduce the fee to $1.00.

REFEREES

11.—(1) No person shall act, or be permitted to act, as a referee at any contest or exhibition of amateur boxing or wrestling, unless he has been approved by the Commission or its representative.

(2) No person shall act, or be permitted to act, as a referee at any contest of amateur boxing or wrestling at which an Ontario or Canadian championship is at stake, unless he is the holder of a referee's license issued under Part III.

MEDICAL EXAMINATION

12.—No person shall take part in a contest or exhibition of amateur boxing or wrestling unless he has been examined and passed by a physician approved by the Commission, or its representative, upon the day of or the day preceding the contest or exhibition.

STOPPING CONTESTS

13.—Any member, official or representative of the Commission may direct that any contest or exhibition of amateur boxing or wrestling be stopped when in his opinion such action is necessary or desirable in the interests of organized sport, and failure to comply with any such direction shall be deemed a violation of these regulations by all persons holding, officiating at and taking part in the contest or exhibition.

RULES OF UNION TO APPLY

14.—Except where inconsistent with the provisions of this Part, the rules of the Amateur Athletic Union of Canada from time to time in force applicable to boxing and wrestling shall apply to contests and exhibitions of amateur boxing and wrestling in Ontario.

PART IV. REGULATIONS APPLICABLE TO PROFESSIONAL BOXING AND WRESTLING

CLASSES OF LICENSES AND PERMITS

15.—(1) The Commission may issue the following classes of licenses and permits, and the fee indicated opposite each class of license or permit shall be payable in respect of every such license or permit:

(a)	Boxing License	$500.00
(b)	Wrestling License	500.00
(c)	Boxing Permit	5.00
(d)	Wrestling Permit	5.00
(e)	Referee's License	25.00
(f)	Boxer's License	5.00
(g)	Wrestler's License	5.00
(h)	Manager's License	5.00
(i)	Second's License	2.00

(2) Where the purse, fee or remuneration of any boxer or wrestler is one hundred dollars or more, in respect of any contest or exhibition, he shall pay to the Commission an additional license fee equal to one percentum of such purse, fee or remuneration, and his manager shall also pay to the Commission an additional license fee equal to one percentum of such purse, fee or remuneration.

(3) Every license shall expire on the 31st day of October next following the issue thereof, provided that where a license is issued in October the Commission may provide that it shall continue in force until the 31st day of October of the year next following.

APPLICATIONS FOR LICENSES

16.—(1) Every application for a license or permit shall be in writing, and shall be signed by or on behalf of the person, corporation or association applying therefor.

(2) Every applicant shall furnish to the Commission all information regarding the applicant that may be required by the Commission.

REQUIREMENT FOR LICENSES OR PERMITS

17.—No person shall conduct, or participate in conducting or holding a contest or exhibition unless he is the holder of a license or permit issued therefor, and no person holding a contest or exhibition shall permit any person to participate, or take part therein as a referee, boxer, wrestler, manager or second unless such person is the holder of a license of the appropriate class.

BOXING AND WRESTLING LICENSES

18.—(1) A boxing license or wrestling license may be issued for the holding of boxing or wrestling contests or exhibitions in a city having a population of not less than 200,000 persons.

(2) The holder of a boxing or wrestling license shall deposit with the Commission cash or negotiable securities satisfactory to the Commission in an amount fixed by the Commission.

(3) The Commission may use such cash and securities for:

(a) The payment of purses or other remuneration owing to boxers or wrestlers by the licensee,

(b) The payment of any moneys owing to the Commission by the licensee or by any other person in respect of any contest or exhibition held by the licensee, and

(c) The payment of any official acting at any contest or exhibition held by the licensee.

(4) If more than one boxing license or wrestling license is issued for any city, the dates upon which contests or exhibition shall be held shall be subject to the approval of the Commission.

(5) Where holders of boxing licenses or wrestling licenses are alternating in the holding of contests or exhibitions in any city for which more than one boxing or wrestling license has been issued, every such licensee shall, except where the Commission rules otherwise, file with the Commission the contracts of the principals taking part in any proposed contest or exhibition at least seven clear days before the date upon which it is proposed to hold such contest or exhibition.

BOXING AND WRESTLING PERMITS

19.—(1) A boxing permit or wrestling permit may be issued for the holding of a contest or exhibition in a municipality having a population of less than 200,000 persons.

(2) An application for a boxing permit or wrestling permit shall be delivered by prepaid mail or other means to the Commission at its offices at least seven days before the date of the proposed contest or exhibition, and shall indicate the date and place of the contest or exhibition, and the names of the principals taking part in the main bout or feature match.

(3) Every applicant for or holder of a boxing or wrestling permit shall at least seven days before the date of the contest or exhibition for which such permit is applied for or issued, deposit with the Commission cash or negotiable securities in an amount not less than the amount of:

(a) The total purses offered at the contest or exhibition,

(b) The total amount payable to officials appointed by the Commission for the contest or exhibition; and

(c) An amount which in the opinion of the Commission will be ample to cover the charges payable to the Commission in respect of the contest or exhibition.

(4) If the holder of a permit fails to discharge the obligations referred to in Clauses (a), (b) or (c) of Sub-Regulation 3 within ten days of the holding of the contest or exhibition, the Commission may use the cash or securities for the payment of such obligations.

DEPOSIT OF FURTHER SECURITY

20.—In addition to the amount of cash or negotiable securities which the holder of a boxing or wrestling license or permit may be required to deposit under Regulations 6 and 7, the Commission may require any such holder to deposit such further amount of cash or securities as it deems expedient to ensure the payment of boxers or wrestlers paid on a percentage basis, or for such other purposes as it deems proper.

OTHER LICENSES

21.—(1) It shall be a condition of every referee's license that the holder thereof shall comply with the provisions of these regulations, and with the directions and rulings given or made by the Commission, and shall conduct himself generally in a manner calculated to be in the best interests of boxing and wrestling, and failure to do so shall render such license subject to cancellation by the Commission.

(2) It shall be a condition of every boxer's license, wrestler's license, manager's license and second's license that the holder thereof shall comply with the requirements of these regulations, and with the directions and rulings given or made by the Commission or any official, and shall conduct himself generally in a manner calculated to be in the best interests of boxing and wrestling, and failure to do so shall render such license subject to cancellation by the Commission.

SUSPENSIONS

22.—If a license is suspended for an indefinite period, such suspension shall continue for a period of not less than one month.

SUBSTITUTES

23.—If for any reason a boxer or wrestler is unable to compete according to the terms of his contract, his original opponent shall box or wrestle with a substitute upon such terms as the Commission shall deem suitable, and the terms of the original contract shall be amended accordingly, and shall otherwise remain unchanged and in full force and effect.

ENTRY IN OTHER CONTESTS

24.—Any boxer or wrestler who shall enter into a contest or exhibition held prior to one in which he has already contracted to box or wrestle, shall be liable to have his contract rescinded by the other party to the contract without any compensation, if in the opinion of the Commission the boxer or wrestler has by his conduct in entering into such prior contest or exhibition lessened his value or efficiency for the contracted performance.

FAILURE OF OPPONENT TO APPEAR

25.—A boxer or wrestler under contract who appears ready to enter the ring, whose opponent or substitute approved by the Commission is not present, shall be entitled to the amount payable to him under the terms of the contract unless an appearance forfeit has been deposited by his opponent, in which case the amount of the appearance forfeit shall be paid to such boxer or wrestler.

CANCELLATION OF CONTEST

26.—(1) Any boxer or wrestler whose contract has been rescinded, or whose contest or exhibition has been cancelled through no fault of his own after he has signed a contract, shall be entitled to reasonable training expenses from the promoter.

(2) In the event of any dispute as to the amount payable to such boxer or wrestler in respect of training expenses, the Commission shall determine the amount, and such determination shall be final and binding upon the parties.

SUBMISSION OF CONTRACTS

27.—(1) Signed contracts of the principals for the main bout or match at any contest or exhibition shall be submitted to the Commission at least seven days before the date set for the contest or exhibition, and in the case of other bouts or matches the contracts shall be submitted at least three days before the contest or exhibition.

(2) No boxer or wrestler shall be paid his purse or any part thereof until the completion of his bout or match.

MANAGERS' CONTRACTS

28.—(1) Contracts between boxers and wrestlers and their managers shall be filed with the Commission, and non-compliance with this provision shall disentitle any boxer, wrestler or manager to any standing or recognition by the Commission or any holder of a boxing or wrestling license or permit, or by any other boxer, wrestler or manager.

(2) Such contracts upon the forms prescribed by the Commission shall be filed before any matter in dispute arises.

(3) No such contract shall have force or effect until approved by the Commission, and the Commission may cancel any manager's contract as far as its operation in Ontario is concerned.

(4) In the event of a manager being suspended or having his license cancelled, any boxers or wrestlers under contract with him may transact their own business until such time as the suspension is lifted, and no such manager shall be entitled to any moneys from a boxer or wrestler in respect of bouts or matches engaged in by such boxer or wrestler in Ontario during the period of the suspension, or after the cancellation of the contract.

FORM OF CONTRACT

29.—All contracts and agreements contemplated by these regulations shall be in writing executed under the hands of the parties thereto, and shall be in a form prescribed or approved by the Commission.

ADVERTISING OF BOUTS AND MATCHES

30.—No contest or exhibition shall be advertised until the signed contracts of the principals for the main bout or match have been submitted to and approved of by the Commission.

POSTPONEMENT

31.—In the event of a postponement from day to day, promoters shall present the bouts or matches advertised for the original date, or such substitutions therefor as shall meet with the approval of the Commission.

INTRODUCTION OF PERSON

32.—No person may be introduced from the ring without permission of the Commission

WEIGHTS

33.—(1) Every boxer and wrestler under contract to take part in a contest or exhibition shall present himself for weighing at the place designated by the Commission at two o'clock in the afternoon on the day of such contest or exhibition, unless notified otherwise by the Commission, whether the contract provides for catch weights or for definite weight.

(2) If after the weighing has been completed the contest or exhibition is postponed for more than twenty-four hours, the provisions of Sub-Section 1 shall be again complied with on the day upon which the postponed contest or exhibition is held.

OVERWEIGHT

34.—In case of the overweight of any boxer or wrestler, he shall be allowed an hour in which to bring himself within the required weight.

FAILURE TO MAKE WEIGHT

35.—(1) If a boxer or wrestler shall fail to come within the weight stipulated in his contract, his opponent shall nevertheless proceed with the contest or exhibition, unless in the opinion of the Commission or its representative the difference in weight is too great to permit a fair and proper contest, and the Commission may impound or make such ruling as it deems proper regarding the weight forfeit.

(2) If both contestants fail to comply with the weight requirements, the Commission may impound the weight forfeits of both contestants, or any part thereof, and may require such contest to proceed notwithstanding such forfeiture.

CONTRACT WEIGHTS

36.—The contracts of boxers or wrestlers matched to meet each other shall call for the same weight for each of the contestants, unless they are contracted at catch weights or are heavyweights.

MEDICAL EXAMINATION

37.—(1) Every boxer or wrestler shall be medically examined by a physician appointed or approved by the Commission.

(2) The examination shall be made at the time and place set for the contest or exhibition, or at such other time or place as the Commission may determine.

(3) If after the examination has been completed the contest or exhibition is postponed for more than twenty-four hours, the boxers or wrestlers shall be re-examined.

(4) The examining physician shall not allow any boxer or wrestler who is not mentally or physically sound, or who is under the influence of drugs or liquor, to enter a contest or exhibition.

38.—(1) If a boxer or wrestler, because of illness or injury, is unable to appear, he shall immediately notify the person holding the contest or exhibition, and shall, if required by the Commission, submit to a medical examination by a physician designated by the Commission, and upon failure to so submit, or to furnish evidence of his condition satisfactory to the Commission, he shall be liable to have his license suspended or cancelled by the Commission.

(2) Upon suspension or cancellation of a boxer's or wrestler's license under Sub-Regulation 1, or upon the physician designated by the Commission failing to find any illness or injury which in his opinion warrants the boxer or wrestler refusing to compete, the appearance forfeit of the boxer or wrestler shall be paid to the opponent, unless a substitute is provided, in which case it shall be impounded by and paid to the Commission.

(3) In the event of the appearance and weight forfeits being lumped as one sum, the appearance forfeit shall be deemed to be two-thirds of the total amount, and the weight forfeit shall be deemed to be one-third.

39.—(1) The physician conducting the examination shall be in attendance at the contest or exhibition in which the boxers are participating.

(2) He shall not enter the ring until the termination of the bout unless called upon by the referee.

(3) The fees and expenses of the physician shall be paid by the person holding the contest or exhibition.

FAILURE TO APPEAR

40.—If a boxer or wrestler:

(a) Fails to present himself for his bout;

(b) Fails to pass the medical examination; or

(c) In the opinion of a member or representative of the Commission is not in proper physical or mental condition for the bout,

he shall not be entitled to any purse or other remuneration in respect of the bout, and if he is replaced by a substitute, his appearance forfeit shall be impounded by and paid to the Commission.

PART V. REGULATIONS APPLICABLE TO PROFESSIONAL BOXING.

BRITISH RULES

41.—Where not inconsistent with these regulations, the Rules of the British Boxing Board of Review shall apply.

RING FLOOR

42.—(1) The ring shall be not less than twenty feet square, and the ring floor shall extend beyond the ropes not less than eighteen inches.

(2) The floor shall be padded with felt or other soft material to a thickness of not less than an inch, and such padding shall extend one foot beyond the ropes, and shall be covered with canvas, duck or other similar material tightly stretched and laced to ring platform.

HEIGHT OF RING

43.—The ring shall be not more than four feet above the surrounding floor, and shall be provided with suitable steps for the use of the contestants and officials.

POSTS

44.—The ring posts shall be not less than eighteen inches from the ropes, and shall be made of metal not more than three inches in diameter extending from the floor upon which the ring is built to fifty-eight inches above the ring platform, and shall be wrapped in soft material.

ROPES

45.—(1) The ropes shall be three in number, and each shall be not less than one inch in diameter.

(2) The lower rope shall be eighteen inches above the floor, the second thirty-five inches above the floor, and the third rope fifty-two inches from the floor.

(3) Ropes shall be wrapped in soft material.

GONG

46.—(1) There shall be a gong, which shall be of sufficient volume that it may be distinctly heard by the contestants and officials.

(2) The gong shall be securely attached to the ring, or to some other adjacent object.

(3) The timer shall strike the gong with a metal hammer, or some other suitable device, to indicate the beginning and end of rounds.

OBSTRUCTIONS

47.—The ring platform, including that portion outside the ropes, shall be cleared of all obstructions, including buckets, stools and other equipment, as soon as the gong indicates the beginning of a round, and shall be kept clear until the gong indicates the end of the round.

GLOVES

48.—(1) Gloves shall be new for all main bouts.

(2) They shall weigh not less than five ounces each for classes up to and including lightweight, and six ounces for classes heavier than lightweight, and shall be knotted at the back of the wrist.

BANDAGES

49.—(1) Each contestant may have not more than six feet of soft cloth bandage, not exceeding two inches in width, on each hand, which may be held in place by not more than two feet of surgeon's adhesive tape not exceeding one inch in width, provided that in the case of light-heavyweights and heavyweights three feet of surgeon's adhesive tape may be used.

(2) In addition, not more than six inches of surgeon's adhesive tape not exceeding one inch in width, may be applied to the back of each hand before the application of the bandage.

(3) In no case shall the surgeon's adhesive tape be applied across the knuckles.

DOWNS

50.—(1) A boxer shall be deemed to be down when:

(a) Any part of his body other than his feet is on the ring floor;

(b) He is hanging over the ropes in a helpless manner;

(c) He is rising from a down position.

(2) A boxer hanging over the ropes in a helpless manner shall not be considered down until the referee so indicates, and he shall thereupon start the count.

(3) If a contestant goes down through accident or weakness, he shall rise immediately, but if he is sent down by a blow he may remain down until the count of nine.

(4) A boxer shall be considered "knocked out" when he is unable to rise unaided before the completion of the count of ten, or who, though on his feet, is in such a condition that the referee deems it advisable to stop the bout, and does so.

FOULS

51.—The following shall be deemed to be major fouls:

(a) Hitting below the belt;

(b) Hitting an opponent who is down, or rising from a down;

(c) Butting with the head or shoulder;

(d) Kicking, tripping, hacking or gouging;

(e) Striking on or over the kidneys, or on the back of the neck;

(f) Striking a pivot blow, or half-pivot blow;

(g) Failure to obey the referee; and

(h) Any physical action, other than fair boxing, which may injure an opponent.

52.—The following shall be deemed to be minor fouls:

(a) Holding or maintaining a clinch,

(b) Hitting while only one arm is free,

(c) Hitting or scraping with the inside of the glove, wrist or elbow;

(d) Hitting or flicking with the open glove, and

(e) Purposely going down without being hit.

IMPOUNDING OF PURSE IN EVENT OF FOUL

53.—In the event of a foul, intentional or otherwise, which prevents an opponent from continuing, the Commission or its representative may impound the entire purse of the offender for disposal by the Commission.

LENGTH OF BOUT

54.—No boxing bout shall exceed ten rounds of three minutes each without the special permission of the Commission, and there shall be an interval of one minute between each round.

CONTESTANTS

55.—(1) Every contestant shall:

(a) Be the holder of a license issued by the Commission;

(b) Present himself at the hall, building or other place where a contest or exhibition is to be held at least two hours before the time scheduled for the commencement of any bout in which he is participating;

(c) Equip himself with trunks, shoes and a protection cup.

(2) Every contestant shall, by obtaining a license from the Commission, submit to the jurisdiction of the Commission, and undertake to abide by and comply with its rulings, orders and directions.

(3) A contestant who is participating in any contest or exhibition shall be entitled to a maximum of three free admission tickets for such contest or exhibition.

COSTUMES

56.—(1) Every boxer shall wear:

(a) Trunks, other than tights, extending from a point not above the naval to a point not higher than half way between the knees and the crotch;

(b) Shoes of a soft material, which shall not be equipped with hard soles, heels, cleats or spikes;

(c) A protection cup, which shall be securely adjusted before entering the ring.

(2) Trunks shall be neat and clean, and the trunks of the contestants in a bout shall be of contrasting colours.

(3) No boxer, manager, second or ring attendant shall wear any clothing bearing any advertisement or wording other than the name of the boxer or club.

SECONDS

57.—(1) Each boxer may have not more than two seconds, both of whom shall be approved by the Commission, and no other person shall be in his corner at any time during the bout, unless the special approval of the Commission has been obtained.

(2) Each second shall wear a clean white jersey, sweater or shirt.

(3) Seconds shall remain seated and silent during each round, and shall not coach, aid, assist or advise a boxer, either by word or action, or otherwise, during the progress of a round, nor shall any second indicate, or endeavour to indicate, the surrender of a boxer by throwing a towel into the ring, or by any other means.

(4) They shall not enter the ring until the sound of the gong has indicated the end of a round.

(5) They shall leave the ring upon the sound of the chief timekeeper's whistle, and shall leave the ring platform before the commencement of the round, taking with them all buckets, stools and other articles used by them.

(6) Upon the failure of any second to comply with the provisions of this regulation, the referee may order his removal from the ring, or from the hall or building where the bout is being held, and direct that he shall cease to act as a second during the bout then in progress, and may disqualify the boxer for whom such second is acting.

(7) The chief second shall be responsible for the conduct of the assistant second.

HOLDERS OF BOXING LICENSES AND PERMITS

58.—(1) Every person holding a boxing license or permit shall be responsible for the collection and payment to the Commission of:

(a) The Commission's percentage of the gross receipts of any contest or exhibition held by him;

(b) The license fee of any boxer, wrestler, referee or second taking part in such contest or exhibition, which has not already been paid; and

(c) Any forfeiture impounded or fine levied at any such contest or exhibition.

(2) He shall cause a return in the prescribed form, duly completed, and accompanied by the amount of the Commission's percentage, license fees, forfeitures and fines, to be sent to the Commission at its office at Toronto, by registered mail, not later than the day following the contest or exhibition.

(3) He shall be responsible for:

(a) The payment of all boxers, wrestlers, officials and help taking part or assisting in any contest held by him, whether or not such officials are appointed by the Commission;

(b) The payment of the rent of any hall or other building engaged for the holding of any such contest or exhibition;

(c) The payment or discharge of all financial and other obligations incurred in connection with or arising out of any such contest or exhibition;

(d) Furnishing gloves, buckets, stools and all equipment necessary for the proper conduct of every such contest or exhibition;

(e) Providing proper facilities for making announcements, so that they will be audible or visible to all persons in attendance at the contest or exhibition;

(f) Providing a separate room at the place where any such contest or exhibition is held, to which only referees, judges and members or representatives of the Commission shall have access;

(g) Causing every such contest or exhibition to be commenced at the time advertised, and to be proceeded with without unnecessary delays;

(h) Causing every such contest or exhibition to be properly conducted in an orderly manner, and causing any such contest to be discontinued, either temporarily or entirely as the occasion demands, if the spectators or other persons present conduct themselves in a rowdy or disorderly manner;

(i) Doing all such things as are necessary to furnish such contests or exhibitions with a clean and healthy environment; and

(j) Conducting every such contest or exhibition in compliance with the requirements of these regulations.

(4) A holder of a boxing license or permit shall not enter into a contract with any boxer to act as his manager.

OFFICIALS

59.—(1) At every contest or exhibition there shall be a referee, master of ceremonies, chief timer, and there may be two judges.

(2) The Commission may appoint any or all of the officials at a contest or exhibition, and may determine whether the winner of a contest or exhibition shall be determined by the referee alone, or by the referee and judges.

(3) The Commission may fix the fees or other remuneration of any official, and the holder of the boxing or wrestling license or permit who is holding the contest or exhibition shall be responsible for the payment thereof.

CHIEF TIMEKEEPER

60.—(1) The chief timekeeper shall be seated outside the ring at a point close to the gong.

(2) He shall be equipped with a stop-watch, a whistle and a metal hammer or other device suitable for striking the gong.

(3) Ten seconds before a round is scheduled to commence, he shall blow his whistle, which shall be a signal to the advisers and seconds to leave the ring, and to clear the corner of all buckets, stools and other objects, and at the expiration of ten seconds, providing the advisers and seconds have left the ring, and it is clear of buckets, stools and other objects, he shall indicate the commencement of the round by striking the gong.

(4) He shall indicate the completion of each round by striking the gong.

(5) If one of the boxers is knocked down, the chief timer shall rise, and upon the referee giving the count of one the chief timer shall indicate audibly and by waving one arm, the seconds as they elapse according to his stop-watch.

(6) In the event of a knock-out, the chief timekeeper shall advise the master of ceremonies as to the round and part of such round that had elapsed at the termination of the bout or contest.

(5) If a round terminates while a boxer is down and the count is being given, the chief timekeeper shall strike the gong indicating the termination of the round and of the count.

(8) If an assistant timekeeper is appointed, the chief timekeeper may, subject to the approval of the referee, delegate any of the powers or duties conferred or imposed by this regulation to him.

MASTER OF CEREMONIES

61.—The master of ceremonies shall:

(a) Ascertain whether all necessary equipment is available, and require the person responsible therefor to furnish any equipment which is not available;

(b) Take such steps as are necessary to have the contestants ready for the contest or exhibition in which they are to take part, at the prescribed time;

(c) Superintend the putting on of bandages and gloves, and examine the protection cup of each boxer;

(d) Introduce the contestants to the audience, announcing their names and weights, and the length and other particulars of the contest or exhibition;

(e) Announce the decisions of the judges or referee, as well as any other matters as the Commission or its representative may direct;

(f) Announce or otherwise indicate to the audience prior to the commencement of each round, the number of the next round; and

(g) Subject to the direction of the referee, be responsible for the proper enforcement of all regulations governing the conduct of the contest or exhibition at which he is acting as master of ceremonies.

JUDGES

62.—(1) In a contest or exhibition at which there are to be judges, there shall be two judges.

(2) The judges shall take up their positions on different sides of the ring, and no person shall be seated less than six feet from either of the judges.

(3) Each of the judges shall pay strict attention to every phase of the contest or exhibition, and shall determine the winner and loser of each round by a system of points.

(4) The winner of each round shall be awarded five points, and the loser shall be awarded the number of points to which, in the opinion of the judge, he is entitled, having regard to the following principles:

(a) Credit should be given for:

(i) Clean, forceful blows on any part of the opponent's head, or the front of his body above the belt, according to their damaging effect;

(ii) Aggressiveness and for forcing the fight with skilful attacks,

(iii) Cleverness in avoiding or blocking blows, or causing an opponent to fail to land a blow,

(iv) Ring generalship, consisting of the ability to take advantage of opportunities to cope with situations as they arise, to foresee and neutralize an opponent's method of attack, and to force an opponent to adopt a style at which he is not skilful, or which is to his disadvantage,

(v) Pursuit of the art of boxing as distinguished from mere fighting; and

(vi) Sportsmanlike action in the ring, including close adherence to the spirit and letter of these regulations, and the refraining from taking any unfair advantage of an opponent.

(b) Points should be deducted for:

(i) Persistently delaying the action of a contest or exhibition by clinching, holding or otherwise lacking in aggressiveness; and

(ii) The commission of a foul, whether or not committed intentionally, and although not of a sufficiently serious nature to warrant disqualification.

(5) The judges shall cause their point scores to be sent to the Commission.

(6) The judges shall assist the referee to determine whether a foul has been committed, when he so requests, and may bring any matter to the attention of the referee at the end of a round.

REFEREE

63.—(1) The chief official of a contest or exhibition shall be the referee, who shall have general supervision over the bouts, provided that it shall not be necessary to have the same referee for all bouts held at any contest or exhibition.

(2) The referee shall take up his position in or near the ring.

(3) Before starting a bout he shall:

(a) Ascertain the name of the chief seconds; and

(b) Call the contestants together in the centre of the ring, accompanied by their chief seconds if they so desire but by no other person, and issue final instructions, at the conclusion of which the contestants shall shake hands and retire to their corners.

(4) No person other than the referee and the contestants may enter the ring during a round, and the referee may disqualify any boxer if any person whom the referee has reason to believe it is in any way connected with such boxer, violates this regulation.

(5) The referee shall:

(a) Inspect the gloves, faces and bodies of the contestants in the ring, and shall take all reasonable precautions to prevent the use of grease or any other substance calculated to handicap or take unfair advantage of an opponent;

(b) Keep a point score in the same manner and according to the same general principles as is prescribed in the case of judges;

(c) Stop a bout if in his opinion the contestants are so unevenly matched that a fair contest is not afforded, and award the decision to the better boxer,

(d) Stop a bout if in his opinion one of the contestants is in such a condition that he considers it advisable, and award the decision to the opponent,

(e) Disqualify a contestant who has committed a major foul, if in the opinion of the referee the opponent is unable to continue, or to resume the bout after a reasonable time has elapsed because of the commission of such major foul, in which case he shall award the decision to the opponent,

(f) Decide the winner of a bout at which there are no judges, or at which the judges disagree, and

(g) Decide all questions arising during a bout which are not specifically covered by these rules.

(6) The referee shall not touch the contestants during the bout, unless they fail to separate upon his order to break.

(7) The referee may consult the judges as to whether a foul has been committed by the striking of a low blow.

(8) The referee shall warn a contestant who has committed a foul.

(9) The referee, or the secretary, or any member or representative of the Commission, may stop any bout in which he has reason to believe that:

(a) One of the contestants did not enter into his contract for the bout in good faith;

(b) One or both of the contestants are not honestly trying to win;

(c) One of the contestants has committed a major foul; or

(d) One of the contestants has committed any act which is detrimental to the best interests of boxing;

and in every such case the offending contestant or contestants shall not be entitled to any part of the moneys payable to him in respect of such bout, and all such moneys shall be forfeited to the Commission.

(10) Where a bout has been stopped pursuant to Sub-Regulation 9, the offending contestant may appeal in writing to the Commission within five days after the bout, in which case the Commission may dispose of the appeal by making such order, direction or ruling as it deems proper.

(11) Where a bout has been stopped pursuant to Sub-Regulation 9, the referee shall ascertain which of the contestants it was whose conduct was responsible for the bout being stopped, and shall, unless the conduct of both contestants was so responsible, award the decision to the other contestant.

THE COUNT

64.—(1) When a contestant is down, the opponent shall retire to a neutral corner, and when the opponent has so retired the referee shall count "one," and shall continue the count by calling "two," "three," "four," "five," "six," "seven," "eight," "nine," as the chief timekeeper indicates the seconds as they elapse, but upon reaching the count of "ten" he shall raise both hands, calling the word "out" instead of "ten," and shall declare the opponent to be the winner by a knockout.

(2) The referee shall cease counting if the contestant ceases to be down, or the sound of the gong indicates the end of the round.

(3) If a contestant ceases to be down, but again goes down intentionally or otherwise without being struck, the referee and chief timekeeper shall resume the count where it ceased, but if he goes down again after being struck another blow, a new count shall be started.

(4) If, while a contestant is down, the opponent leaves the neutral corner to which he has retired, the count shall be discontinued until he returns to it.

(5) If a contestant is knocked from or falls out of the ring, he may be assisted back into the ring, and the referee may allow him a reasonable time for recuperation after he returns to the ring.

(6) If a contestant is not present in the ring at the commencement of any round, the referee shall proceed to count as in the case of a down.

DETERMINING THE WINNER

65.—(1) At the conclusion of the bout each judge shall total the number of points awarded to each contestant, and shall write the name of the contestant having the greatest number of points on a slip of paper furnished for that purpose, and hand it to the master of ceremonies, provided that if both contestants have the same number of points he shall write the word "Draw" on the slip.

(2) If the judges are agreed upon a winner, their decision shall be final, and shall be announced by the master of ceremonies.

(3) If the judges name different winners, or if one judge names a winner and the other calls a draw, there shall be deemed to be a disagreement.

(4) In the event of a disagreement the master of ceremonies shall hand the slips of paper containing the decisions of the judges to the referee, and shall then announce the winner or a draw as determined by the referee.

(5) The judges shall cause their point scores to be sent to the Commission.

(6) The Commission may in the case of any bout direct that in the event of a disagreement of the judges the point scores of the judges and the referee for each of the contestants shall be added together, and that the contestant securing the greatest total number of points shall be awarded the decision.

CHAMPIONSHIPS

66.—(1) Challenges for championships shall be approved by the Commission before being forwarded to the Canadian Boxing Federation.

(2) The Commission may refuse its approval.

(3) A championship may be lost by default, forfeit or failure to comply with the weight requirements, but may not be won except in the ring.

PART VI. REGULATIONS APPLICABLE TO PROFESSIONAL WRESTLING

67.—The provisions of Part V of these regulations, including the provisions relating to the impounding of fines, disqualification of contestants, and all other matters, shall, except where inconsistent with the provisions of this Part, apply **mutatis mutandis** to professional wrestlers, and to wrestling contests and exhibitions, in the same manner and to the same extent as if they appeared in this Part.

68.—The rules of wrestling as approved by the National Wrestling Association shall apply to professional wrestling.

69.—Every professional wrestling bout shall be deemed to be an exhibition only.

70.—All rules and regulations governing boxing and wrestling at any time made by the Commission are hereby revoked.

B. Copy of an Order-in-Council, approved by The Honourable the Lieutenant-Governor, dated the 10th day of May, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to the provisions of Part IV of *The Cemetery Act*, the rules and regulations, schedule of charges, and form of application for cremation, approved by Order-in-Council on the 28th day of May, 1938, be repealed, and the attached rules and regulations, schedule of charges, and form of application for cremation, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Form C-10-38

APPLICATION FOR CREMATION.
With Statutory Declaration
and Coroner's Certificate.

THE TRUSTEES OF THE
TORONTO GENERAL BURYING GROUNDS

THE TORONTO CREMATORIUM

200 WINCHESTER STREET. TORONTO.

Telephone MIdway 7911

I,.....
(Name of Applicant)

Address.....

Occupation.....

Apply to THE TORONTO CREMATORIUM

to undertake the cremation of the remains of.....
(Name of Deceased)

Address.....

Occupation.....Age.....Sex.....
(Whether married, widow, widower or unmarried)

Place of Birth.....Where Died?.....

I authorize the following disposal of the cremated remains.....

.....

.....

.....

If instructions for such disposal are not given within sixty days from the date of cremation, or if within that period it is not possible to carry out the instructions which have been given, the cremated remains will be buried in Toronto Necropolis.

I do solemnly declare that the true answers to the questions set out below are as follows:

1. Are you an executor of the deceased?

2. If not, state
   (*a*) Did the deceased leave a will? (*a*)
   (*b*) Your relationship to the deceased. (*b*)
   (*c*) Are you the nearest surviving relative of the deceased? (*c*)
   (*d*) The reason why the application is made by you and not by an executor or any nearer relative. (*d*)

3. Did the deceased leave any written directions as to the mode of disposal of his remains? If so, what?

4. Have the near relatives of the deceased been informed of the proposed cremation?

(The term "near relative" as here used includes widow or widower, parents, children above the age of 16, and other relatives usually residing with the deceased.)

5. Has any near relative of the deceased expressed any objection to the proposed cremation? If so, on what grounds?

6. What was the date and hour of the death of the deceased?

7. What was the place where deceased died? (Give address and say whether own residence, lodgings, hotel, hospital, nursing home, &c.)

8. Give the name and address of the ordinary medical attendant of the deceased.

And I make this solemn declaration, conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of The Canada Evidence Act.

Declared before me at the.....of

.....

this.....day of.....19.....

.....

A Commissioner, etc.

.....

Date and hour of Cremation Service.....

Funeral Director.....

Address.....

Cremation Charge $..... Columbarium Niche $..... Urn $.....

Burial Fee $..... Extra Work $..... Total $.....

NOTE:—Caskets or Containers must be of Wood or other Combustible Material, as the body is always cremated in the casket or container as received at the Crematorium.

CORONER'S CERTIFICATE

I certify that I have today viewed the body of.....

.....

.....

and from the history given by:

.....

.....

.....

I am satisfied that the cause of death was:

.....

and that no circumstances exist which could render necessary any further examination of the remains or of any part of the body or any analysis of any matter or substance connected therewith or contained therein.

Dated at.....this.....day

of the month of.....19.....

.....

Coroner

.....

Municipality

Section 52, Chapter 351, Revised Statutes of Onatrio 1937

No body shall be cremated unless and until a certificate in the prescribed form, signed by a duly qualified coroner of the municipality in which the death took place has been deposited with the owner, which certificate shall contain the statement that the cause of death has been definitely ascertained and that there exists no reason for further inquiry or examination.

THE TRUSTEES OF THE TORONTO GENERAL BURYING GROUNDS
THE TORONTO CREMATORIUM

Schedule of Charges

For a Cremation including the use of the Chapel, Cremation and the placing of the cremated remains in a sealed temporary container:	
Adult	$ 40.00
Child	25.00
For Statutory Declaration required when remains are shipped abroad	3.00
Metal container for cremated remains when shipped abroad	1.50
Packing, postage and extra work when shipping remains	3.50
Lease of Niche in the Columbarium in the Toronto Crematorium for a period of 25 years:	
Standard	100.00
Special	225.00
For a second and subsequent rental periods the charges are 1/3 of the above.	
Lettering on the face of Niche in the Columbarium in the Toronto Crematorium:	
Per Letter	.25
For a Niche in the Columbarium in Mount Pleasant Mausoleum:	
Standard	160.00
Special	340.00
Lettering on the face of Niche in the Columbarium in Mount Pleasant Mausoleum:	
Per Letter	.30
Re-opening and sealing Niche for second or subsequent inurnment	7.00
For a tomb and marker in the Toronto Necropolis, including entombment	30.00
Lettering on marker. Per Letter	.35
Interment of cremated remains in private ground or lot or for the second or subsequent interment	6.00

THE TRUSTEES OF THE TORONTO GENERAL BURYING GROUNDS

THE TORONTO CREMATORIUM

Rules and Regulations

Open for Inspection by Appointment

Necessary Forms and Reservation

1. Before cremation can take place, the approved form "Application for Cremation" with Statutory Declaration and Coroner's Certificate, properly filled out, together with burial permit must be delivered to the Crematorium Office, 200 Winchester Street, Toronto.

Caskets or Containers

2. No body will be received for cremation unless enclosed in a casket or container of combustible material, at least equal in weight to 7/8" pine.

Disposal of Cremated Remains

3. Cremated remains will be placed in a sealed temporary container, which will be furnished without additional charge by the Trustees, and such container may be left at the Crematorium for a period of 60 days after cremation. If at the expiry of such period instructions satisfactory to the Trustees for the disposal of such cremated remains have not been given, the same will be buried in the Toronto Necropolis.

Charges

4. No cremation shall take place until the charges are paid.

Included in Cremation Fee

5. The fee for cremation includes use of Chapel, cremation, supplying of container, and delivery of cremated remains at Crematorium.

Shipping Cremated Remains Out of Town

6. When cremated remains are to be sent out of town, an extra charge will be made for packing, postage and extra work involved.

Fee for Statutory Declaration

7. When shipping cremated remains abroad, a Statutory Declaration is necessary, for which a fee is charged.

No Cremations on Sunday, Good Friday or Christmas Day

8. No cremation will take place on Sunday, Good Friday or Christmas Day except when the Local Board of Health orders that the body shall be cremated forthwith.

Disposal of Floral Tributes

9. Floral tributes will not be received in the Crematorium building, but provision will be made for their display on the adjoining grounds. After the third day, they will be destroyed.

Children not Admitted

10. Children under the age of twelve years shall not be admitted to the Crematorium Chapel, except in charge of an adult, who shall be responsible for their conduct.

General Rules

11. All the General Rules and Regulations of the Trustees of the Toronto General Burying Grounds shall apply to the Crematorium as far as the nature of the case permits.

COLUMBARIUM AND GARDEN OF REST

Special provision has been made for the care of cremated remains: full particulars can be obtained on application to the Secretary, Supervisor or Superintendent at the Crematorium.

Niches for Rent

1. Niches may be rented in the Columbarium adjoining the Crematorium Chapel.

Permanent Inurnment

2. Niches for permanent inurnment may be purchased in the Columbarium in Mount Pleasant Mausoleum.

Interment of Cremated Remains

3. The charge for the interment of cremated remains in private graves or in the Garden of Rest shall be the same as those from time to time fixed for opening infants' graves.

Lettering on Niches and Markers

4. Lettering on the face of the niches and markers must be approved by the Trustees, and will be done by the Trustees at prices to be fixed from time to time.

Urns

5. All urns shall be properly sealed. Unless they are to be interred, the design and material of and the inscription on urns must be approved by the Trustees.

Scattering of Remains

6. The scattering of cremated remains in the cemeteries of the Trustees will not be permitted.

Underground Entombment

7. Individual private tombs with marker may be purchased in the Garden of Rest at the Toronto Necropolis.

C. Copy of an Order-in-Council approved by The Honourable, the Lieutenant-Governor, dated the 11th day of June, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 31 of *The Pharmacy Act*, a resolution of the Council of the Ontario College of Pharmacy respecting Oil of Wintergreen, true and synthetic (Methyl Salicylate), passed on Thursday, June the 6th, 1940, and reading as follows, be approved:

"That it be declared that Oil of Wintergreen, true and synthetic (Methyl Salicylate) ought to be deemed a poison within the meaning of *The Pharmacy Act*, R.S.O. 1937, Chapter 228."

The Committee further advise that Oil of Wintergreen, true and synthetic (Methyl Salicylate) be added to Part I of Schedule C of *The Pharmacy Act*.

Certified,

C. F. BULMER,
Clerk, Executive Council.

Copy of an Order-in-Council, approved by The Honourable, the Lieutenant-Governor, dated the 18th day of September, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 31 of *The Pharmacy Act*, Oil of Wintergreen, true and synthetic (Methyl Salicylate), be struck off Part I Schedule C of *The Pharmacy Act* and added to Part II of the said Schedule.

Certified,

C. F. BULMER,
Clerk, Executive Council.

D. Copy of an Order-in-Council approved by the Honourable, the Lieutenant-Governor, dated the 18th day of September, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the bedding regulations made pursuant to clause (zd) of Section 5 of *The Public Health Act*, R.S.O. 1937, Chapter 299, and approved by Your Honour on the 28th day of December, 1938, be amended as follows:

1. Section 1 is amended by adding thereto the following subsection:

(*ff*) "Renovated" as applied to any "bolster," "cushion," "feather bed," "pillow," "comforter," "mattress," or "upholstered furniture," shall mean any "bolster," "cushion," "feather bed," "pillow," "comforter," "mattress," or "upholstered furniture," remade, repaired or renovated not for sale but for return to the owner for his own use.

2. Subsection (2) of Section 4 is amended by adding thereto the following paragraph:

(*c*) Where a "mattress," "bolster," "feather bed," or article of upholstered furniture has been renovated, paragraphs (a) and (b) shall not apply, but it shall be labelled "renovated" on a green label, and the label shall give the name and address of the owner and of the renovator.

3. Subsection (3) of Section 4 is repealed and the following substituted therefor:

The designations "contains new material only," "contains converted material," "contains second hand material" and "renovated," shall be printed on labels in black letters at least ¼" in height and other lettering shall be ⅛" in height and no trade name or other printing shall appear on the label.

Certified,

C. F. BULMER,
Clerk, Executive Council.

E. Copy of an Order-in-Council approved by The Honourable, the Lieutenant-Governor, dated the 23rd day of January, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the attached regulations for health units pursuant to section 35 of *The Public Health Act*, applicable only to the United Counties of Stormont, Dundas and Glengarry, be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council.

REGULATIONS FOR HEALTH UNITS.

(Pursuant to section 35 of *The Public Health Act*, applicable only to the United Counties of Stormont, Dundas and Glengarry.)

1. There shall be a corporation by the name of "The Board of Health for the United Counties of Stormont, Dundas and Glengarry," hereinafter referred to as the Board.

2. The Board shall consist of the following members:—
   (a) the medical officer of health for the Health Unit of the Counties;
   (b) one member to be appointed by the Lieutenant-Governor in Council;
   (c) three members, one of whom shall be the warden for the Counties, to be appointed by the council of the Counties.

3. (1) The three members appointed by the Council of the Counties shall hold office for the calendar year in which they are appointed or until their successors are appointed.

(2) The member appointed by the Lieutenant-Governor in Council shall hold office at the pleasure of the Lieutenant-Governor in Council.

4. The Council of the Counties shall have power to appoint some person to fill out the unexpired term of any member appointed by the council whose appointment becomes vacant.

5. A majority of the members of the Board shall constitute a quorum.

6. The Board shall elect one of the members to act as chairman.

7. There shall be a secretary of the Board who shall be the clerk of the Counties.

8. The members of the Board and the secretary shall be paid five dollars and necessary travelling expenses for every day or part of a day spent in attending a meeting of the Board.

9. The Board shall hold at least six meetings in each year at a time and place to be fixed by resolution of the Board.

10. Any member of the Board may call a special meeting at any time by giving notice in writing to the secretary and to the remaining members.

11. The Board shall exercise within the Counties the same powers and perform the same duties as a local board of health appointed under *The Public Health Act*.

12. The Council of the United Counties of Stormont, Dundas and Glengarry shall appoint a duly qualified medical practitioner, who shall hold a diploma of public health from a University approved by the Department, to be medical officer of health for the Health Unit for the United Counties of Stormont, Dundas and Glengarry, and his appointment shall be subject to the approval of the Minister.

13. The salary of the medical officer of health shall be $4,000 per year.

14. (1) The medical officer of health shall hold office until he has reached the age of 70 years or resigns or is dismissed as hereinafter provided.
   (2) The medical officer of health shall not be dismissed from office except with the approval of two-thirds of the members of the Council of the United Counties of Stormont, Dundas and Glengarry and the consent of the Minister.
   (3) Where the Minister is satisfied that the medical officer of health is incompetent or neglectful of his duties, the Minister may dismiss the medical officer by notice in writing.

15. Section 42 of *The Public Health Act* shall apply in the event of a vacancy, temporary absence or illness of the medical officer of health.

16. The medical officer of health in the Health Unit for the United Counties of Stormont, Dundas and Glengarry shall within the said Counties exercise the same powers and perform the same duties as a medical officer of health appointed under *The Public Health Act*.

17. The Board shall appoint and fix the remuneration of such physicians, public health nurses, sanitary officers, and other personnel as may be deemed necessary by the Department and having such qualifications as the Department shall fix.

18. The treasurer of the United Counties of Stormont, Dundas and Glengarry, shall forthwith upon demand, pay the amount of any account for services performed under the direction of the board and materials and supplies furnished, or for any expenditure incurred by the board or by the medical officer of health or any other officer of the board in carrying out the provisions of this Act or the regulations, after the board has by resolution approved of the account and a copy of the resolution certified by the chairman and secretary has been filed in the office of the treasurer.

19. Out of any moneys appropriated by the Legislature for such purpose, the Department is authorized to pay to the said United Counties a grant equivalent to one-half the proved expenditures for the Health Unit for the said United Counties during the fiscal year ending March 31st, 1941.

F. Copy of an Order-in-Council approved by The Honourable, the Administrator of the Government of the Province of Ontario, dated the 1st day of November, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that section 95a of *The Public Health Act* as enacted by section 8 of *The Public Health Amendment Act, 1938*, be made applicable to the municipalities and areas designated in the attached schedule.

The Committee further advise that this Order-in-Council shall come into force on December 2nd, 1940.

Certified,

C. F. BULMER.
Clerk, Executive Council.

1. IN THE COUNTY OF BRANT:—That part of the Township of Dumfries South, bounded on the west by the line between Lots 12 and 13 and on the north by the line between Concessions 3 and 4 (including the Police Village of St. George).

2. IN THE DISTRICT OF MANITOULIN:—That part of the Township of Carnavon, bounded on the east by the twenty-fifth side line, on the west by the fifteenth side line, on the north by the 3rd Concession, and on the south by the 6th Concession.

   That part of the Township of Assiginack included in the Manitowaning Townsite.

3. IN THE DISTRICT OF PARRY SOUND:—The Township of Himsworth North.

4. The Village of Newbury.

G. Copy of an Order-in-Council approved by The Honourable, the Lieutenant-Governor, dated the 18th day of September, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the regulations respecting courses of instruction and qualifications for medical officers of health, sanitary inspectors and public health nurses, made pursuant clause zc of section 5 of *The Public Health Act*, and approved by Your Honour on the 5th day of September, 1939, be amended as follows:

1. Clause 2 is amended by adding at the end thereof the words "or has had at least five years' experience as medical officer of health in a comparable municipality in the Province of Ontario" so that the said clause shall now read as follows:

2. No person shall be appointed as a full-time medical officer of health unless prior to his appointment he has secured a certificate or diploma issued by a Canadian University, following not less than one year's full-time post-graduate study of public health or a similar qualification issued by a university outside Canada and accepted as equivalent by a Canadian University, or has had at least five years' experience as medical officer of health in a comparable municipality in the Province of Ontario.

2. Clause 9 is repealed and the following substituted therefor:

9. (a) Registration under The Nurses' Registration Act.

(b) A certificate from a university certifying that the nurse has satisfactorily completed a course of not less than one year in public health nursing.

3. Clause 10 is repealed.

Certified,

C. F. BULMER,
Clerk, Executive Council.

H. Copy of an Order-in-Council approved by The Honourable, the Lieutenant-Governor, dated the 19th day of August, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to Section 4 of *The Public Hospitals Act, R.S.O., 1937*, Chapter 390, the following amendments to the Regulations be enacted:

Subsection (1) of Section 34 is amended by striking out the word "frenum" and substituting therefor the word "prepuce", so that the said subsection shall now read as follows:

Any tissues or sections of tissues removed at operation or curettage shall be immediately set aside by the surgeon operating and shall be forwarded by the superintendent with a short history of the case and a statement of the findings at the operation to a laboratory approved by the Minister for examination, provided that any tooth, tonsil, prepuce, hemorrhoid, finger, toe, hand, foot, arm or leg removed or amputated shall not be so forwarded unless the surgeon desires a special examination.

Section 48 is amended by adding the following subsection:

(6) The superintendent shall within twenty-four hours after a stillbirth or neo-natal death occurring in the hospital, forward to the Minister a report of such stillbirth or neo-natal death, on the prescribed form.

Section 56 is amended by adding the following subsection:

(4) For the purposes of any return to be submitted to the inspector of hospitals, and whether or not provincial aid is payable with respect to the patient, the number of patient days shall be ascertained by including the day of admission and excluding the day of discharge.

Section 57 is amended by adding the following subsection:

(2) Provincial aid payable to a Convalescent Hospital for treatment of every patient who at the time of admission was a resident of unorganized territory shall be at the rate of $1.65 per day.

Section 63 is repealed and the following substituted therefor:

No hospital for incurables shall admit as a patient any indigent person except upon two written certificates, each signed by a different legally qualified medical practitioner, according to the prescribed form.

The Committee further advise that the form attached hereto be approved as the prescribed form under Section 63.

Certified,

C. F. BULMER,
Clerk, Executive Council.

I. Copy of an Order-in-Council, approved by The Honourable, the Administrator of the Government of the Province of Ontario, dated the 24th day of October, A.D., 1940.

Upon the recommendation of the Honourable H. C. Nixon, Acting Minister of Health, the Committee of Council advise that regulation 60(b) of the regulations made pursuant to *The Public Hospitals Act, R.S.O., 1937*, chap. 390, by Order-in-Council dated the 30th day of November, 1938, and amendments thereto, be amended by striking out the word "institution" where it occurs the second time in the said regulation and substituting the words "general hospital," so that the regulation shall read as follows:

(b) "Convalescent hospital" shall mean any institution, building, or other premises or place for the treatment of convalescent patients which is under the management and control of, or is affiliated with any general hospital which is an approved hospital under section 3 of *The Public Hospitals Act, 1931*.

Certified,

C. F. BULMER,
Clerk, Executive Council.

J. Copy of an Order-in-Council approved by the Honourable the Lieutenant-Governor, dated the 3rd day of January, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that the Regulations respecting Venereal Diseases approved by Orders-in-Council dated June 10, 1918, April 16, 1920, and December 28, 1922, be amended as follows:

(1) That Form IV.V.D. be amended by deleting in the second sentence the words "until non-infective" and substituting therefor the words "until the degree of treatment secured is considered adequate by the attending physician and the department."

(2) That subsection 2 of regulation (c) of the said regulations be amended by deleting the sentence "He shall continue treatment until non-effective and in default of which he shall be reported to the medical officer of health." and substituting therefor the following sentence: "He shall continue treatment until the degree of treatment secured is considered adequate by the attending physician and the department and in deafult of which he shall be reported to the medical officer of health."

Certified,

C. F. BULMER,
Clerk, Executive Council.

K. Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 11th day of June, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that pursuant to section 5 (Ze) of *The Public Health Act, R.S.O., 1937, c. 299*, as amended by 1940, chap. 22, sec. 2, the attached regulations for summer camps be approved.

Certified,

C. F. BULMER,
Clerk, Executive Council

Copy of an Order-in-Council, approved by the Honourable the Lieutenant-Governor, dated the 26th day of July, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that regulations 2 (c) and (d) of the regulations made the 11th day of June, 1940, pursuant to section 5 (Ze) of *The Public Health Act, R.S.O. 1937, c. 299* as amended by 1940, Chap. 22, sec. 2, be repealed and that the said repeal be made retroactive to the 11th day of June, 1940.

Certified,

C. F. BULMER,
Clerk, Executive Council.

REGULATIONS FOR SUMMER CAMPS (REVISED)

1. IN THESE REGULATIONS:—

   (a) "Department" shall mean Department of Health.

   (b) "Summer Camp" shall mean a camp or summer resort consisting of one or more tents, cabins, vehicles, buildings, or other structures together with the land appertaining thereto, established or maintained as living quarters, with or without charge, for ten or more persons for temporary occupancy of three or more days, but not including labor camps, construction camps, and other premises commonly known as highway tourist camps, or boarding houses and lodging houses for tourists.

   (c) "Operator" shall mean every person who by himself or by his agents owns or operates a summer camp.

2. (a) No summer camp shall be opened, operated or accommodation offered until a license so to do has been obtained from the Department by the operator.

   (b) Every license shall expire on the last day of the calendar year in which the license is issued, and must be renewed each year.

   (c) The Department may suspend or revoke any license if the Department is satisfied that the summer camp for which the license was issued does not comply with any or all of the provisions of these regulations.

3. It shall be the duty of the operator to see that the requirements of these regulations are observed.

4. (a) Every summer camp shall be located on a site that is well drained, and not in an environment prejudicial to health.

   (b) No person suffering from or known to be capable of transmitting a communicable disease shall be admitted to or employed in any summer camp.

   (c) Every summer camp shall be under the continuous supervision of an attendant who shall exercise every reasonable effort to keep the camp in a clean, sanitary condition, and to afford reasonable protection to those using the camp.

   (d) Every summer camp accommodating children under sixteen years of age shall be under the direct care and supervision of a responsible and competent adult.

   (e) All tents, buildings and grounds of summer camps shall be maintained in a clean, sanitary condition at all times.

   (f) Adequate medical care shall be provided at or conveniently available to all summer camps.

5. BUILDINGS:

   (a) Adequate sleeping accommodation shall be provided for each occupant of the camp. The arrangement of sleeping places, the number of beds in relation to floor area and ventilation in tents and other buildings shall meet generally accepted standards.

   (b) Ventilation in sleeping quarters, kitchens, dining rooms and other buildings shall be such as to provide a reasonable movement of air and to assure the comfort of the occupants.

   (c) The doors and windows of kitchens, dining rooms and other buildings shall be adequately screened.

   (d) All permanent buildings in which persons are housed shall provide ready exit in case of fire and shall be equipped with sufficient fire extinguishers or other fire fighting apparatus.

6. WATER SUPPLY:

   (a) Every summer camp shall be provided with an adequate water supply for drinking and domestic purposes. Only water which is of safe, sanitary quality shall be delivered to the camp or be accessible to the occupants for drinking or domestic use.

   (b) The water supply shall be readily available for camp use and shall be placarded as the camp water supply.

   (c) Wells or springs used as sources of water supply shall be so constructed and located as to preclude their pollution by seepage, or drainage from any source.

   (d) No common drinking cup shall be used. Sanitary drinking fountains or individual drinking cups may be used.

7. SANITARY FACILITIES:

(a) Every summer camp shall be provided with convenient and sufficient sanitary accommodation properly designated for each sex. Such facilities shall be located, constructed and maintained that they will not be offensive, become breeding places for flies or cause pollution of any adjacent waters.

(b) All toilet seats shall be thoroughly scrubbed daily with soap or alkali solutions. All privies and buildings containing sanitary accommodation shall be equipped with self-closing, tight-fitting doors. All windows, doors and other openings shall be screened against flies.

(c) Sewage, night-soil from privies, sink wastes, laundry water, bath water and other liquid wastes from the camp shall be disposed of in a sanitary manner. All deposited material shall be covered immediately with earth to a depth of at least nine inches, and shall not be deposited in any area likely to cause pollution of any water supply.

(d) Laundry operations shall not be carried on in natural waters adjacent to or within any summer camp.

8. MILK AND FOOD SUPPLIES:

(a) Only milk, cream or other milk products which have been pasteurized in a pasteurization plant to which a certificate of approval has been issued under the regulations on milk pasteurization plants shall be sold, offered for sale, delivered to or used in any summer camp.

(b) Adequate facilities shall be provided for storage, handling and protection of food and milk supplies. Cold storage shall be available for storing all perishable foods.

9. DISHWASHING:

Adequate facilities including a plentiful supply of hot water, shall be provided for washing all dishes and utensils used at the camp. Dishes and utensils shall be washed free from all grease and film, using soap or other washing compounds, and shall then be immersed for at least 2 minutes in warm water containing at least 100 parts per million of available chlorine.

10. REFUSE:

Covered, water-tight metal receptacles shall be provided in convenient locations for depositing refuse and camp litter. All such refuse shall be collected daily and burned. buried or removed so that no nuisance or offence is created.

11. BATHING FACILITIES:

No bathing at swimming pools or bathing beaches shall be permitted for children under 16 years of age unless under the supervision of a competent attendant trained in life saving procedure. Suitable life saving equipment shall be available. Where swimming pools are provided, they shall be operated in conformity with the regulations of the Province for such pools. Where bathing beaches or other bathing areas are in use the water shall be free from dangerous pollution.

12. LIGHTING:

All buildings and all sanitary accommodation in summer camps shall be adequately lighted.

13. PENALTIES:

Section 119, Subsection 2 of *The Public Health Act, R.S.O., 1939*, Chapter 299 is reproduced here for reference: "Any person who contravenes any other provision of this Act or of the regulations or of any municipal by-law passed under this Act, or wilfully disobeys or neglects to carry out any order or direction lawfully given by the Department, a local board, member of a local board, medical officer of health or sanitary inspector unless it is otherwise provided shall incur a penalty of not less than $5 nor more than $500."

DIVISION OF MEDICAL STATISTICS

A. HARDISTY SELLERS, B.A., M.B., D.P.H., *Director.*

C. ROGER MYERS, M.A., Ph.D., *Acting.*

On November 12th, 1940, Dr. A. Hardisty Sellers, Director of the Division of Medical Statistics since its establishment in 1936, was granted extended leave of absence for service with His Majesty's Forces (R.C.A.F.)

As in previous years, the regular work of the Division has included the collection, analysis and reporting of statistical information relating to various aspects of public health in Ontario. For convenience, the work of the Division may be classified in terms of statistical analysis relating to mental hospitals, public hospitals, cancer control and special problems.

1. MENTAL HOSPITALS STATISTICS

(*a*) *Monthly Surveys and Reports.*

Each Ontario Hospital submits to the Department of Health (Hospitals Division) monthly statements showing the movement of patient population, accidents, etc. These reports were used by the Division of Medical Statistics in compiling a monthly report which indicates the increase or decrease in patient population as compared with the previous year. Regular monthly surveys concerning bed occupancy, accidental injuries, etc., in each hospital together with periodic analyses of admissions, discharges and population trends were also compiled for the Hospitals Division.

(*b*) *Annual Report.*

Each Ontario Hospital also submits an annual report comprising 30 statistical tables dealing with the resident population, admissions, discharges and deaths. These reports together with supplementary information concerning nursing, dental, laboratory and other special services were used by the Division in preparing the seventy-second annual report of the Ontario Hospitals covering the fiscal year ending March, 1939. In addition to the usual statistical tables, the Division prepared a statistical review in which attention was called to certain significant trends in Ontario's mental hospital statistics.

(*c*) *Mental Health Clinics.*

The coding and tabulation of individual Mental Health Clinic records was continued during this year and the results of this analysis were incorporated in the annual report of the Hospitals Division. Arrangements have now been completed for each clinic to submit a uniform statistical report annually. It is expected that this will relieve the Division of a heavy load of routine clerical work.

(*d*) *Mental Hospital Index.*

The alphabetical index covering all males between the ages of 16-44 years who have been patients in mental hospitals or have been examined by Mental Health Clinics, which was commenced in November, 1939, was continued during 1940. This index now provides a complete record of all such persons which is readily available in the event of enquiry by National Defence authorities.

2. Survey of Public General Hospitals

The Survey of Public General Hospitals in Ontario, which was commenced in 1936 involved a review of general and financial statistics on hospitalization in the Province and an analytical study of the records of 70,000 hospital patients. *Parts II and III* of this Survey were issued in 1939 and were devoted to a presentation of the important trends in hospitalization and a discussion of such aspects of the problem as distribution and use of facilities, adequacy of accommodation, hospital costs and governmental expenditures, etc.

During 1940, two additional volumes of the Survey were completed. These comprise the morbidity study and constitute the important feature of the Survey:

Part IV: "Special Morbidity Studies."

Part IV is devoted principally to an exploration of the fundamental facts in connection with hospital care of indigent patients. It is found that the crude average duration of care for municipal indigents is markedly higher than for either self-pay public ward or private and semi-private patients; that the observed excess for indigents exists in all major disease groups and also in individual disease entities; and that this excess for indigent patients is not due merely to a greater frequency of complicated cases. The possible significance of these findings is discussed at some length. Broader issues are also considered, including the problem of "long stay" patients, geographic variations in hospitalization, morbidity and economic status, etc.

Part V: "Hospital Morbidity and Its Causes."

Part V presents a review of the salient features concerning the causes of hospital morbidity. Data on the relationship between sex and age and the need for hospital care are presented. The excess in hospitalization among females over that among males, both in frequency and in volume of care, is found to be due essentially to diseases and conditions of pregnancy, childbearing and the puerperal state. Length of stay in hospital per case increases with age in both sexes.

The diseases and conditions responsible for hospitalization are reviewed in some detail. Among the chief causes leading to hospitalization, diseases of the digestive system rank first in terms of both the number of cases and the duration of care provided. Diseases classified under this heading accounted for one quarter of all cases studied and one-sixth of the total hospital days provided. Diseases of the tonsils and adenoids contributed 6,982 patients, or 11.5 per cent. of all discharges during the survey period. Appendicitis contributed 4,223 patients, or nearly 7 per cent. of all discharges for the period.

The importance of accidents and injuries as a cause of hospitalization is emphasized by the finding that they contributed 10 per cent. of both patients and days of hospital care. Fractures alone were responsible for 2,493 patients (4.1%) and 51,563 days of care in hospital (6.3%).

Of the twenty-three leading causes of hospitalization which are responsible for two-thirds of all patients and days of care, appendicitis, fractures and wounds, cancer, diseases of the heart and arteries, abortions and pneumonia are found to be of major importance in the order stated.

The significance of "chronic disease" as a factor in hospital morbidity is indicated by the finding that more than half of all days in hospital care are devoted to patients suffering from conditions classifiable under this heading.

Among indigent patients, this proportion rises to almost two-thirds of all days of care. Other features of the morbidity among pay and non-pay patients are also discussed.

While no claim is made that this analysis of public hospital morbidity is complete, an effort has been made to select those aspects of the subject which have an immediate bearing on the problems faced by hospital and public health authorities.

The work involved in the completion of this comprehensive survey has necessarily absorbed a large proportion of the time of the Division. With its completion there will be greater opportunity to offer statistical service to other Divisions in the Department.

3. Cancer Statistics

(a) Cancer Clinics.

Since its inception the Division of Medical Statistics has been responsible for the collection and analysis of statistical information in the field of cancer control. Through an arrangement with the seven Ontario Cancer Clinics, the follow-up record cards for all patients were forwarded to the Division. An analysis of all new cases examined by these clinics during 1940 was made. A report of this analysis is to be found on page 164 of this Report.

All deaths occurring among patients treated for cancer in the clinics were checked against the official death certificates and in this and other ways an effort has been made to assist the clinics in completing their follow-up record of patients. Visits were made during the year to each of the clinics for the purpose of reviewing the record system and assisting with difficulties in respect to statistical tabulation.

(b) Cancer Morbidity.

In view of the need for further information concerning the number of persons in a given district who are alive with cancer during a given period, a survey of all diagnosed cancer cases in the county of Middlesex was completed during 1940. This survey was made in collaboration with the Ontario Medical Association. In December, 1939, suitable forms were sent to physicians and hospitals in Middlesex County with a request for specific information concerning all cases of cancer (or probable cancer) which had been seen during that calendar year. Reports have now been received from nearly all sources of information and a beginning has been made on the analysis of the data thus made available.

(c) Cancer in Ontario Public Hospitals.

An analysis of all cases of cancer treated in Ontario Public Hospitals during the year 1937 is now in process of completion. The monthly returns submitted by the hospitals during that year provide information concerning a total of 9,597 cases (including 4,891 cases of cancer and 4,402 cases of benign tumours). In this study it is planned to examine the relation between site of cancer and age, sex, residence, first and re-admission, days stay in hospital, type of patient and mortality. The results of this survey will be available during 1941.

4. Special Problems.

(a) Nurse Enrolment.

During 1940, the Department of Health undertook a voluntary enrolment of all persons in the Province who were qualified and willing to provide any type of civilian nursing service in the event of a possible war-time emergency.

A total of 9,024 graduate nurses and 1,665 practical nurses completed the enrolment questionnaire which provided information concerning location, qualification, experience, availability, and preference for service. The organization and tabulation of this information was undertaken by this Division. In addition to the statistical analysis of this material, suitable alphabetical indices were established which make this information regarding potential nursing personnel readily available for any given municipality in the Province.

(*b*) *Maternal Mortality.*

The detailed study of the official records concerning all deaths due to or associated with pregnancy or childbirth in Ontario since 1934 has been delayed by pressure of other work but will be resumed during 1941.

(*c*) *Chief Causes of Death.*

Following the procedure established two years ago, the Division prepared and issued a bulletin concerning the chief causes of death in Ontario during 1939. This summary was sent to Medical Officers of Health in the larger municipalities throughout the Province. This data is appended to the present Report. (See below.)

(*d*) *Miscellaneous.*

So numerous and various were the specific requests for statistical information received by the Division during the year that no useful purpose would be served by their enumeration here. It should be emphasized, however, that a significant proportion of the work load carried by the Division takes the form of securing prompt and accurate replies to such enquiries. In addition to this, the preparation of diagrams, charts and maps for special purposes constitutes another type of useful statistical service. Such work is of recognized value to other Divisions in dealing with their administrative, research and educational problems.

THE CHIEF CAUSES OF DEATH IN ONTARIO DURING 1939

The following tables are based on the official records of the Registrar General's office and show in summarized form the chief causes of death in Ontario for the year 1939.

The crude death rate for 1939 was 10.00 per 1,000 population. This represents a very slight increase over the rate of 9.89 per 1,000 population reported for the previous year. Decreases in several categories were balanced by a considerable increase in the number of deaths attributed to influenza, leaving the crude death rate almost unchanged.

In Table I the twenty chief causes of death are listed. For each "cause" is shown the number of recorded deaths, the specific death rate per 100,000 population and the per cent. of all deaths due to the specified cause. Taken together, the twenty principal causes which are listed were responsible for 31,850 deaths, or 85 per cent. of the 37,530 deaths recorded during the year.

TABLE I.

CHIEF CAUSE OF DEATH—ALL AGES

ONTARIO—1939

Rank	Cause of Death	Int'l List Numbers	Number of Deaths	Specific Death Rate*	Per Cent. of Total Deaths
1.	Diseases of the heart	90-95	7,705	205.4	20.5
2.	Cancer (all forms)	45-53	4,567	121.7	12.2
3.	Diseases of the arteries	96-99	4,447	118.5	11.8
4.	Accidental causes	176-195	2,322	61.9	6.2
5.	Pneumonia and bronchitis	106-109	2,259	60.2	6.0
6.	Nephritis	130-132	1,889	50.3	5.0
7.	Influenza	11	1,190	31.7	3.2
8.	Tuberculosis (all forms)	23-32	1,085	28.9	2.9
9.	Prematurity	159	939	25.0	2.5
10.	Idiopathic abnormalities of blood pressure	102	854	22.8	2.3
11.	Cerebral haemorrhage embolism and thrombosis	82	814	21.7	2.2
12.	Diabetes mellitus	59	657	17.5	1.8
13.	Congenital malformations	157	505	13.5	1.3
14.	Diseases of the prostate	137	500	13.3	1.3
15.	Diarrhoea, enteritis and dysentery	13, 119 & 120	417	11.1	1.1
16.	Senility	162	400	10.7	1.1
17.	Suicide	163-171	357	9.5	1.0
18.	Hernia, intestinal obstruction	122	356	9.5	0.9
19.	Appendicitis	121	318	8.5	0.8
20.	Ulcer of stomach and duodenum	117	309	8.2	0.8
	Total		31,890	8.50†	85.0
	All other causes		5,640	1.50†	15.0
	Grand Total		37,530	10.00†	100.0

*Rates per 100,000 population.

†Rates per 1,000 population.

Population of Ontario 1939 (estimated) 3,752,000.

Diseases of the heart, arteries and kidneys were recorded as the cause in 14,041 deaths, or 37.3 per cent. of all deaths. During the previous year, these causes contributed 36.2 per cent. of all deaths. However, in view of such factors as the older age structure of the population and improved definition

in certification, the apparent increase in the proportion of deaths attributed to these causes must again be interpreted with caution. More than one-half of these deaths occurred at ages 70 years and over.

Cancer contributed 4,567 deaths or 12.2 per cent. of the total. The specific death rate of 121.7 per 100,000 population in 1939 compares with a rate of 119.9 per 100,000 population for the previous year but remained below the peak rate reached in 1937. One-third of all cancer deaths occurred at ages under 60 years.

Accidents continue to be a leading cause of death. In 1939, they replaced pneumonia as fourth in the list of chief causes of death (all ages). The relative importance of this cause of death is further indicated by the fact that it ranks *first* as a cause of death for ages from one to 19, and is exceeded only by diseases of the heart for ages from 20 to 49. The prominence of this cause of death at ages under 50 suggests that there is no disease to-day which constitutes as common a *preventable* cause of death as do scalds, burns, drowning, automobile and other accidents.

Respiratory disease mortality in 1939, as compared with the previous year, showed an increase in deaths due to influenza and a decrease in deaths due to pneumonia. In 1938, there were only 618 deaths attributed to influenza (16.6 per 100,000 population), while, in 1939, there were 1,190 such deaths (31.7 per 100,000 population). Deaths attributed to pneumonia, on the other hand, dropped from 2,583 in 1938 (69.2 per 100,000 population) to 2,259 in 1939 (60.2 per 100,000 population).

Tuberculosis mortality continues to decrease. In 1938, a new low for Ontario was reached with 1,237 deaths from tuberculosis or a rate of 33.1 per 100,000 population. In 1939, a further substantial decrease was recorded with only 1,085 such deaths or a rate of 28.9 per 100,000 population. It should be noted again, however, that more than one-half of the tuberculosis deaths occurred at ages 20 to 49 years and that nearly three-quarters of such deaths occurred at ages under 60 years.

Prematurity was recorded as the cause of 939 infant deaths during the year. The fact that nearly 30 per cent. of all deaths in the age group under 1 year are attributed to prematurity indicates the importance of further efforts to reduce the frequency of the etiological factors responsible for premature birth.

Diabetes was recorded as the cause of 657 deaths. Eighty-nine per cent. of these deaths occurred among persons over 50 years of age.

Diarrhoea, enteritis and dysentery were responsible for 417 deaths, two-thirds of which occurred among children under 2 years of age. The rate of 11.1 per 100,000 population for 1939 compares favourably with the rate of 14.6 per 100,000 population, for 1938.

Appendicitis, to which 318 deaths were attributed in 1939, showed a specific death rate of 8.5 per 100,000 population and reflected little change from the previous year. Over 70 per cent. of these deaths occurred at ages under 50 years while 32 per cent. occurred at ages under 20 years.

In Table II the chief causes of death are shown separately for various age groups. For each age group, the Table shows the eight most common causes of death; the number and per cent. of deaths in that age group due to each cause; the total number of deaths for each cause; and the per cent. of all deaths for each cause which occurred in the specified age group.

TABLE II

CHIEF CAUSES OF DEATH—CERTAIN AGE GROUPS
ONTARIO, 1939

Cause of Death	Deaths in Age Group	Percent. of Deaths in Age Group Due to Specified Cause	Deaths Due to Specified Cause at All Ages	Percent. of Deaths Due to Specified Cause in Age Group
Age—Under 1 year	2,979	.....	.....	.....
1. Prematurity	939	28.9	939	100.0
2. Congenital malformations	429	13.2	505	85.0
3. Pneumonia and bronchitis	342	10.5	2,259	15.1
4. Injury at birth	261	8.0	261	100.0
5. Diarrhoea, enteritis and dysentery	236	7.3	417	56.6
6. Dis. peculiar to early infancy*	214	6.6	214	100.0
7. Congenital debility	90	2.8	90	100.0
8. Influenza	70	2.2	1,190	5.9
Totals for 1-8	2,581	79.5	5,875	43.9
Ages—1-4 years	631	.....	.....	.....
1. Accidental causes	133	21.1	2,320	5.7
2. Pneumonia and bronchitis	88	13.9	2,259	3.9
3. Influenza	45	7.1	1,190	3.8
4. Diarrhoea, enteritis and dysentery	41	6.5	417	9.8
5. Congenital malformations	30	4.8	505	5.9
6. Tuberculosis (all forms)	26	4.1	1,085	2.4
7. Scarlet fever	23	3.6	53	43.4
8. Appendicitis	19	3.0	318	6.0
Totals for 1-8	405	64.2	8,147	5.0
Ages—5-14 years	679	.....	.....	.....
1. Accidental causes	197	29.0	2,320	8.5
2. Appendicitis	55	8.1	318	17.3
3. Pneumonia and bronchitis	46	6.8	2,259	2.0
4. Tuberculosis (all forms)	43	6.3	1,085	4.0
5. Acute rheumatic fever	32	4.7	134	23.9
6. Influenza	26	3.8	1,190	2.2
7. Diseases of the heart	23	3.4	7,705	0.3
8. Cancer (all forms)	19	2.8	4,567	0.4
Totals for 1-8	441	64.9	19,578	2.3
Ages—15-19 years	480	.....	.....	.....
1. Accidental causes	120	25.0	2,320	5.2
2. Tuberculosis (all forms)	64	13.3	1,085	5.9
3. Appendicitis	28	5.8	318	8.8
4. Pneumonia and bronchitis	22	4.6	2,259	1.0
5. Puerperal state	20	4.2	276	7.2
6. Influenza	19	4.0	1,190	1.6
7. Diseases of the heart	18	3.7	7,705	0.2
8. Acute rheumatic fever	15	3.1	134	11.2
Totals for 1-8	306	63.7	15,287	2.0

*Under 3 months of age.

TABLE II—Continued

CHIEF CAUSES OF DEATH—CERTAIN AGE GROUPS
ONTARIO, 1940

Cause of Death	Deaths in Age Group	Percent. of Deaths in Age Group Due to Specified Cause	Deaths Due to Specified Cause at All Ages	Percent. of Deaths Due to Specified Cause in Age Group
Ages—20-49 years	5,064	.....	.....	.....
1. Diseases of the heart	704	13.9	7,705	9.1
2. Accidental causes	656	13.0	2,322	28.3
3. Cancer (all forms)	595	11.7	4,567	13.0
4. Tuberculosis (all forms)	550	10.9	1,085	50.7
5. Puerperal state	256	5.1	276	92.8
6. Pneumonia and bronchitis	205	4.0	2,259	9.1
7. Nephritis	196	3.9	1,889	10.4
8. Influenza	131	2.6	1,190	11.0
Totals for 1-8	3,293	65.0	21,293	15.5
Ages—50-59 years	4,410	.....	.....	.....
1. Diseases of the heart	1,086	24.6	7,705	14.1
2. Cancer (all forms)	893	20.2	4,567	19.6
3. Diseases of the arteries	237	5.4	4,447	5.3
4. Nephritis	234	5.3	1,889	12.4
5. Accidental causes	228	5.2	2,320	9.8
6. Pneumonia and bronchitis	176	4.0	2,259	7.8
7. Tuberculosis (all forms)	173	3.9	1,085	15.9
8. Abnormalities of blood pressure	150	3.4	854	17.6
Totals for 1-8	3,177	72.0	25,126	12.6
Ages—60-69 years	6,872	.....	.....	.....
1. Diseases of the heart	1,862	27.1	7,705	24.2
2. Cancer (all forms)	1,211	17.6	4,567	26.5
3. Diseases of the arteries	709	10.3	4,447	15.9
4. Nephritis	413	6.0	1,889	21.9
5. Pneumonia and bronchitis	331	4.8	2,259	14.7
6. Accidental causes	231	3.4	2,320	10.0
7. Abnormalities of blood pressure	228	3.3	854	26.7
8. Diabetes mellitus	207	3.0	657	31.5
Totals for 1-8	5,192	75.6	24,698	21.0
Ages—70 years and over	16,391	.....	.....	.....
1. Diseases of the heart	3,995	24.4	7,705	51.8
2. Diseases of the arteries	3,431	20.9	4,447	77.2
3. Cancer (all forms)	1,827	11.1	4,567	40.0
4. Pneumonia and bronchitis	1,048	6.4	2,259	46.4
5. Nephritis	1,003	6.1	1,889	53.1
6. Accidental causes	700	4.3	2,320	30.2
7. Influenza	636	3.9	1,190	53.4
8. Cerebral haem. emb. and thrombosis	492	3.0	814	60.4
Totals for 1-8	13,132	80.1	25,191	52.1

Infancy. Infant mortality showed a further decrease in 1939 to a new low for Ontario of 46.5 infant deaths per 1,000 live births. In 1938 this rate was 49.6 per 1,000 live births which represented a reduction of almost 10 per cent. below the level for the two preceding years. Leading causes of infant deaths remain the same—prematurity, congenital malformations and diseases peculiar to infancy contributing one-half of all deaths during the first year of life.

Pre-School Age. While accidental causes continue to contribute one-fifth of the deaths in this age group, pneumonia and bronchitis (which in 1938 also contributed one-fifth) showed a substantial decrease in this age group for 1939, contributing only 13.9 per cent. of the deaths.

School Age. Accidental causes, appendicitis, pneumonia and tuberculosis, in that order, are the leading causes of death at ages 5-14 years. The prominence of accidents as a cause of death at these ages is especially striking, nearly one-third of all deaths for this group being due to this type of cause.

Adolescence. Accidents and tuberculosis (all forms) are again found to be the leading causes of death in this age group 15-19 years. Tuberculosis, which in 1936 was the leading cause of death in this age group, has shown a gradual decrease and now contributes only 13 per cent. of adolescent deaths.

Ages 20-49 years. Diseases of the heart now take first rank as a cause of death at these ages. Nearly one-half of all deaths in this age group were caused by diseases of the heart, accidental causes, cancer or tuberculosis.

Ages 50 and over. Diseases of the heart, arteries and cancer were the chief causes of death at these ages. One-fourth of all deaths were attributed to diseases of the heart and in the age group 50-59 years, one-fifth of the deaths are attributed to cancer.

This review of the chief causes of death in Ontario during 1939 is designed merely to bring out certain of the more general features of mortality experience. Especially noteworthy among the developments during 1939 were:—

(a) A new low in the tuberculosis death rate—28.9 per 100,000 population.

(b) A new low in the infant mortality rate—46.5 per 1,000 live births.

THE LIBRARY OF THE DEPARTMENT OF HEALTH

FREDRITA HENLEY WRIGHT, *Librarian.*

During the year all public health libraries have experienced an unprecedented increase in the use of facilities, and the Department's library has been no exception. The headings "War Medicine" and "National Defence" are new additions to the subject catalogue and have been responsible for an increased demand for information during the year.

Literature on the health of the worker in industry, particularly those industries engaged in war effort, was in constant use, as was literature on research in gas warfare. War medicine, including aviation medicine, war neuroses, etc., communicable disease control, and the newer knowledge of nutrition as applied to military and civilian life, have been very much to the fore in the requests for information.

Bibliographies continue to represent an important part of the year's work. Many were prepared and sent upon request to staff members in the outside service.

ACCESSIONS

During 1940 the following accessions were made:

CENTRAL LIBRARY

Books purchases	86	
Journals	154	(vols.)
Reports	87	
Pamphlets	1,509	
Total	1,836	

Subscriptions to journals for the year numbered 106; while the library received 18 complimentary subscriptions; a total of 124.

ONTARIO HOSPITALS

Books purchased		
Medical	36	
Fiction		
New	.....	
Library discards	685	
Journal subscriptions	104	
Year Books	9	
Periodicals		
New (subscriptions)	153	
Unsold copies	8,175	(approx.)
Newspapers (subscriptions)	147	
Total	9,310	

LOAN SERVICE

There were 5,397 loans made by the Central Library during 1940, an increase of 342 over the previous year when the loans reached a total of 5,055. Within the immediate Department, requests for loans were met to the number of 4,122. To the outside service the Central Library dispatched 1,275 references. The loan service from the Central Library is extended to: Physicians, Nurses, Occupational Therapists and Dietitians connected with hospital administration and to the Directors and staffs of the Mental Hygiene Clinics of the Department.

Loan service includes also the Directors and staffs of the Branch Laboratories.

CIRCULATION OF JOURNALS

The regular circulation of journals was maintained during the year. Journals were circulated to the Clinicians in charge of the Provincial Travelling Chest Clinics at North Bay, Belleville, Ottawa and Timmins and to the Tuberculosis Unit of the Ontario Hospital at Woodstock.

Journals containing articles dealing with metrazol in the treatment of schizophrenia were circulated, immediately upon receipt, to the seven (7) Ontario Hospitals doing special work on this disease.

The Branch Laboratories at North Bay, Fort William, Sault Ste. Marie, Peterboro and Ottawa also received a regular circulation service. Scientific and medical journals on cancer research also were forwarded regularly to the Ensol Laboratory at Kingston.

The nursing staff of the Eastern Ontario Health Unit received "Public Health Nursing" and "Parents" each month.

PATIENTS' LIBRARIES

The interest of the Central Library in procuring reading material for patients in the Ontario Hospitals was continued during 1940. In this endeavour the following literature was placed at the disposal of the patients.

Books: The Central Library purchased 685 library discards which were shipped to the Ontario Hospitals.

Periodicals: The Central Library placed 153 annual subscriptions to periodicals for the exclusive use of the patients. Arrangements with a Toronto news agency for the purchase of unsold periodicals, upon special terms, were also made. Under this plan approximately 8,176 copies were delivered to the patients' libraries.

Newspapers: The Central Library placed 147 subscriptions to different Provincial newspapers for the sole use of the patients. In addition, 3,050 unsold copies of papers were donated to the patients through the kindness of Toronto publishers who delivered them to the Central Library where they were apportioned and re-shipped to the hospitals.

ONTARIO HEALTH OFFICERS' ASSOCIATION

The Central Library again presented an exhibit at the Annual Convention of the Ontario Health Officers' Association. Books on different phases of public health work were selected from the shelves of the Central Library These were augmented by new books and new editions of texts and reference works loaned, for the period of the Convention, to the library by Toronto publishers. This co-operation was most generously given and added materially to the value of the display.

Public health pamphlets and other literature issued by the Department were also exhibited, thus enabling the members to make a note of the publications they may need at a future date.

The library exhibit is planned particulary to assist medical officers of health, public health nurses, sanitary inspectors, laboratory technicians and other public health workers in the selection of reading material pertaining to their particular spheres of interest.

The expression of opinion by those in attendance at the meeting, showed that the exhibit was of definite value.

DIVISION OF EPIDEMIOLOGY

H. A. Ansley, M.B., D.P.H., *Director.*

The Report of the activities of the Division is presented in the following sections:

Section 1. Annual Survey—1940.

(a) Communicable Disease Control (Legislation, Recording, and Reporting, Control of Outbreaks, Special Studies),

(b) Annual Incidence for each disease.

Section 2. Distribution of Literature.

Section 3. Local Health Administration.

Section 4. Distribution of Biological Products and Insulin.

Index to Tables: The following Statistical Tables appear throughout this Report:

SECTION 1. ANNUAL SURVEY, 1940.

A. Communicable Disease Control.

Legislation. No changes during the year were made in the Regulations governing the control of communicable diseases, except that the breadwinner in contact with cases of cerebro-spinal meningitis must be quarantined for ten days.

Reporting and Recording of communicable diseases. The reporting of cases and deaths was somewhat improved in 1940, as more effort was expended in assistance to Secretaries of Local Boards of Health in the recording of disease incidence. This Division provides cards for the "weekly report" of

communicable diseases, and added during the year a sample Local Recording Form for use in local municipalities. A visible-card system was installed in this Division in December, 1940, whereby monthly notice may be sent municipalities regarding any delinquency in reporting. Revision of various reporting forms was continued for both the 900 organized municipalities and the unorganized territories.

Laboratory Reports, from the Division of Laboratories and its Branches, continued to be one of the chief sources of information about the incidence of known or suspected cases, and from such reports case information is now routinely followed up by this Division in the following diseases:—Typhoid and Paratyphoid Fevers, Poliomyelitis, Cerebro-spinal Meningitis (meningococcic type), Undulant Fever, Diphtheria, Tularemia, Ophthalmia Neonatorum, Actinomycosis; and if in institutions, on diary farms or in local epidemics—Dysentery, Scarlet Fever and Septic Sore Throat.

The control of communicable diseases in unorganized areas within the Province is primarily the responsibility of the Provincial Department of Health. During 1940 the problems in the various areas were reviewed and the policy of the Department realigned in order to ensure adequate control measures and standard practice regarding isolation, quarantine, hospitalization, transportation and immunization procedures, on a basis acceptable to the Department.

Special Studies: During the year special epidemiological studies were undertaken as follows:

1. Ten-year survey of typhoid fever in Ontario.
2. Typhoid Carrier Survey in Ontario.
3. Annual Reviews for 1938 and 1939 of poliomyelitis in Ontario.
4. Recovery from Poliomyelitis—a follow-up study of the 1937 cases.
5. Meningitis Carrier survey in the Army.
6. Influenza Vaccine study.
7. Dysentery in Ontario Hospitals.
8. Field studies of Biological Products.
9. Scarlet Fever Immunization in Mental Hospitals.

Further references to the studies are made under the heading of the corresponding disease.

Diagnostic and Consultative Work. The staff of this Division continued to give aid throughout the year to various institutions such as Public General Hospitals and the Ontario Mental Hospitals, to Medical Officers of Health, and to Practising Physicians in the diagnosis of acute infectious diseases. A total of 73 field trips were made for such purpose by the staff in 1940. In addition, aid was given in scarlet fever immunization work at the Ontario Hospitals at New Toronto, Queen Street and Orillia, where all the staff and all the patients were Dick tested and all those found positive were immunized with scarlet fever toxin.

Control of Outbreaks of Disease. While the year 1940 showed a lessened incidence of all diseases except influenza and cerebro-spinal meningitis, still the prevention and control of outbreaks in both Organized and Unorganized areas of the Province continued to be one of the major concerns of this Division.

Except for cerebro-spinal meningitis and influenza, no outbreak of any disease attained widespread prevalence. The major outbreaks reported to the Department are shown in Table I.

TABLE I

SUMMARY OF CHIEF OUTBREAKS OF DISEASE—1940

DISEASE	Reported Outbreaks Number	Estimated Cases Number	Aid Given by Departmental Staff—No. of Outbreaks
Actinomycosis	1	1	1
Measles	13	150	10
Scarlet fever	12*	42	10
Whooping cough	3	54	....
Diphtheria	4	19	2
Typhoid	8	63	8
Paratyphoid	4	9	3
Dysentery	4*	81	4
Poliomyelitis	2	7	2
Psittacosis	2	4	2
Smallpox	1	6	1
Trichinosis	1	17	1

*4 outbreaks of each disease were in hospitals:—Meningitis (meningococcus) and Influenza cases showed general prevalence throughout the Province rather than local concentration.

Psittacosis (Parrot Fever) was proven in December for the first time to exist in the Province, though clinically suspicious but unconfirmed cases had previously occurred.

Trichiniasis was discovered as the cause of an outbreak of 17 or more cases. This was the second known outbreak in Ontario, the first having been in Windsor and Harrow in 1937.

As these diseases were only discovered to be present in the Province late in the year, the final methods to be used in their control remain to be evolved in 1941.

In the diagnostic and control work associated with local outbreaks, the staff of the Division made 163 field trips to 60 municiaplities, including 12 hospitals or institutions. This does not include the work in outbreak control contributed by the Departmental Medical Consultants, or that of the Provincial Sanitary Inspectors.

The staff of the Department was able to assist in communicable disease control in two General Hospitals, two Colleges and six Mental Institutions during the year.

The following Table (Table II) presents the incidence of the various diseases in 1940 and for contrast similar statistics for the past five years.

TABLE II

FIVE YEAR INCIDENCE—REPORTED CASES AND DEATHS—ONTARIO, 1936–1940

DISEASES	1936		1937		1938		1939		1940	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Actinomycosis	1	1	6	.....	2	1	2	.....	6	1
Meningitis (Meningococcus)	52	38	67	27	88	22	64	18	145	29
Chickenpox	11,301	1	11,795	1	10,881	.....	11,133	2	15,993	2
Conjunctivitis	1	.....	6	1	13	.....	2	.....	6	.....
Diphtheria	290	8	506	29	234	6	131	7	78	12
Dysentery (Bacillary)	91	2	103	9	162	8	53	4	104	2
Encephalitis (Lethargica)	12	18	11	11	11	8	9	10	8	2
Erysipelas	168	18	139	11	128	10	187	5	124	7
Gonorrhoea	2,738	.....	3,481	1	4,188	1	4,125	.....	4,566	.....
Influenza	1,869	53	13,330	185	943	31	8,284	137	3,327	17
Infectious Jaundice	46	2	89	2	701	2	502	3	110	1
German Measles	29,351	4	913	.....	867	.....	1,160	.....	2,073	.....
Measles	26,429	18	15,809	5	16,606	6	27,827	17	16,200	7
Mumps	13,699	1	9,696	.....	4,119	.....	3,296	.....	9,872	1
Paratyphoid Fever	59	1	80	2	68	.....	58	1	51	1
Pneumonia, all types	788	2,116	1,020	2,585	1,221	2,185	1,207	2,076	1,036	1,685
Poliomyelitis	208	12	2,544	109	160	18	216	13	87	9
Psittacosis	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Puerperal Sepsis	4	8	6	8	9	12	9	13	8	7
Scarlet Fever	8,927	41	5,581	27	5,359	35	6,767	41	5,696	21
Septic Sore Throat (Epidemic Type)	160	19	244	12	113	6	209	5	294	6
Smallpox	.....	.....	.....	.....	6	.....	1	.....	.....	.....
Syphilis	2,000	15	2,415	23	3,010	47	3,285	38	5,222	48
Tetanus	5	8	10	10	11	7	15	8	13	7
Trachoma	70	.....	2	.....	3	.....	5	.....	2	.....
Trichinosis	.....	.....	.....	.....	.....	.....	.....	.....	17	.....
Tuberculosis	2,277	554	2,371	525	2,520	505	2,570	419	2,580	389
Tularemia	.....	1	1	.....	1	.....	1	.....	3	.....
Typhoid Fever	251	27	241	17	235	31	119	9	159	24
Undulant Fever	127	2	104	.....	97	.....	66	.....	64	2
Whooping Cough	7,890	29	5,040	9	7,569	32	7,023	18	5,517	29
Malaria	.....	.....	.....	.....	6	.....	2	.....	1	.....

1B. ANNUAL INCIDENCE FOR EACH DISEASE

Typhoid and Paratyphoid Fevers (also Carrier Control), Poliomyelitis, Tularemia, Diphtheria, Smallpox, Measles, Chickenpox, Cerebro-Spinal Meningitis, Undulant Fever, Scarlet Fever, Septic Sore Throat, Psittacosis, Trichinosis, Dysentery.

TABLE III

GEOGRAPHIC DISTRIBUTION OF CASES AND DEATHS—ONTARIO, 1940

County or District	Meningitis (Meningococcus)		Diphtheria		Encephalitis (Lethargica)		Para-typhoid		Polio-myelitis		Tularemia		Typhoid		Undulant Fever	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Algoma	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	0	.....	.....
Brant	4	1	.....	.....	1	.....	.....	.....	9	1	.....	.....	7	2	2	.....
Bruce	1	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	2	.....
Carleton	12	.....	9	1	.....	.....	1	.....	3	.....	.....	.....	6	1	2	.....
Cochrane	1	1	1	.....	.....	.....	5	.....	1	.....	1	.....	23	3	.....	.....
Dufferin	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Elgin	.....	.....	4	1	2	1	.....	.....	2	.....	.....	.....	1	.....	2	.....
Essex	3	1	4	.....	.....	.....	1	.....	5	.....	.....	.....	3	1	3	.....
Frontenac	17	4	1	.....	1	.....	.....	.....	.....	.....	.....	.....	3	1	.....	.....
Grey	2	1	1	.....	.....	.....	.....	.....	2	1	.....	.....	4	2	1	.....
Haldimand	1	.....	.....	.....	.....	.....	.....	.....	4	1	.....	.....	.....	.....	2	.....
Haliburton	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Halton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Hastings	3	.....	1	.....	.....	.....	3	.....	.....	.....	.....	.....	1	.....	.....	.....
Huron	.....	.....	1	.....	.....	.....	1	.....	4	1	.....	.....	3	2	4	.....
Kenora	2	.....	2	1	.....	.....	.....	.....	1	.....	.....	.....	4	2	.....	.....
Kent	2	.....	1	1	.....	.....	.....	.....	2	.....	.....	.....	1	.....	.....	.....
Lambton	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	2	1	5	.....
Lanark	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....
Leeds and Grenville	3	1	1	1	.....	.....	.....	.....	1	.....	.....	.....	3	.....	.....	1
Lennox and Addington	1	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....
Lincoln	1	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	1	.....	.....	.....
Manitoulin	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Middlesex	10	1	.....	.....	.....	.....	2	.....	3	1	.....	.....	1	.....	6	.....
Muskoka	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nipissing	.....	.....	2	.....	.....	.....	1	.....	.....	.....	.....	.....	3	1	1	.....
Norfolk	1	1	.....	.....	.....	.....	.....	.....	4	1	.....	.....	.....	.....	.....	.....

TABLE III—Continued

GEOGRAPHIC DISTRIBUTION OF CASES AND DEATHS—ONTARIO, 1940

County or District	Meningitis (Meningococcus)		Diphtheria		Encephalitis (Lethargica)		Para-typhoid		Polio-myelitis		Tularemia		Typhoid		Undulant Fever	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Northumberland and Durham	3	2	1	.....	.....	.....	2	.....	.....	.....	.....	.....	2	.....	.....	.....
Ontario	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	5	1	2	.....
Oxford	.....	.....	1	.....	.....	.....	.....	.....	2	.....	.....	.....	1	.....	2	.....
Parry Sound	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Peel	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perth	2	1	3	.....	.....	.....	2	.....	.....	.....	.....	.....	1	.....	4	.....
Peterborough	2	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	2	.....
Prescott and Russell	.....	.....	7	3	.....	.....	1	.....	.....	.....	.....	.....	23	1	2	.....
Prince Edward	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rainy River	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Renfrew	3	2	1	.....	2	.....	1	.....	4	1	.....	.....	4	.....	.....	.....
Simcoe	7	1	5	.....	.....	.....	2	.....	2	.....	.....	.....	.....	.....	.....	....
Stormont, Dundas and Glengarry	2	.....	4	.....	.....	.....	2	.....	2	1	1	.....	11	1	1	.....
Sudbury	4	3	14	2	.....	.....	.....	.....	1	.....	.....	.....	8	2	.....	.....
Thunder Bay	4	1	2	1	.....	.....	4	.....	2	..	.....	.....	5	1	2	.....
Timiskaming	2	1	4	1	.....	.....	.....	.....	3	.....	.....	.....	6	.....	.....	.....
Victoria	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	4	.....	3	1
Waterloo	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	1	.....	3	.....
Welland	3	1	.....	.....	.....	.....	2	.....	3	.....	.....	.....	1	.....	1	.....
Wellington	2	.....	1	.....	.....	.....	.....	.....	2	.....	.....	.....	1	.....	2	.....
Wentworth	4	3	1	.....	.....	.....	1	.....	2	.....	.....	.....	3	1	4	.....
York	40	1	3	.....	2	1	4	.....	16	.....	.....	.....	13	1	6	.....
Totals	145	29	78	12	8	2	51	1	87	9	3	.....	159	24	64	2

TABLE IV

MONTHLY INCIDENCE OF COMMUNICABLE DISEASES—CASES AND DEATHS—1940

Diseases	January		February		March		April		May		June		July		August	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox																
Scarlet Fever	682	2	616	4	869	3	570	3	496	3	407		229		197	2
Diphtheria	9	1	5		7	1	2	1	1	1	10	1	3		6	1
Measles	1,608		2,049		3,784		1,783	1	1,495	1	1,144	2	566	1	391	
Whooping Cough	445		402		561	6	399	3	461	3	467	1	324		340	3
Typhoid Fever	5	1	6	2	3		9		17		7	3	13	2	32	2
Tuberculosis	222	26	220	27	285	39	235	31	191	30	215	47	200	37	310	46
Poliomyelitis	5		1	1					2		2		6	3	11	
Cerebrospinal Meningitis (Meningococcus)	4		6		7	2	9	2	15	3	13	2	10	1	10	2
Influenza	315	2	1,033	3	380	4	318		158	2	93	1	26		66	
Pneumonia	152	218	116	149	167	200	76	146	85	140	74	112	63	114	48	112
Syphilis	411	1	412	5	585	8	416	2	366	2	400	3	423	8	469	4
Gonorrhoea	326		351		426		281		270		385		343		495	
Chickenpox	1,864		1,918	1	2,048		1,434		1,299		1,940	1	812		423	
Encephalitis	1		1						2		1	1			1	1
German Measles	68		65		179		110		146		93		43		32	
Mumps	951		1,273		1,978		1,721		1,278		1,015		283		202	
Septic Sore Throat	24		27	1	53	1	28	2	26	2	16		5		9	
Undulant Fever	5		7	1	3		4		9		5		7		6	
Dysentery	2				4		3		1		4		3	1	11	1
Erysipelas	5	2	18	1	22		21	2	11		6	1	5		6	1
Paratyphoid Fever	3	1			3		2		3		8		6		4	
Infectious Jaundice	13		7		32		14		17		10		6	1		
Tetanus	1	1	1				1	2	2		1				3	2
Tularaemia					1											
Conjunctivitis					2		1				3					
Malaria											1					
Actinomycosis							2		1							

TABLE IV—Continued

MONTHLY INCIDENCE OF COMMUNICABLE DISEASES—CASES AND DEATHS—1940

Diseases	September		October		November		December		TOTALS 1940		1939		1938	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Smallpox											1		6	
Scarlet Fever	257	1	380	1	561	0	432	2	5,696	21	6,767	41	5,359	35
Diphtheria	8	1	12	3	7	1	8	1	78	12	131	7	234	6
Measles	292	1	440		1,323	1	1,325		16,200	7	27,827	17	16,606	6
Whooping Cough	335	2	494	3	705	4	584	4	5,517	29	7,023	18	7,569	32
Typhoid Fever	23	4	25	7	14	3	5		159	24	119	9	235	31
Tuberculosis	183	32	157	24	209	27	153	23	2,580	389	2,570	419	2,520	505
Poliomyelitis	23	1	28	2	6	2	3		87	9	216	13	160	18
Cerebrospinal Meningitis (Meningococcus)	7	2	8	3	24	6	32	6	145	29	64	18	88	22
Influenza	84		76		138	1	640	4	3,327	17	8,284	137	943	31
Pneumonia	25	69	36	130	100	125	94	170	1,036	1,685	1,207	2,086	1,221	2,185
Syphilis	390	4	437	5	543	6	370		5,222	48	3,285	38	3,010	47
Gonorrhoea	443		425		548		274		4,566		4,125		4,188	1
Chickenpox	222		564		1,681		1,788		15,993	2	11,133	2	10,881	
Encephalitis					1		1		8	2	9	10	11	8
German Measles	25		17		457		838		2,073		1,160		867	
Mumps	184		280		386		231	1	9,872	1	3,296		4,119	
Septic Sore Throat	27		17		33		29		294	6	209	5	113	6
Undulant Fever	6	1	5		5		2		64	2	66		97	
Dysentery	2		16		3		55		104	2	53	4	162	8
Erysipelas	7		7		8		8		124	7	187	5	128	10
Paratyphoid Fever	8		7		7				51	1	58	1	68	
Infectious Jaundice			5		5		1		110	1	502	3	701	2
Tetanus		1	3	1			1		13	7	15	8	11	7
Tularaemia					2				3		1		1	
Conjunctivitis									6		2		13	
Malaria									1		2		6	
Actinomycosis					2		1	1	6	1	2		2	1

TYPHOID FEVER

Tables I, II, III and IV, present the statistical material about the Annual and Five-Year incidence, and geographic distribution of Typhoid and Para-typhoid Fever.

The incidence of Typhoid Fever, (159 cases and 24 deaths), reported during 1940 exceeded the previous low record of 1939 by forty cases. However, the total number of cases reported each month was well below the monthly endemic index for all months of the year, with the exception of the month of May, when there was an increase of ten cases. This is explained by two outbreaks of Typhoid Fever, one at Casselman, County of Russell, and the other at Espanola, in the District of Sudbury.

During 1940 there were no outbreaks of Para-typhoid Fever, and only fifty-one cases and one death have been reported as against fifty-eight cases and one death in the previous year.

Endemic cases of Typhoid Fever were generally scattered throughout the Province during 1940. Indeed, many counties remained free from Typhoid or Para-typhoid Fever. No cases were reported for the past year in any of the municipalities in the following eleven counties and districts: Dufferin, Elgin, Haldimand, Haliburton, Lennox and Addington, Lincoln, Manitoulin, Muskoka, Norfolk, Peel, and Simcoe. In five more counties and districts only endemic cases of Para-typhoid B were reported, viz.: Northumberland and Durham, Parry Sound, Rainy River, Prince Edward, and Waterloo.

Outbreaks

At CASSELMAN in Russell County an outbreak of Typhoid Fever occurred during March and April, 1940—eighteen cases with two deaths occurring there amongst three families. The first case came down early in March. As well as subsequent cases it was said to have been diagnosed as "Intestinal Influenza," (also mild), which occurred in the same household. The disease was not diagnosed as Typhoid Fever until April 12th, when seven cases had developed amongst the two families living in the same household. All cases, with three exceptions, developed among brothers and sisters visiting the first family infected. The last four cases, while there was said to be no immediate contact with the ill families, could have contracted the disease by drinking raw river water contaminated by the sewer that emptied into the river near the intake well. This well had been inundated with the high river water. There is no municipal water or sewage system in the village of Casselman and only a few homes are connected to this private system, all the others in this vicinity are supplied with water from private wells. As the outbreak was not reported till early in May there was a considerable lapse of time between the date of the first case and the date of the investigation. The source of the infection of the first case was not definitely established, but it was known that a pedler with an unknown type of enteritis had visited this home for a few days. All efforts to trace this man proved futile.

At OHSWEKEN in Brant County, an outbreak of four cases of Typhoid Fever was reportedby the Medical Officer of Health of the Six Nations Indian Reserve. Four Indians along with other relatives had been engaged in picking raspberries for two weeks on a farm near Oakville. Eight days after their return to the reservation the first case became ill. On investigation of the outbreak, it was learned that nineteen Indians had been employed by the farmer, the names of only a few had been known as many were employed by the day, and paid at the end of each day's work. However, one group of Indians, all relatives, camped on the farm. Near this camp was an old abandoned well, and

some of the Indians in the group, used this water for drinking and washing purposes. None of the persons that used the regular water supply became cases. A sample of the water was obtained from this abandoned well, and was found to be contaminated. Repeated stool specimens were obtained from all persons in the Ohsweken group of Indians that had worked on the farm and all were negative on examination. It is thought this old well had become contaminated with the drainage from a nearby latrine.

At TIMMINS an investigation into the increased prevalence of Typhoid and Para-typhoid Fever was requested by the Medical Officer of Health. During a six-month interval, three cases of Para-typhoid infection and ten cases of Typhoid Fever had been reported. The first case was reported in April and the cases were spread over this period until October. No evidence was found to incriminate either the water, milk or other food supplies and no contacts were established amongst cases as to common meeting places, or visiting. Six of the cases developed in two families, who had been on a vacation outside the City. At a conference held by the Local Board of Health, after the investigation, the situation was thoroughly discussed.

Sporadic cases of Typhoid Fever were investigated at Ancaster, St. Davids, and Sauble Beach and one carrier was found in the last named outbreak.

At ESPANOLA, in Sudbury District, six cases and one death from Typhoid occurred as an explosive outbreak in May, 1940. Immediately investigation by the Department showed that raw water for fire purposes had been pumped into the town mains one week before the onset of the cases. All cases were isolated in a separate house loaned by the Paper Company, and operated as an Annex to the Red Cross Hospital. No further cases occurred and no carriers resulted from this outbreak.

PARA-TYPHOID FEVER

At Whitby in Ontario County, two cases of Para-typhoid Fever were reported and another case was reported from a nearby Township. On investigation it was found that while the dates of onset were close enough to arouse suspicion of a common origin, no common factor was found amongst the three cases. Two of the cases had been on separate excursions and the third lived in the country. Stool specimens were obtained from all members of the families but no carriers were found.

CONTROL OF CARRIERS

The routine work of following up laboratory reports for case information and sending of a budget and "release specimen" containers to Medical Officers of Health was continued during the year. The budget contains information regarding procedure for locating carriers in the family or environment about endemic cases. The "release specimen" containers (along with Special Regulations governing release of cases) are sent as a service to the local Medical Officer of Health and in order to have "release" examinations done in the Departmental laboratories as often as possible.

In the follow-up work of reports of Enteric Infection, of which 392 came to the attention of the Division in 1940, there were 182 instances in which the evidence showed the patient had neither infection. Of the remaining 210 of these, 159 were proven to be Typhoid Cases and 51 were Para-typhoid cases. By the end of the year, 165 (79%) had been released from restrictions and the remainder were still under further investigation. While only two definite "convalescent" carriers were discovered by the "release" method during 1940

(one being a Typhoid and the other a Para-typhoid B carrier) it will be recalled that in 1939 there were ten Typhoid and four Para-typhoid carriers so discovered.

This year only one case of enteric infection was traceable to a "known" carrier who was under supervision by Local Boards of Health. This is the first instance in over five years, where a known supervised carrier has been proven to have infected anyone with either Typhoid or Para-typhoid Fever.

There were 99 carriers under supervision of the Province and Local Boards of Health in 1940, and that was an increase of 36 over 1939. No new carriers were found in Ontario Mental Hospitals during the year but 11 new carriers were located throughout the Province and placed under supervision. In addition three known to the Toronto Health Department were placed on the Departmental Carrier Register. Of the eleven new carriers discovered, five were discovered when a case occured in the family, three were discovered in outbreaks and one each by surgical operations or during acute gall bladder symptoms or by routine stool examinations. One of the "outbreak" carriers was located by the Michigan Health Department and immediately placed under supervision when the carrier had returned to Ontario.

One carrier of B. Aertrycke (B. Typhi-Murium) was discovered in an Army Training Centre, in the latter part of 1940. This man was a food-handler and was removed from his work and placed under supervision.

There were also two convalescent carriers discovered during the year and added to the Register. Seven "convalescent" carriers of 1939 who were carrying the organism over a year from onset, were declared to be "chronic" carriers in 1940.

There were three deaths of carriers during 1940, all were persons known to be chronic carriers for some years. Ten carriers were released from supervision during the year, three released by gall bladder operations, five convalescent carriers became negative and two were released for lack of evidence.

The Department realized early in 1940 from an analysis of carrier records that more supervision might rightly be given to the control of carriers in the Unorganized Areas of Northern Ontario. Accordingly, a complete register of all known carriers in these areas, was furnished by the Department to the Provincial Sanitary Inspectors, and by their efforts, known carriers are being kept under adequate supervision.

POLIOMYELITIS

The year 1940 presented the second lowest annual incidence since 1929, showing only 86 cases reported and 9 deaths (in 1933 only 53 cases and 15 deaths were reported). The geographic incidence of the disease (Table III) shows no great concentration of cases except in Brant County where six cases occurred in one family with four cases paralyzed and one death. In addition to financial assistance to the family, the Department conducted an epidemiological investigation as to the source and mode of spread of the disease, and material was sent to the School of Hygiene, University of Toronto, for virus study.

Information relative to age, sex, paralysis, month of onset, and outcome are found in Tables V, VI, VII, and general incidence in Tables I to IV.

The Department continued its service of maintaining respirators in strategic centres. Of 12 patients reported with paralysis of respiratory nature, 7 were treated in respirators with 3 deaths, while of 5 not treated in respirator, four died.

Standard Splints and Bradford Frames were made available again to all poliomyelitis cases needing these orthopaedic appliances in their treatment, and at the end of the year 33 patients had received splints and 23 patients had received Bradford Frames.

The Department continued to provide three weeks' free hospitalization in certain hospitals for poliomyelitis patients requiring orthopaedic treatment, the programme being limited by war economy to those cases where the family was unable to provide such hospitalization.

During the year, a study of epidemiological information relative to the incidence of Poliomyelitis in the Province during the years 1938 and 1939 respectively, was analyzed and made available in stencilled form for distribution.

The epidemiological findings centering about two interesting cases of poliomyelitis occurring in the 1939 Sarnia outbreak was presented at the Christmas meeting of the Laboratory Section of the Canadian Public Health Association, in conjunction with a paper by Dr. J. Craigie outlining the virus findings in both cases.

During the year, the Department undertook to follow up all the poliomyelitis cases which had occurred in the 1937 outbreak in the Province, in order to attempt to evaluate any relationship which might exist between various types of treatment, degree of paralysis, and eventual recovery. A nurse from the Departmental staff spent 58 days in field work in Southern Ontario gathering essential information for the study.

TABLE V

POLIOMYELITIS CASES—1940—AGE, SEX AND PARALYSIS

Age in Years	Paralyzed		Non-Paralyzed		Total	
	Male	Female	Male	Female	Male	Female
0– 4	4	4	3	1	7	5
5– 9	8	5	6	2	14	7
10–14	7	7	2	3	9	10
15–19	5	2	2	2	7	4
20–24	2	....	1	....	3	....
25–29	....	1	1	....	1	1
30–34	1	3	....	....	1	3
35–39	1	2	....	....	1	2
40–44	1	....	....	1	1	1
45–49	....	1	....	....	....	1
50 and over	1	....	....	....	1	....
Not stated	3	....	1	3	4	3
Totals	33	25	16	12	49	37
Totals	58		28		86	

TABLE VI

POLIOMYELITIS CASES BY MONTHS OF ONSET, 1940

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
No. of Cases.	3	1	....	....	2	2	7	16	28	25	2	....	86

TABLE VII

POLIOMYELITIS DEATHS—1940—BY AGE AND SEX

Sex	Age Groups									Total
	0–4	5–9	15–19	20–29	30–34	35–39	40–44	45–49	50 and Over	
Male	1	2	2	....	1	....	....	....	1	7
Female	....	....	....	....	....	1	....	1	....	2
Totals	1	2	2	....	1	1	....	1	1	9

TULAREMIA

Three cases of Tularemia were reported in the Province during the past year. The geographical distribution is as follows:

Cochrane, 1; Prescott and Russell, 1; Fort William, 1.

Two of the cases were males, one a boy age 15, who had been hunting rabbits, and the other a male age 20, a labourer, who had been hunting skunks. The last case reported apparently became infected in Manitoba, and very little detail with respect to this case was given. The last case infected was a child visiting in Fort William, who had become infected in Manitoba.

DIPHTHERIA

During the year only seventy-eight cases of Diphtheria with twelve deaths were reported for the entire Province. Table II shows the contrast of former years. The City of Toronto reported for the first year, no cases or deaths in 1940.

The annual and five year incidence of this disease is shown in Tables I to IV.

In all, four outbreaks were reported, all of which were brought under control by the Provincial and local authorities before they reached any great proportion.

In the town of Massey, District of Sudbury, in September and October, ten cases and two deaths occurred in six families which were reported as arising in Separate School children. The original source for introduction of the infection to the community remains unknown. Toxoid had been administered to some members of the families eight years ago, but this could not be confirmed by the local records. The last case (clinically not severe) occurred in a girl of seven years, who had had two doses of toxoid—one at 28 days and one at 8 days previous to the onset of symptoms.

Though both fatal cases received antitoxin, they were very toxic in type, one dying of sudden myocardial failure and one of toxemia associated with chronic nephritis.

The Local Board of Health and the Local Medical Officer of Health, toxoided school and pre-school children in the town of Massey and surrounding unorganized areas—the Department contributing financially to the work in the latter. The schools were kept closed until after the third dose of toxoid had been given, and on re-opening about 200 throat swabs were examined and found negative for virulent diphtheria bacilli. No further cases had occurred at the end of the year.

In PRESCOTT County, three cases of Diphtheria were reported from Hawkesburg and L'Original during December, with one death. No further spread was noted.

PORT STANLEY reported three cases and one death in non-toxoided persons which appeared to be imported infection from New Brunswick, the first case becoming ill en route. No further spread was noted after control measures were instituted, although two children toxoided in 1938 were playmate contacts.

At TEMAGAMI, District of Nipissing, a death on the train occurred in a three-year-old boy travelling from Quebec to Redwater, Ontario, and this was followed by mild clinical cases in the mother and brother, and a positive throat swab without clinical symptoms in a 6-weeks-old sister. Prompt action by the local physician in toxoiding and using prophylactic antitoxin resulted in no further spread of the disease.

SMALLPOX

No known cases are recorded for the year 1940 and none in Ontario since 1938. Only three suspected outbreaks were reported during the year, one still being under investigation.

An outbreak of Smallpox was reported to the Department early in February amongst a group of Treaty Indians living about six miles from Elsas on Lake Kapuskasing in Algoma District. On investigation, however, it was found to be a severe type of chickenpox that had occurred. About 30 Indians were seen in the Reservation and the disease had attacked adults as well as children. The Indians were all vaccinated and in examination of material obtained from the cases, the diagnosis by the Craigie complement Fixation Test was confirmed.

At PICTON quarantine was initiated in one of the Air Training Centres because of suspected Smallpox. Investigation and the use of the Complement Fixation test proved this to be chickenpox.

In COCHRANE District, in Newmarket Township, unorganized territory, three cases were diagnosed as Smallpox by a local physician. These persons had never been vaccinated and on investigation and vaccination, Smallpox could not be ruled out. This outbreak is still under enquiry.

See Tables I to IV for statistical information.

CHICKENPOX

Cases of Chickenpox reported throughout the Province reached a new high when nearly 16,000 cases were reported. This is the greatest number of cases reported during the past nine years. There were only two reported deaths, however. (See Tables I to IV).

MEASLES

There was a forty per cent. reduction in the number of cases of measles as reported during 1940 over the corresponding period of the previous year, with a corresponding decrease in the number of deaths reported.

CEREBRO-SPINAL MENINGITIS

There has been a sharp upward trend in the number of cases and deaths of Cerebro-Spinal Meningitis, as reported in 1940, and compared with the previous twelve years.

TABLE VIII.

CEREBRO-SPINAL MENINGITIS (Meningococcic))

Year	Cases	Deaths	Morbidity Rate per 100,000	Mortality Rate Per 100,000	Fatality Rate Per 100.
1929	101	79	3.0	2.3	78
1930	120	57	3.5	1.7	47
1931	70	44	2.5	1.2	62
1932	46	27	1.3	.7	58
1933	48	27	1.7	.7	56
1934	35	12	.9	.3	34
1935	32	24	.9	.6	72
1936	52	11	1.4	.3	21
1937	67	19	1.8	.5	28
1938	88	14	2.3	.3	15
1939	64	11	1.6	.2	17
1940	145	29	3.8	.7	20

In the above Table it will be noted that in 1930 the morbidity rate was 3.5 per 100,000 and the morbidity rate for 1940 was 3.8. The mortality rate for this same period was 1.7 and for 1940 was .7. It was one per hundred thousand higher in 1930 than for the corresponding period in 1940. Not only was there a marked decrease in the mortality rate for 1940 but if the case fatality rate is also compared for this period, it will be seen that there is a striking reduction of over 50% in the total cases of 1940 as compared with 1930, due, no doubt, to improved methods in treatment.

There was an increased trend in Cerebro-Spinal Meningitis for a three-year period, 1929, 1930, 1931. From 1931 on, the morbidity rate has gradually decreased until 1936. During the last five years a fluctuating increase is noted annually until the peak was reached in 1940.

During the last nine years there has been less than one death from Cerebro-Spinal Meningitis per 100,000 persons. The mortality rate is considerably lower than the mortality rates of Scarlet Fever, Typhoid, Diphtheria and Whooping Cough, and is but slightly higher than the same rate for Measles. The case fatality rate, however, still exceeds the rates of the above mentioned diseases. Typhoid Fever during the past ten years reached a mean per cent. of 12.8 compared with the lowest rates for Cerebro-Spinal Meningitis for the past ten years (15% and 17%). The mean rate for Cerebro-Spinal Meningitis however, is considerably higher.

UNDULANT FEVER

Sixty-four cases were reported for 1940 compared with sixty-six the previous year. There has been a considerable decrease in the incidence of Undulant Fever as compared with previous years—see Tables I to IV. During 1936, 127 cases of Undulant Fever were reported, in 1937—104, and in 1938—101 cases. During the past two years, however, there has been a marked decrease in the number of cases reported. Cases of Undulant Fever in 1940 were reported from all areas throughout the Province, including some of the most north-west districts.

SCARLET FEVER

There was a marked decrease of over 1,000 cases in the total number of Scarlet Fever cases reported during the year as compared with each of the past

two years. The disease is of a very mild type, and consequently there has been a great deal of difficulty in making a diagnosis. This has been reflected in increased requests throughout the Province for diagnostic services.

An outbreak of Scarlet Fever occurred late in 1939 at the Ontario Hospital, New Toronto. The work of immunization of all contacts was carried out during the early part of 1940. Fifteen cases in all occurred up to January 15th. All the staff and some 678 ward patients were Dick Tested. Of these, 269 were Dick negative. No Scarlet Fever occurred amongst any of the patients after the third dose of Scarlet Fever Toxin had been given.

During the latter part of December, an outbreak of Scarlet Fever also occurred at the Ontario Hospital School, Orillia. Two thousands patients and 250 of the staff were Dick Tested, and the susceptibles were given five doses of Scarlet Fever Toxin. Before immunization, 29% of the patients and 17% of the staff were positive. The outbreak lasted from December 15th to April 8th, and 13 cases of Scarlet Fever were recorded. No further cases developed after April 8th.

SEPTIC SORE THROAT

No outbreak of Septic Sore Throat occurred in the Province during 1940. However, 294 cases of endemic septic sore throat were reported and six of these cases died.

PSITTACOSIS

Previous to 1940 no proven cases had been found in the Province but in December of this year a positive laboratory report was received on a case under investigation at St. Michael's Hospital, Toronto. It is believed that other members of the family had been undiagnosed cases and the investigation of the problem of Psittacosis in humans and birds is still being carried on by the Department.

At Wellandport, Ontario, a very typical case (without positive Laboratory proof, however) occurred, resulting in the death of the patient, following extremely close contact with an ill Budgerigar. The cases presented an atypical pneumonia, typhoid-like temperature elevation, malaise and prostration like Influenza. On investigation by the Department it was discovered that the Budgerigar was bred and raised in a local aviary and though no other sick birds were present at the time, the aviary was quarantined for some time before release for lack of further evidence.

While no other proven cases are known, yet some evidence is accumulating, suggestive of the possibility that mild, undiagnosed cases of the disease may be occurring in humans and these in the part have been diagnosed as "Atypical Typhoid," "Influenza," "Atypical Bronchopneumonia."

TRICHINIASIS

The first outbreak of this disease, which is usually associated with the consumption of raw or insufficiently cooked pork or pork products occurred in Windsor and Harrow areas, in a Roumanian community in 1937, the cases being limited in number to four or five.

The second outbreak occurred in the City of Hamilton, Wentworth County, and the Township of Walpole, Haldimand County, in November of 1940. In Hamilton about 150 Italian persons were exposed to the infection by consuming pork in the form of home-made sausages, prepared by an Italian factory worker; among these persons at least 17 clinical cases and many subclinical infections

are known to have occurred. At the City Laboratories, Hamilton General Hospital, the examination of stool and spinal fluid specimens from clinical cases showed the presence of the Trichina larvae. Photographs of the larvae in the spinal fluid of one of the hospitalized cases were obtained.

On the investigation by the Department, it was found that one farmer in Walpole Township had shipped to Hamilton Market, two sows. On enquiry at this farm, four cases of Trichinosis had occurred subsequent to eating sausage prepared from one of the farmer's hogs. Adequate control measures were taken to prevent more cases occurring and further work on the investigation is being conducted.

DYSENTERY

Though Bacillary Dysentery is endemic throughout the Province each year, only the major outbreaks come to the attention of the Department. Four such outbreaks were reported and investigated during 1940, three arising from Flexner Bacillus infection and one in a nursery from Hemalytic B. Coli. Infections from Shiga Bacillus have not been reported nor have the Central Laboratories and Branches, isolated this organism from any cases in 1940.

In Northern Ontario, in December, the Department aided a general Hospital, in tracing the source of fifty-five cases of mild diarrhoea in Infants in the Obstetrical-Nursery Wing. When the source of contamination of the infant feedings was found and removed the epidemic was brought under control. No deaths occurred.

At the Orillia Hospital School several cases due to Flexner Bacillus were reported in March of 1940, but no further spread was noted. A search for carriers was conducted but none could be found.

At the Ontario Hospital, Kingston, an outbreak of diarrhoea occurred with acute constitutional symptoms. There were no deaths and the majority of cases recovered within 24-48 hours. Repeated specimens of stool were taken from many of the cases, and all were negative on examination of stools. Two carriers were found on the routine examination of the stools of other patients.

A small outbreak of Dysentery occurred at the Ontario Hospital at London, during the time when the raspberries were being picked. The outbreak was not of a severe character and no new carriers were found after repeated examination of stools submitted to the Laboratory.

SECTION 2. DISTRIBUTION OF LITERATURE

The material distributed by the Division consists of two main types:

1. Pamphlets and other printed material relative to Infectious diseases, for the Health Education of professional and lay persons.
2. Recording forms for Local Health work.

As more and more interest is manifested each year by groups interested in the control of communicable diseases, and as local health programmes in organized areas expand, the demand for such material of both types is apt to exceed the supply. The Department attempts to supply some material but a great deal of the subject matter is under revision at the present time so that reference is always made to other sources of material outside the Department when answering requests. The following Tables shows the distribution by this Division only, of the various forms of material for the past year.

TABLE IX

DISTRIBUTION OF LITERATURE—1940

Infectious Disease Literature	No. of Forms Distributed	Recording Forms	No. of Forms Distributed
Regulations and Amendments	608	Diphtheria —Recording forms	1,072
Diphtheria	8,871	" —Consent Cards	20,174
		" —Certificates	20,153
		Scarlet Fever—Recording forms	30
Scarlet Fever	4,646	" —Consent cards	2,452
Rabies	913	" —Certificates	1,475
Measles	2,177	Smallpox —Consent forms	24,325
Poliomyelitis	2,387	" —Certificates	7,124
		Typhoid —Certificates	1,950
Immunization Folder (new forms)	23	Immunization Cards (combined form)	2,215
Total	19,625	Total	80,970
	Total—100,595		

In addition to the above routine distributing service, special publicity material was prepared regarding Whooping Cough for the Immunization Campaign in Dufferin County. New immunization recording forms were then devised, having the purpose of providing—a single record form for all types of immunization, health education to parents about immunization, a standard procedure approved by the Department, a method of familiarizing parents and families with the work of their Local Board of Health.

The policy of the Department regarding issuance of material to lay persons was changed during 1940 in that lay requests were referred to the Local Medical Officer of Health rather than directly in order that the latter might be given this opportunity of contact with these persons sufficiently interested to write for material. It also serves to acquaint lay persons in rural areas with the work of their Local Medical Officer of Health and the Local Board of Health.

SECTION 3. LOCAL HEALTH ADMINISTRATION

Owing to the limitations of other Staff for this work, the Division of Epidemiology contributes to the work carried on through the office of the Chief Medical Officer of Health. During the year, the addressograph service was maintained by this Division for the purpose of circularizing the Medical Officers of Health (approximately 700) and Secretaries of the Local Boards of Health (approximately 900) with information relative to public health administration and procedure. Technical aid was given to the preparation for printing of the Annual Personnel Book, which presents information regarding the changing Personnel of Local Boards of Health and of the Provincial Department of Health.

The forms for the Annual Report of the Local Medical Officers of Health were prepared and distributed by the Division to all organized municipalities (over 900) during December of this year.

In March, one member of the staff contributed to the health survey made in the Town of Timmins and the Township of Tisdale in Northern Ontario. This survey was carried out at the request of the municipalities and covered as completely as possible, all phases of Health Work. The Rural and Urban

Health Appraisal Form of the American Public Health Association was used as a guide. The complete survey formed the basis of Departmental recommendations to the municipalities concerned for the furtherance of the local health programme.

In Dufferin County, the Department, through the Chief Medical Officer of Health, this Division and the Director of Health Education, assisted in the planning and publicity for the Whooping Cough immunization campaign, carried on by the Local Medical Officers of Health in an attempt to immunize the pre-school population. A new type of Immunization Record for the use of parents was devised and introduced during the campaign and free Pertussis Vaccine was provided. The results obtained were satisfactory from an administrative point of view. (Observation of the vaccinated and control children will have to be carried on over a period of years for full evaluation of the results). Six doses (1cc. in each arm, three weeks or a month apart) were given each child.

Acknowledgment must be made of the interest and initiative shown by Dr. W. J. McLean, Medical Officer of Health for Shelburne Village and Amaranth Township, in the conduct of the campaign.

SECTION 4. DISTRIBUTION OF BIOLOGICAL PRODUCTS AND INSULIN

The statistical data relative to the amount and cost of distribution for the fiscal year April 1st, 1939, to March 31st, 1940, as well as comparative costs for distribution for the past 13 years, are presented in tabular form at the end of this Report (Tables X to XXIII).

BIOLOGICAL PRODUCTS

The supply of Biological Products and Insulin is a joint responsibility of the Division of Laboratories, and this Division—the former providing for storage and mailing, and the latter for all the purchasing, record-keeping and accounting. In the case of Insulin, this also includes the preparation and mailing of quarterly accounts to an average of seven hundred municipalities.

During the year the Department continued to supply free biological products through the twelve distributing centres. (The Central Laboratory and its seven branches; the offices of local Departments of Health at Brantford, Hamilton, Owen Sound, and Windsor).

The biological products so distributed through the physicians as a service to the public are for:

(a) The PREVENTION of disease by ACTIVE immunization: Diphtheria Toxoid; Scarlet Fever Toxin; Smallpox, Rabies, and Pertussis Vaccines.

(b) The PREVENTION of disease by PASSIVE immunization, and for the TREATMENT of cases: Diphtheria, Scarlet Fever and Tetanus Antitoxins; Anti-meningococcus and Anti-Anthrax Serums.

(c) The TESTING of susceptibility or immunity: Schick and Dick Test material and Tuberculin.

In Table XXIII is shown the fluctuation of the costs of distribution of biologicals for the past 13 fiscal years.

An increase in the cost of RABIES VACCINE was largely due to the immunization of humans bitten during an outbreak of Rabies in animals in south western Ontario in September and October, 1939. No human cases resulted. (See Annual Report, 1939).

The distribution of PERTUSSIS VACCINE on a province-wide scale has resulted in a corresponding increase in the expenditures for this product and these costs are largely responsible for the total increase in the gross cost of the distribution of biological products.

TUBERCULIN for diagnostic purposes in the control of tuberculosis was increasingly used as reflected in the distribution of this product (see Table XXI).

In October, 1940, a Committee for the Study of Biological Products was formed as a joint effort by the Department of Health, Ontario, and the Connaught Laboratories, University of Toronto. The purpose of this Committee is the evaluation of biological products and the approval of their suitability for clinical or field studies. At the end of the year, precipitated Diphtheria Toxoid, Precipitated Tetanus Toxoid, and anti-typhoid Rabbit Serum had been so approved.

INSULIN

INSULIN was distributed throughout the Province to 3,836 indigent patients and was again supplied to Ontario Mental Institutions for Insulin Shock Therapy. Completing the recommendations made in the Auditor's Report, stock-taking was introduced and continued each month in all the twelve distributing centres.

New requisition forms were made available during the year, which included space for requesting Protamine Zinc Insulin. The latter also was supplied in the 800 unit vials in addition to the 400 unit vials. The Unmodified (old "Plain or Coloured Label" Insulin) was replaced by Insulin-Toronto (made from Zinc-Insulin crystals), in the same strengths, i.e., 200 unit, 400 unit, and 800 unit vials. The accounting system in use in this Division for the preparation and sending out the quarterly accounts to municipalities for 25% of the cost of Insulin was changed to the addressograph method with a saving in time, labour, and stationery as well as an increase in speed and accuracy in the work.

The Department of Health provides free insulin to those persons in whose treatment this product is required and who would otherwise be deprived of it. Diabetic patients able to pay for insulin are not supplied by the Department.

While the provision of insulin is free to those unable to pay for it, the Department pays 75% of the cost and the Local Municipality pays 25%, the latter being liable for this as soon as the patient takes up residence in that municipality. While this re-allocation of total costs in part to the local authorities which was first begun in 1935-36 has resulted in a marked increase in cost-accounting by this Division because of the necessity for sending out quarterly accounts to an average of seven hundred municipalities, still the fact that this re-allocation has resulted in a 45% reduction in the cost of distribution of Insulin seems sufficient justification for the work required.

Insulin is provided in two forms: 1. Protamine Zinc Insulin in vials of four hundred units and eight hundred units: 2. Insulin-Toronto (zinc insulin crystals) in vials of two hundred, four hundred, eight hundred and one thousand units.

The 1,000 unit size vial of Insulin-Toronto is provided for Insulin Shock Therapy and is largely used by the Ontario Hospitals, for which work, the Division advances the Insulin and the cost is re-allocated to the various Hospitals. The scope of this service is shown in Table XII.

Statistical Tables, X-XIII inclusive, present the facts regarding the distribution of Insulin, the cost of which for the past four years has remained practically the same.

TABLE X

ANNUAL DISTRIBUTION OF INSULIN—FISCAL YEAR 1939-1940

Type of Insulin	Units per Vial	Cost per Vial	No. of Vials	Total Cost
Insulin–Toronto	200	.35	11,055	$ 3,869.25
" "	400	.65	46,128	29,983.20
" "	800	1.25	2,208	2,760.00
" "	1000	1.50	690	1,035.00
Protamine Zinc	400	.72½	31,702	22,983.95
" "	800	1.40	124	173.60
Total				$60,805.00

TABLE XI

MONTHLY DISTRIBUTION OF INSULIN—FISCAL YEAR, 1939-40

Months	Types of Insulin						Cost All Types
	Insulin-Toronto				Protamine Zinc Insulin		
	No. of Vials Distributed				No. Vials Distributed		
	200 Unit	400 Unit	800 Unit	1000 Unit	400 Unit	800 Unit	
1939							
April	1,025	3,725	112	36	2,432	.....	$4,737.20
May	900	4,185	113	36	2,435	.....	4,995.88
June	1,325	4,060	150	42	2,620	.....	5,252.75
July	625	4,085	200	36	2,300	.....	4,845.50
August	780	4,495	425	60	2,600	.....	5,701.00
September	1,050	4,195	285	48	2,575	.....	5,389.37
October	985	2,985	224	72	2,675	.....	4,612.38
November	725	3,410	105	72	2,475	.....	4,503.87
December	1,125	3,620	184	72	3,205	.....	5,408.38
1940							
January	805	4,545	210	72	2,650	.....	5,527.75
February	1,040	3,798	150	144	2,935	.....	5,364.07
March	670	3,025	50	124	2,800	124	4,466.85
Total	11,055	46,128	2,208	814	31,702	124	60,805.00

TABLE XII

ANNUAL DISTRIBUTION OF INSULIN FOR SHOCK THERAPY FISCAL YEAR 1939-40

Months	No. of Vials 1000 Units	Cost
1939		
April	36	54.00
May	36	54.00
June	42	63.00
July	36	54.00
August	60	90.00
September	48	72.00
October	72	108.00
November	72	108.00
December	12	18.00
1940		
January	121	181.50
February	60	90.00
March	85	127.50
Total	680	$1,020.00

TABLE XIII

ANNUAL DISTRIBUTION OF INSULIN BY AREA (Toronto and Province) FISCAL YEAR 1939-40

Residence of Patients Requiring Insulin	Male	Female	Total
City of Toronto	368	726	1,094
Province of Ontario, Exclusive of Toronto	1,145	1,597	2,742
Totals	1,513	2,323	3,836

TABLE XIV

BIOLOGICAL PRODUCTS—MONTHLY DISTRIBUTION—FISCAL YEAR 1939-40

Month	Diphtheria Antitoxin										Diphtheria Toxoid			
	1M Unit Vials	Cost	10M Unit Vials	Cost	20M Unit Vials	Cost	40M Unit Vials	Cost	Syringes	Cost	Diluted Vials	Cost	Reaction Test	Cost
1939		$ c		$ c		$ c		$ c		$ c		$ c		$ c
April	168	23 52	115	138 00	109	261 60	.....	.....	50	10 00	59	11 80	.....	.....
May	275	38 50	106	127 20	65	156 00	.....	.....	.....	.....	22	4 40	.....	.....
June	387	54 18	95	114 00	84	201 60	.....	.....	25	5 00	71	17 75	.....	.....
July	444	62 16	215	258 00	102	244 80	.....	.....	75	15 00	36	9 00	8	80
August	305	42 70	51	61 20	34	81 60	10	48 00	.....	.....	21	5 25	3	30
September	342	47 88	100	120 00	70	168 00	6	28 80	6	1 20	33	8 25	154	15 40
October	620	86 80	168	201 60	233	559 20	6	28 80	.....	.....	85	21 25	234	23 40
November	278	38 92	126	151 20	151	362 40	11	52 80	55	11 00	36	9 00	34	3 40
December	312	43 68	163	195 60	90	216 00	8	38 40	.....	.....	42	10 50	6	60
1940														
January	231	32 34	270	324 00	145	348 00	25	120 00	75	15 00	68	17 00	104	10 40
February	246	34 44	44	52 80	105	252 00	4	19 20	39	7 80	61	15 25	100	10 00
March	194	27 16	76	91 20	20	48 00	15	72 00	.....	.....	16	4 00	64	6 40
Totals	3,802	532 28	1,529	1,834 80	1,208	2,899 20	85	408 00	325	65 00	550	133 45	707	70 70

TABLE XIV—Continued

BIOLOGICAL PRODUCTS—MONTHLY DISTRIBUTION—Continued

Month	Diphtheria Toxoid													
	Schick Test		For 1 Person		For 6 Persons		For 12 persons		One (3cc) Vial		Six (3cc) Vials		Six (6cc) Vials	
	Pkgs.	Cost	Pkgs.	Cost	Pkgs.	Cost	Pkgs.	Cost	Vials	Cost	Vials	Cost	Vials	Cost
1939		$ c		$ c		$ c		$ c		$ c		$ c		$ c
April	381	95 25	1,073	214 60	100	80 00	755	755 00	.....	.....	.....	.....	.....	.....
May	383	95 75	1,478	295 60	170	136 00	601	601 00	.....	.....	.....	.....	.....	.....
June	456	114 00	1,490	409 75	147	117 60	295	295 00	.....	.....	44	49 28	.....	.....
July	182	45 50	1,129	310 47	.....	.....	158	158 00	116	24 36	59	66 08	1	1 75
August	395	98 75	1,052	289 30	.....	.....	124	124 00	25	5 25	166	185 92	400	700 00
September	524	131 00	1,835	504 63	.....	.....	7	7 00	14	2 94	509	570 08	945	1,653 75
October	603	150 75	1,585	435 88	.....	.....	.....	.....	291	61 11	342	383 04	1,052	1,841 00
November	427	106 75	1,478	406 45	.....	.....	.....	.....	103	21 63	326	365 12	542	948 50
December	296	74 00	1,182	325 05	.....	.....	.....	.....	49	10 29	131	146 72	280	490 00
1940														
January	260	65 00	1,230	338 25	.....	.....	.....	.....	94	19 74	75	84 00	222	388 50
February	457	114 25	1,537	422 67	.....	.....	.....	.....	25	5 25	39	43 68	275	481 25
March	217	54 25	1,128	310 20	.....	.....	.....	.....	33	6 93	81	90 72	169	295 75
Total	4,581	1,145 25	16,197	4,262 85	417	333 60	1,940	1,940 00	750	157 50	1,772	1,984 64	3,886	6,800 50

TABLE XIV—Continued

BIOLOGICAL PRODUCTS—MONTHLY DISTRIBUTION—Continued

Months	Tetanus Antitoxin									
	1,500 Unit Vials	Cost	10,000 Unit Vials	Cost	20,000 Unit Vials	Cost	Syringes	Cost	10,000 Unit Outfits	Cost
1939		$ c		$ c		$ c		$ c		$ c
April	2,108	822 12	27	54 00	.....	.....	150	30 00	1	1 50
May	3,251	1,267 89	81	162 00	.....	.....	158	31 60	3	7 05
June	5,503	2,146 17	217	434 00	6	22 50	313	62 60	36	84 60
July	4,810	1,875 90	232	464 00	.....	.....	250	50 00	10	23 50
August	5,486	2,139 54	174	348 00	.....	.....	212	42 40	20	47 00
September	4,805	1,873 95	201	402 00	.....	.....	200	40 00	8	18 80
October	3,698	1,442 22	121	242 00	31	116 25	182	36 40	5	11 75
November	3,674	1,432 86	80	160 00	13	48 75	206	41 20	14	32 90
December	2,677	1,044 03	93	186 00	74	277 50	75	15 00	13	30 55
1940										
January	2,471	963 69	64	128 00	27	101 25	153	30 60	.....	.....
February	2,223	866 97	57	114 00	2	7 50	56	11 20	3	7 05
March	2,191	854 49	17	34 00	7	26 25	150	30 00	1	2 35
Total	42,897	16,729 83	1,364	2,728 00	160	600 00	2,105	421 00	114	267 05

TABLE XIV—Continued

BIOLOGICAL PRODUCTS—MONTHLY DISTRIBUTION—Continued

Months	Scarlet Fever Antitoxin						Scarlet Fever Toxin					
	Prophylactic doses	Cost	Treatment doses	Cost	Syringes	Cost	Dick Test	Cost	For 1 Person		For 6 Persons	
									Pkgs.	Cost	Pkgs.	Cost
1939		$ c		$ c		$ c		$ c		$ c		$ c
April	831	623 25	396	1,089 00	50	10 00	479	119 75	791	228 30	384	384 00
May	557	417 75	346	951 50	125	25 00	587	146 75	503	150 90	415	415 00
June	873	654 75	308	847 00	75	15 00	483	120 75	579	173 70	254	254 00
July	477	357 75	176	484 00	100	20 00	440	110 00	600	180 00	191	191 00
August	715	536 25	233	640 75	.....	.....	455	113 75	721	216 30	192	192 00
September	555	416 25	281	772 75	.....	.....	615	153 75	869	260 70	770	770 00
October	1,204	903 00	308	1,094 50	50	10 00	986	246 50	1,094	328 20	1,169	1,169 00
November	946	709 50	412	1,133 00	25	5 00	894	223 50	846	253 80	641	641 00
December	807	605 25	563	1,548 25	100	20 00	870	217 50	859	257 70	334	334 00
1940												
January	745	558 75	356	979 00	.....	.....	1,027	256 75	740	222 00	695	695 00
February	851	638 25	317	871 75	80	16 00	679	169 75	552	165 60	424	424 00
March	530	397 50	323	888 25	50	10 00	487	121 75	629	188 70	370	370 00
Total	9,091	6,818 25	4,109	11,299 75	655	131 00	8,002	2,000 50	8,753	2,625 90	5,839	5,839 00

TABLE XIV—Continued

BIOLOGICAL PRODUCTS—MONTHLY DISTRIBUTION—Continued

Months	Anti-Meningococcus Serum				Smallpox Vaccine						Rabies Vaccine		Pertussis Vaccine	
	20 cc. Vials	Cost	Out-fits	Cost	2 tubes per pk.		5 tubes per pkg.		10 tubes per pkg.		Treat-ment	Cost	6 cc. Vials	Cost
					Pkgs.	Cost	Points	Cost	Points	Cost				
1939		$ c		$ c		$ c		$ c		$ c		$ c		$ c
April	178	222 50	30	51 00	689	96 46	2,130	111 83	5,700	256 50	.....	.....	.....	.....
May	136	170 00	22	37 40	588	82 32	2,090	109 73	7,870	354 15	1	6 00	.....	.....
June	53	66 25	16	27 20	849	118 86	2,350	123 38	6,140	276 30	13	78 00	.....	.....
July	79	98 75	29	49 30	640	89 60	1,795	94 24	3,160	142 20	2	12 00	.....	.....
August	59	73 75	6	10 20	836	117 04	2,585	135 71	6,060	272 70	8	48 00	.....	.....
September	90	112 50	24	40 80	1,152	161 28	4,265	223 91	19,090	859 05	21	126 00	.....	.....
October	131	163 75	21	35 70	749	104 86	2,780	145 95	16,240	730 80	70	420 00	930	651 00
November	135	168 75	21	35 70	594	83 16	1,620	85 05	8,630	388 35	30	180 00	2,400	1,680 00
December	41	51 25	12	20 40	468	65 52	1,455	76 39	7,810	351 45	.....	.....	1,000	700 00
1940														
January	57	71 25	14	23 80	593	83 02	1,400	73 50	6,790	305 55	.....	.....	1,500	1,050 00
February	124	155 00	21	35 70	563	78 82	2,105	110 51	9,300	418 50	.....	.....	2,000	1,400 00
March	98	122 50	12	20 40	653	91 42	1,725	90 56	11,070	498 15	5	30 00	2,500	1,750 00
Total	1,181	1,476 25	228	387 60	8,374	1,172 36	26,300	1,380 76	107,860	4,853 70	150	900 00	10,330	7,231 00

TABLE XV

BIOLOGICAL PRODUCTS—ANNUAL DISTRIBUTION—FISCAL YEAR 1939-40

DIPHTHERIA:				
Antitoxin	3,802 x 1M units vials at	$ .14 each	$	532 28
	1,529 x 10M units vials at	1.20 each		1,834 80
	1,208 x 20M units vials at	2.40 each		2,899 20
	85 x 40M units vials at	4.80 each		408 00
	Total		$	5,674 28
Schick Test	4,581 Outfits at	.25 each		1,145 25
Toxoid	2,551 x 1 persons at	.20 each		510 20
	13,646 x 1 person at	.27½ each		3,752 65
	417 x 6 persons at	.80 each		333 60
	1,940 x 12 persons at	1.00 each		1,940 00
	750 x One 3 cc. vials at	.21 each		157 50
	1,772 x Six 3 cc vials at	1.12 each		1,984 64
	3,886 x Six 6 cc vials at	1.75 each		6,800 50
	81 Diluted for Reactors at	.20 each		16 20
	469 Diluted for Reactors at	.25 each		117 25
	707 Reaction Test at	.10 each		70 70
	Total		$	16,828 49
TETANUS:				
Antitoxin	42,897 x 1,500 units vials at	$ .39 each	$	16,729 83
	1,364 x 10,000 units vials at	2.00 each		2,728 00
	160 x 20,000 units vials at	3.75 each		600 00
Intraspinal Outfits	114 x 10,000 units and outfits at	2.35 each		267 05
	Total		$	20,324 88
SCARLET FEVER:				
Antitoxin	9,091 prophylactic doses at	$ .75 each	$	6,818 25
	4,109 treatment doses at	2.75 each		11,299 75
	Total		$	18,118 00
Dick Test	8,002 Outfits at	.25 each	$	2,000 50
Toxin	8,753 x 1 person at	.30 each		2,625 90
	5,839 x 6 persons at	1.00 each		5,839 00
	Total		$	10,465 40
MENINGOCOCCUS:				
Anti-Serum	1,181 x 20 cc vials at	1.25 each		1,476 25
Intraspinal Outfits	228 x 20 cc vials at	1.70 each		387 60
	Total		$	1,863 85
SMALLPOX:				
Vaccine	8,374 x 2 point packages at	$ .14 per pkg	$	1,172 36
	26,300 points (5 pt. pkg.) at	52.50 per M Pts.		1,380 76
	107,860 points (10 pt. pkg.) at	45.00 per M Pts.		4,853 70
	Total		$	7,406 82
RABIES:				
Vaccine	150 treatments at	$ 6.00		900 00
PERTUSSIS:				
Vaccine	10,330 x 6 cc vials at	$ .70	$	7,231 00

BIOLOGICAL PRODUCTS AND INSULIN—Continued

SUMMARY OF ANNUAL DISTRIBUTION—COSTS

Diphtheria Products	$ 22,502 77
Tetanus Products	20,324 88
Scarlet Fever Products	28,583 40
Meningococcus Products	1,863 85
Smallpox Products	7,406 82
Rabies Products	900 00
Pertussis Products	7,231 00
Cost of Biological Products	88,812 72
Plus Cost of Syringes ($617.00)	88,829 72
Less Sale of Syringes ($617.00)	88,812 72

TABLE XVI

SUMMARY OF ANNUAL DISTRIBUTION—FISCAL YEAR 1939-40

Product	Cost
Biological Products—Gross Cost	$ 89,429 72
Insulin—All types—Cost	60,805 00
Total Cost	$ 150,234 72
Less Sale of Biological Syringes ($617.00)	$ 149,617 72

TABLE XVII

COMPARATIVE STATEMENT OF COSTS—1938-40

Costs of Distribution by Fiscal Years			1939-40 Increase or Decrease over Previous Year 1938-39
A—Biological Products	1939-40	1938-39	
(a) Active Immunization:			
Diphtheria Toxoid	$ 16,828 49	$ 17,741 00	$ 912 51*D
Scarlet Fever Toxin	10,465 40	9,079 20	1,386 20* I
Smallpox Vaccine	7,406 82	9,160 12	1,753 30 D
xPertussis Vaccine	7,231 00	.....	7,231 00 I
Rabies Vaccine	900 00	283 50	616 50 I
Total	$ 42,831 71	$ 36,263 82	$ 6,567 89 I
(b) Passive Immunization:			
1. Prophylactic size package—			
Diphtheria Antitoxin	$ 532 28	$ 473 34	$ 58 94 I
Tetanus Antitoxin	16,729 83	18,479 70	1,749 87 D
Scarlet Fever Antitoxin	6,818 25	7,914 00	1,095 75 D
Total	$ 24,080 36	$ 26,867 04	$ 2,786 68 D
2. Treatment size package—			
Diphtheria Antitoxin	$ 5,142 00	$ 6,082 80	$ 940 80 D
Tetanus Antitoxin	3,595 05	4,174 65	579 60 D
S. F. Antitoxin	11,299 75	13,125 75	1,826 00 D
Anti-Anthrax Serum	.....	7 00	7 00 D
C. S. M. Serum	1,863 85	1,681 50	182 35 I
Total	$ 21,900 65	$ 25,071 70	$ 3,171 05 D
Syringes	617 00	812 40	195 40 D
Total	$ 89,429 72	$ 89,014 96	$ 414 76 I
B. Insulin:	$ 60,805 00	$ 60,491 00	$ 314 00 I
Biological Products and Insulin—Total Cost	$ 150,234 72	$ 149,505 96	$ 728 76 I

xPertussis Vaccine distributed only from Oct. 25, 1939-Mar. 31, 1940.

*D—Decrease, I—Increase.

TABLE XVIII

ANNUAL DISTRIBUTION OF TUBERCULIN (CALENDAR YEAR 1940)

No. of private physicians supplied with tuberculin	660
No. of Hospitals supplied with tuberculin	110
No. of Sanatoria supplied with tuberculin	9
No. of Clinics (non-Departmental) supplied with tuberculin	26

TABLE XIX

ANNUAL DISTRIBUTION OF TUBERCULIN—BY AMOUNT DISTRIBUTED (CALENDAR YEAR, 1940)

Type	1 cc. Vials		5 cc. Vials		Total	
	No.	Contents (cc.)	No.	Contents (cc.)	No. of Vials.	Contents (cc.)
No. 1 Solution	1,873	1,873	1,846	9,230	3,719	11,103
No. 2 Solution	1,015	1,015	.....	.....	1,015	1,015
Total	2,888	.....	1,846	.....	4,734	14,118

TABLE XX

ANNUAL DISTRIBUTION OF TUBERCULIN—BY COST (CALENDAR YEAR—1940)

Type	No. of Vials	Cost per Vial	Total Cost
No. 1 Sol (1cc.)	1,873	$0.30	$ 561.90
No. 1 Sol. (5cc.)	1,846	.95	1,753.70
No. 2 Sol. (1cc.)	1,015	.35	355.25
Total	4,734	.....	$2,670.85

TABLE XXI

COMPARATIVE STATEMENT—TUBERCULIN DISTRIBUTION AND COST
1938—1940

Type	1939 March–Dec.		1940 Jan.-Dec.		Increase or Decrease Cost
	Vials	Cost	Vials	Cost	
No. 1 Sol. (1cc.)	2,335	$ 700.50	1,873	$ 561.90	$138.60*D
No. 1 Sol. (5cc.)	1,164	1105.80	1,846	1753.70	647.90 I
No. 2 Sol. (1cc.)	735	257.25	1,015	355.25	98.00 I
Total	.....	2063.55	.....	2670.85	$607.30 I

*D—Decrease; I—Increase.

TABLE XXII

PERTUSSIS VACCINE—MONTHLY DISTRIBUTION
1939—1940

Months	No. of Vials	Cost
	1939	
October	930	$ 651.00
November	2,400	1,680.00
December	1,000	700.00
1939 Total	4,330	$ 3,031.00
	1940	
January	1,500	$ 1,050.00
February	2,000	1,400.00
March	2,500	1,750.00
April	2,000	1,400.00
May	2,000	1,400.00
June	2,000	1,400.00
July	1,000	700.00
August	2,500	1,750.00
September	3,000	2,100.00
October	3,000	2,100.00
November	2,000	1,400.00
December	2,500	1,750.00
1940 Total	26,000	$18,200.00
1939-40 Total	30,330	$21,231.00

TABLE XXIII

COMPARATIVE STATEMENT SHOWING COST OF BIOLOGICAL PRODUCTS AND INSULIN, 1926-1940

Fiscal Year	Diphtheria		Scarlet Fever		Tetanus Antitoxin	Anti-meningococcus Serum	Anti-Anthrax	Smallpox Vaccine	Rabies Vaccine	Pertussis Vaccine	Biological Totals	Insulin	Total Cost
	Antitoxin	Toxoid	Antitoxin	Toxin									
	$ c	$ c	$ c	$ c	$ c	$ c	$ c	$ c	$ c	$ c	$ c	$ c	$ c
1926–27	40,747.00	14,343.20	23,159.50	4,659.00	9,322.05	1,578.35	.....	8,212.58	585.00	.....	102,605.68	46,567.10	149,172.78
1927–28	35,407.02	10,427.40	20,595.50	3,483.70	10,518.00	1,632.40	.....	13,711.73	4,728.59	.....	100,504.34	48,943.60	149,447.94
1928–29	41,027.72	9,771.80	21,063.75	3,319.50	14,022.00	3,588.45	.....	7,144.60	2,000.25	.....	101,968.57	55,727.48	157,696.05
1929–30	46,784.30	9,486.40	34,031.45	5,287.30	15,171.75	3,452.15	.....	7,892.65	1,638.00	.....	123,744.00	62,728.16	186,472.16
1930–31	36,696.96	14,113.40	32,589.15	5,498.90	17,092.50	2,594.85	.....	6,300.03	819.00	.....	117,704.79	71,291.82	188,996.61
1931–32	27,217.73	20,874.16	22,115.82	4,316.25	17,872.34	2,526.48	.....	4,495.83	411.07	.....	99,829.68	84,367.15	184,196.83
1932–33	12,698.80	16,175.84	19,451.68	3,987.15	16,411.01	1,692.24	.....	3,719.20	937.65	.....	75,073.57	94,274.28	169,347.85
1933–34	12,797.38	14,482.68	27,971.97	5,287.77	19,529.70	1,593.75	.....	5,617.34	418.95	.....	87,699.54	102,517.65	190,217.19
1934–35	* 5,077.50	5,886.20	14,203.20	3,069.70	6,266.40	569.40	7.00	2,638.75	94.50	.....	37,212.65	44,517.45	81,730.10
1935–36	10,419.34	12,912.40	32,766.90	6,881.40	21,989.55	1,485.95	1.75	5,639.65	388.50	.....	92,485.44	84,580.71	177,066.15
1936–37	8,576.36	14,783.40	23,867.25	6,745.50	20,715.15	1,760.95	10.50	5,342.98	252.00	.....	82,054.09	60,252.04	142,306.49
1937–38	8,666.94	15,363.60	22,027.25	7,910.50	24,340.80	1,863.15	7.25	5,524.29	504.00	.....	86,423.78	60,485.12	146,908.90
1938–39	6,556.14	17,741.00	21,039.75	9,079.20	22,654.35	1,681.50	7.00	9,160.12	283.50	.....	88,202.56	60,491.00	148,693.56
1939–40	5,674.28	16.828.49	18,118.00	10,465.40	20,324.88	1,863.85	.....	7,406.82	900.00	7,231.00	88,812.72	60,805.00	149,617.72

*November 1934 toMarch 1935.

DIVISION OF VENEREAL DISEASE CONTROL

A. L. McKay, B.A., M.B., D.P.H., *Director.*

The Division of Venereal Disease Control which was re-established in April, 1939, has for the year 1940 now been in operation for the full calendar year. The change in the method of reporting of both syphilis and gonorrhoea which was established in December, 1939, has also been in operation for the full year. The number of cases reported by physicians, hospital superintendents, etc., has increased considerably during 1940. This cannot be taken as an increase in incidence, but rather in better co-operation existing in this regard with the profession, since the change of having all cases reported directly to the Division in the place of the former method when they were originally reported to the medical officers of health and only the summary reported to the Department.

The cases reported to the Division for the year 1940, are as follows:

Syphilis	4953
Gonorrhoea	4218

The number of cases reported by the old method for the previous three years was as follows:

Year	Syphilis	Gonorrhoea
1937	2415	3481
1938	3010	4188
1939	3285	4125

Three Year Average—1937-1939 (Ontario):

Syphilis	2909
Gonorrhoea	3931

Taking the prior three year average as being typical of reporting under the former system, we find there has been an increase in the reporting of syphilis of 70.6% and an increase in the reporting of gonorrhoea of 7.3%. This increase in the reporting of syphilis is most gratifying and would seem to indicate that the profession realize the importance of the problem and are willing to co-operate with the Department in their efforts of control. The reporting of gonorrhoea is, however, still far from being complete and it is to be hoped that an increase in interest in this important problem in public health will be made manifest in the near future.

During the year a Progress Report form was sent to the physicians reporting every case of syphilis within six to eight months after the original report was received. This consisted of a simple questionnaire with respect to the amount of treatment administered and the most recent serology in both blood and spinal fluid. An analysis of these returns revealed the fact that many cases lapsed before cure or even arrest of the disease was accomplished, and in other instances treatment has been discontinued by the physician on one negative report of blood serology and without examination of the spinal fluid before final discharge. More emphasis is now being placed on the treatment of early neurosyphilis in the asymptomatic stage. This phase of the report will be dealt with separately.

The so-called five day intravenous drip method of therapy similar to that published by Hyman et al, was first introduced in Ontario in the clinic at the Kingston General Hospital. This treatment is primarily intended for those suffering from early syphilis, i.e., in the primary or secondary stage. Further investigation in this method has been carried on at the Toronto General Hospital and final results will be reported later. The usefulness of this method in the control of early infectious syphilis is apparent to all.

Chemotherapy for gonorrhoea has now advanced to the point where no longer is the prolonged irrigation and topical application treatment carried out to any great extent except as a supplement. This is apparent in the great reduction in the number of irrigation treatments administered in the clinics as compared with the experience in the previous years. At the present time, sulphathiazole would appear to be the compound of choice but dagenan and even sulphanilamide are still being used successfully. Tryparsamide is now being more widely used with increased emphasis being placed on the treatment of neuro-syphilis both prior to and subsequent to the administration of fever therapy.

With large concentration of troops in various centres in the Province, assistance was offered the medical officers in charge to trace down and have placed under treatment the sources of infection who could be named by any member of the forces found to be recently infected with either syphilis or gonorrhoea. Not all such alleged sources could be located on account of the meagre description obtainable from the patient, but in many cases it was possible to do so and effectively control their movements and institute treatment. Where there was non-compliance with orders in respect to treatment, such persons were placed in custody and treated there. Partly as a consequence of these arrangements the incidence of infection amongst troops stationed in Ontario was markedly reduced as compared with the experience in the past War during the first year of mobilization. It is essential that this type of co-operation with the Division and the various military districts be maintained. At times this has been found to be difficult with frequently changing personnel amongst the medical officers. This work has been carried out in accordance with the Venereal Diseases Prevention Act and regulations by the medical officers of health of the municipalities concerned, with the Division acting as the clearing centre for all such correspondence.

Two new centres were approached during the year with respect to opening of new clinics, e.g., Cornwall and Timmins. Local arrangements are being completed in both instances. The enlistment amongst the staffs of the various clinics has left vacancies which have been filled temporarily for the duration of the war. We regret to have to record the resignation an account of increasing responsibilities in other fields of medicine, of Dr. E. F. Brooks, former Director of the Clinic at St. Michael's Hospital, Toronto.

The Division has continued to give some measure of advice re methods of treatment to the clinics and to physicians making enquiry in this regard. The pamphlet on syphilis was rewritten and is now available for general distribution. Municipalities without clinics have continued to be reimbursed for seventy-five per cent. of their costs of treatment and an increasing number of municipalities are now engaged in this branch of preventive and curative medicine. In unorganized districts the whole cost has been borne by the Division. The cost of this service by the Department for the calendar year was $4,706.50.

Following is given the statistics of the work carried out in the clinics in the Province.

There were 6,132 patients carried over from treatment during the previous year and 2,405 new patients admitted and 758 re-admitted patients and 777 previously treated patients, giving a total of 10,072 patients treated in the clinics during the year. The number of new cases was less than for the previous year and although there were over 500 more patients treated during 1939, there were more *treatments* given during 1940. This would indicate better and more regular attendance at the clinics, as during 1939 there was an average of 13.7 attendances and in 1940 there was an average of 14.7 attendances per patient. These figures are based on both syphilis and gonorrhoea. There were fewer new cases (never previously treated) in 1940 than in the previous year by 11%.

The classification of the new and previously treated patients by stage of the disease, i.e., early (primary and secondary) and all others classified as tertiary, showed that there were 137 more cases of early syphilis applying to the clinics for treatment. This is encouraging in that apparently more persons recognizing themselves to be infected and in a highly infectious state may be readily made non-infectious by early sustained treatment. There has been a general increase in the number of treatments for syphilis from 94,622 in 1939, to 113,217 in 1940, with a corresponding decrease in the number of treatments for gonorrhoea from 51,299 in previous year to 35,231 in 1940. This latter, of course, is largely due to the substitution of chemotherapy for local daily treatment. The increase in syphilis treatments reflects more regular attendance and also the continuous form of treatment now being used in the clinics.

The discharges from the clinics as apparently cured increased to 3,209, whereas in the previous year it was 2,411. It is also encouraging to note that only 993 were discharged from the clinics without permission (lost) which is 9.8% of the total clinic patients. This compared most favourably with clinics in other States and Provinces where the precentage of lost cases is much higher in many instances.

The work of the social service nurses in the clinics has increased during the past year. There were 1,040 individuals brought in for examination as suspected sources and contacts of new patients and of these 138 were found to be suffering from syphilis, and 108 from gonorrhoea. Treatment was supplied for these cases which otherwise might have gone on spreading their infection.

More cases were placed under the provisions of the Act and prosecuted for various breaches of conduct or of the Act than for many years previously. There has been a more rigid enforcement where necessary.

There was an increase in hospitalization of patients in the early infectious stages from 822 in previous year to 1,123 in the current year but hospitalization stay was shorter for this increased number of patients than previously as the average stay in 1939 was 14.0 days, whereas in 1940 it was 10.0 days, making a direct saving to the Division of $2.00 per patient, being the extra .50c per diem, which is paid hospitals in such cases. The five day form of treatment has been a factor in this reduction and should make further savings in the future as it is more widely adopted.

Another important item in the statistical report is an increase in the number of examinations of the cerebro-spinal fluid from 531 in 1939 to 1,606 in 1940. Increased interest on the part of the clinics in looking for early neurosyphilis has occasioned this three-fold increase in this type of examination.

The development of an outfit for collection of gonorrhoeal cultures has also materially assisted those physicians whose clinics are situated conveniently to a

provincial laboratory. In the case of female patients particularly, this form of examination has proven of great value as a supplement to ordinary smear examinations.

The following is a statistical analysis of the work in the clinics for the year 1940:

Treatment for Syphilis:

Diarsenol	1,258
Novarsan	18,840
Mapharsen	20,824
Tryparsamide	4,877
Other Arsenicals	4,007
Mercury	2,346
Bismuth	50,255
Medicines	8,089
Other and advice	5,111

Treatment for Gonorrhoea:

Irrigations	20,593
Douche	843
Injections	2,606
Prostatic Massage	3,217
Instrumentation	710
Deep Instillation	586
Topical Applications	3,577
Vaccine	315
Examinations	4,499
Medicines, Sulphanilamide and Dagenan	4,713

Summary of Clinic Activities:

1.	Number carried over from previous year	6,132
2.	Number of new cases (never previously treated in clinic)	2,405
3.	Number of cases re-admitted	758
4.	Number of previously treated patients	777
5.	Number of cases treated	10,072
6.	Number of treatments	148,448
7.	Number of contacts and sources examined	1,040
8.	Number of visits made by nurses	5,047

Analysis of the above figures:

New cases (never previously treated in Clinic) 2,405

	Male	Female
Syphilis	534	429
Gonorrhoea	971	393
D. I	44	34

Number of cases re-admitted 758

	Male	Female
Syphilis	231	124
Gonorrhoea	283	73
D. I	25	22

Number of cases previously treated 787

	Male	Female
Syphilis	329	233
Gonorrhoea	143	54
D. I	11	7

Number of new and previously treated cases of syphilis classified 1,469

	Male	Female
Primary	231	85
Secondary	177	225
Tertiary	426	325

Number of new and previously treated cases of gonorrhoea classified 1,367

	Male	Female
Under 1 month	701	285
Under 2 months	84	70
Over 2 months	100	127

Number of paid treatments 148,448

	Male	Female
Syphilis	64,745	48,472
Gonorrhoea	23,471	11,760

Number of contacts and sources examined 1,040

Positive for Syphilis	138
Positive for Gonorrhoea	108

Number of children treatments 7,389

	Male	Female
Syphilis	2,315	4,548
Gonorrhoea	40	486

Number discharged from clinics 4,610

Number discharged apparently cured 2,411

	Male	Female
Syphilis	417	332
Gonorrhoea	1,096	441
D. I	84	41

Number discharged without permission 993

	Male	Female
Syphilis	339	148
Gonorrhoea	362	106
D. I	27	11

Number transferred 906

	Male	Female
Syphilis	389	224
Gonorrhoea	160	93
D. I	21	19

Social Histories taken in clinics 3,331

Cases referred by:—Doctors, 790; Self,1,061; Friends, 108; Hospitals, 411; Other Clinics, 345; Social Agency, 126; Department of Health, 241; Jails, 72; re-admissions, 151; Police, 26.

Number of cases referred to M. O. H. 1,336

Sources	274
Contacts	134
Non-attendance	928

Number of cases placed under V. D. Act 262

Number of cases prosecuted under V. D. Act 76

Analysis by Age Groups of New Admissions 2,942

	Male	Female
Under 16 years	49	88
16–19 years	113	196
20–29 years	775	506
30–39 years	453	209
Over 40 years	411	142

Number of patients treated in hospitals where clinics are situated 1,123

	Male	Female
Syphilis	466	213
Gonorrhoea	195	249

Number of days in hospital 11,290

Laboratory Examinations:

	Positive	Negative
Syphilis:		
Blood	5,932	8,925
Cerebro Spinal Fluid	352	1,254
Darkfield	96	131
Gonorrhoea:		
Diagnosis	1,732	5,445
Prognosis	2,033	4,293

REPORT OF THE WORK ACCOMPLISHED AT THE PROVINCIAL CLINICS TO DECEMBER 31, 1940.

Clinic	No. of hours over 105 Degrees	Total No. of Patients Treated				Cured	Improved		Unimp.		
		Ns.	S.	G.	O.	G.	Ns.	S.	Ns.	G.	O.
St. Michael's	1,350¼	26	.....	5	1	5	12	.....	14	.....	.....
Western	1,511½	34	.....	2	.....	2	18	.....	14	.....	.....
Women's College	287¾	10	.....	.....	.....	.....	3	.....	7	.....	.....
Kingston	762	16	2	38	2	28	8	2	8	10	2
London	1,758	31	.....	21	8	18	17	....	14	3	.....
Ottawa	376¼	17	.....	16	.....	.....	.....	....	.....	.....	.....
Totals	6,046	134	2	82	11	53	58	2	57	13	2

Queen Street:—No. of hours over 105 degrees, 6229; No. of patients given fever, 152, of which 23 were patients of Ontario Hospital and 4 inmates of the Mercer Reformatory, who are at present on treatment, as well as 25 patients who had to discontinue treatment, before an adequate amount was given. 100 of these received adequate treatment. Of these, 9 were asymptomatic cases from the Mercer. 60 Ontario Hospital patients were discharged (14 women and 37 men being well enough to maintain themselves in the community) 20 showed no noticeable change and 3 were improved but were not sufficiently well to be allowed to leave hospital; 3 are ready for probation, 2 have died and 3 were worse following treatment.

Burwash:—No. of hours over 105 degrees, 1226; No. of patients given fever, 75, of which 14 were suffering from neurosyphilis, 19 from syphilis, 31 from gonorrhoea and 13 from other conditions. All cases of neurosyphilis and syphilis are improved. All cases of gonorrhoea were cured.

DIVISION OF MATERNAL AND CHILD HYGIENE

J. T. PHAIR, M.B., D.P.H., *Director.*

Despite the apparent failure to maintain the maternal death rate at the low level which was reached in 1938, (3.8 per 1000 living births), the rate for 1939 (4.4 per 1000 living births) cannot be considered as altogether unsatisfactory when the rates for the last 15 years are considered. Actually a critical review of the factors known to contribute to maternal mortality in this country forces the admission that the remarkably low figures for 1938 were not truly indicative of the progress made to date in our efforts to control deaths associated with maternity. There is, however, some evidence to support the contention that there is a downward trend in our maternal mortality rate in this province.

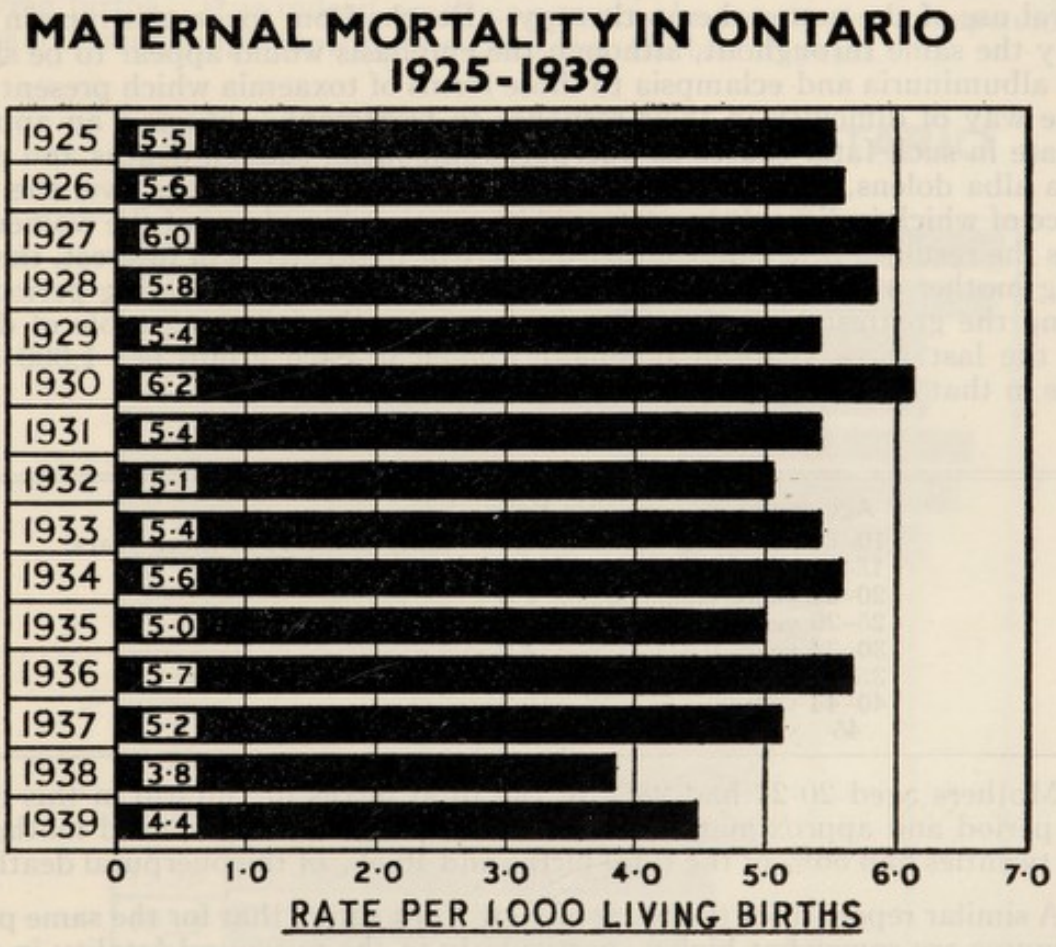


TABLE I

Cause of Death	1933 to 1937		1938		1939	
	%	Rate	%	Rate	%	Rate
Abortion with sepsis	11.8	0.64	10.4	0.40	15.2	0.65
Abortion without sepsis	3.5	0.19	3.6	0.14	3.6	0.15
Ectopic gestation	3.7	0.20	4.4	0.17	3.9	0.17
Puerpural hemorrhage	11.4	0.61	8.8	0.34	13.8	0.59
Puerpural septicaemia	20.7	1.10	19.9	0.76	18.1	0.78
Puerpural albuminuria and eclampsia	18.9	1.01	17.9	0.69	15.2	0.65
Other toxaemias of pregnancy	5.3	0.28	3.6	0.14	4.7	0.20
Puerpural embolism, sudden death	10.7	0.57	16.3	0.63	15.9	0.69
Other accidents of childbirth	11.6	0.62	13.9	0.53	7.6	0.3
Other conditions	2.5	0.13	1.2	0.05	1.8	0.08

Analysis of the above table would indicate that the percentage of total deaths was higher from septic abortions, but practically the same as far as rate is concerned. While there was a material reduction in 1938 from puerpural hemorrhage, the percentage as well as the rates for 1939 show little change from the percentages and rates for the five years previous. It is gratifying to note that the percentage and the rate of deaths from puerpural septicaemia is maintained at the low level of 1938, a very considerable reduction over the previous five year average. This would appear to indicate the efficacy as well as the more general use of the newer chemo-therapy. Deaths from toxaemias remain practically the same throughout, although the emphasis would appear to be shifted from albuminuria and eclampsia to those forms of toxaemia which present more in the way of difficulty in their response to treatment. There is an apparent increase in such fatal causes as puerpural embolism, sudden deaths and phlegmasia alba dolens, etc., in the last two years over the previous five, the significance of which is difficult to assess. The relationship of age of the women who die as the result of pregnancy either directly or indirectly is of interest, the very young mother and those in the older brackets of the child-bearing period presenting the greatest hazards. This is shown by the following table of deaths over the last three years of pregnant women in each group per 1,000 living births in that age group.

TABLE II

Age group	Rate	
10–14 years	16.9	—(only one case in three years)
15–19 years	3.7	
20–24 years	2.8	
25–29 years	3.5	
30–34 years	4.9	
35–39 years	8.2	
40–44 years	10.25	
45 years	11.9	

Mothers aged 20-24 had 28% of the total births in Ontario in this three-year period and approximately 18% of the puerpural deaths—and mothers in their twenties had 56% of the total births and 40.5% of the puerpural deaths.

A similar report from the State of New York shows that for the same period the figures are somewhat higher, particularly in the puerpural fatality in these age groups.

Rates by cause of death in each age group over the last three years is shown below. This is based on the maternal deaths per 1,000 living births in each age group.

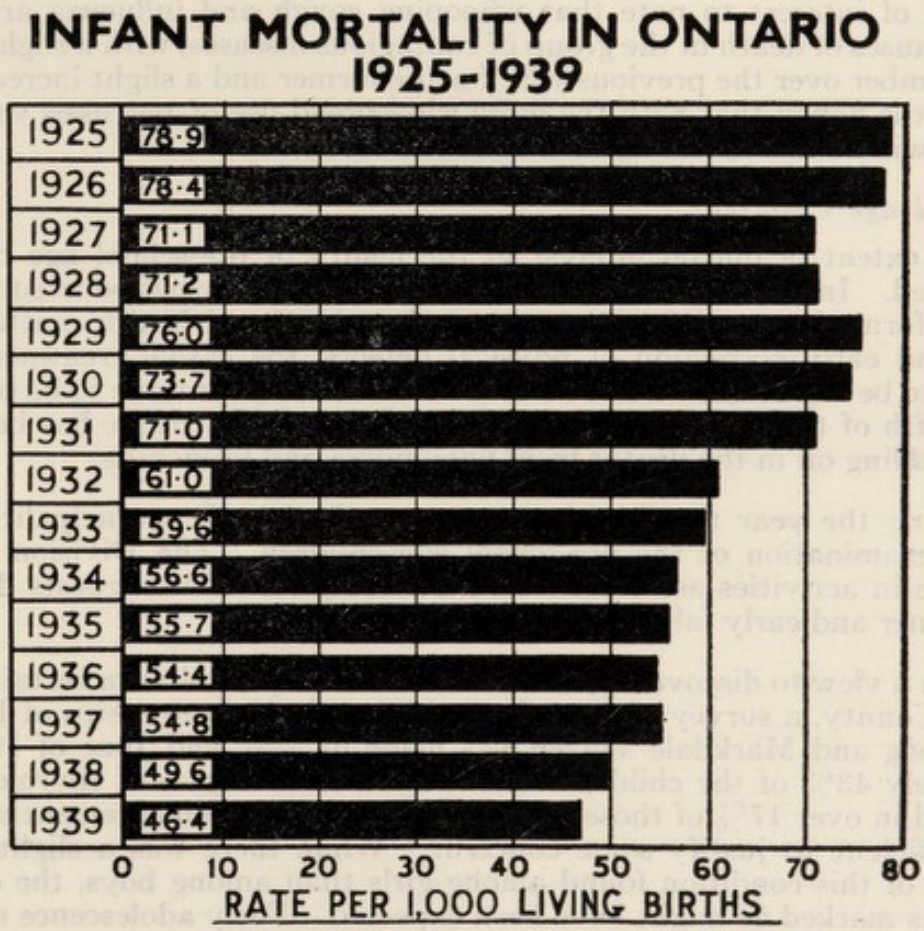
TABLE III

Cause	Age Groups—Rates							45 and over
	10–14	15–19	20–24	25–29	30–34	35–39	40–44	
Abortion with sepsis	.....	.44	.48	.39	.64	1.02	.4	.....
Abortion without sepsis	.....	.....	.07	.2	.13	.2	.7	.....
Ectopic gestation	.....	.....	.06	.19	.1	.37	.4	.....
Puerpural hemmorrhage	.....	.19	.24	.4	.64	.9	1.5	2.9
Puerpural septicaemia	*16.9	1.0	.65	.67	.87	1.6	1.3	.....
Puerpural albuminuria & eclampsia	.....	1.4	.43	.48	.77	1.8	1.9	2.9
Other toxaemias of pregnancy	.....	.25	.19	.19	.2	.37	.4	.....
Puerpural embolism, sudden death	.....	.13	.39	.46	.9	1.2	1.8	.....
Other accidents of childbirth	.....	.25	.2	.46	.5	.65	1.3	2.9
Other conditions	.....	.06	.09	.07	.13	.09	.4	2.9

*Only one case.

Infant Hygiene:

If the maternal death rate used as an index of progression is not as encouraging as we had hoped, the same could not be said of the infant death rate for the year 1939, which is the last available figure. In 1938 for the first time in the history of the Province the rate was below 50, (49.6 per 1,000 living births), but for 1939 there is again a considerable reduction in that the rate is 46.4 per 1,000 living births. It is indeed gratifying to see the steady decline as evidenced in the following graph showing the rates over the last 15 years.



NOTE:—There has been a very slight decline in the stillbirth rate over the last fifteen years, but in 1939 there was a slight increase over 1938. (Rate in 1938 was 29.8 per 1,000 births, and in 1939 it was 30.6.)

With the reduction in the number of deaths of infants under one year of age, the loss of child life in the early months makes a more striking figure, in that it is noted that approximately 75% of all deaths of infants were under three months of age and some 60% under one month. These observations associated with the fact that 65% of all the infants deaths were attributed to prematurity, congenital malformation and other conditions peculiar to early infancy would indicate where the emphasis should be directed in our future efforts to lower the death rate in this age group.

The causes of death among infants over the last 20 years in five year periods is shown as follows expressed in terms of percentages of the total deaths in this age group.

TABLE IV

Cause	1920	1925	1930	1935	1939
Contagion	10.0	8.9	7.0	8.3	6.1
Respiratory diseases	12.4	11.6	11.3	11.6	11.5
Diarrhoea and Enteritis	18.0	13.9	16.3	7.9	7.6
Malformations	6.6	10.2	8.6	11.6	14.0
Prematurity	.....	26.4	27.7	31.0	31.5
Birth Injury	.....	4.9	5.6	8.4	8.7
Congenital debility and other diseases peculiar to infancy	43.9	12.7	12.2	11.7	10.2

It is of interest to note that whooping cough and influenza are still the highest causes of death in the group of contagious diseases, with a slight decrease in the number over the previous year for the former and a slight increase for the latter. It is hoped that with the more widespread use of pertussis vaccine this decrease will be more striking in the immediate future.

Pre-school age Children:

The extent of official interest in the health of pre-school age children is still limited. In view of the significance of this formative period in such matters as habit formation, social adjustment and such related health matters as nutrition and early correction of physical defects, the casual treatment of this group is to be regretted. While accidental causes still continue to be responsible for one-fifth of the deaths, it is encouraging to note that there has been a substantial falling off in the deaths from pneumonia and bronchitis.

During the year the Division co-operated with six municipalities in the medical examination of the pre-school age children. The Division also gave assistance in activities associated with the reception of war guests during the late summer and early fall of 1940.

With a view to discovering the incidence of simple goitre in certain sections of Grey County, a survey of the school children in the townships of Euphrasia and Glenelg and Markdale Village was made in May and June of 1940. Approximately 43% of the children seen showed some degree of thyroid enlargement, and in over 17% of those examined the degree of enlargement was found to be sufficient to justify some concern. While there was a slightly higher incidence of this condition found among girls than among boys, the difference was not as marked as might have been expected. Early adolescence seemed to be the age group most affected; apparently heredity plays a contributing part in the cause of epidemic goitre, judging from its familial incidence. The Department is concerning itself further with this situation.

At the request of the Department of Education, the Division again gave direction to the program for the medical examination of teachers-in-training in the various centres. As there has been considerable in the way of interest evinced in rheumatic heart disease in the younger age groups, it was felt that a review of the records of these students over the last six years would contribute substantially to our knowledge of the extent of this crippling condition among young adults. In all, reports of 8,660 students were studied. The average age was 20 years and nine months. 644 students or 7.4% gave either a history suggestive of rheumatic involvement or were found to have some cardiac abnormalty. This group was further subdivided into:

1. Those found with heart lesions and no history of contributing illness associated with it.
2. Those with history of rheumatic fever and a resulting heart lesion.
3. Those with a history of rheumatic fever but who on re-examination showed no sign of cardiac involvement.

PUBLIC HEALTH NURSING

EDNA L. MOORE, REG. N., *Chief Public Health Nurse.*

During the first three months the staff numbered sixteen—chief public health nurse, five supervisors, ten staff nurses. With the closing of the Eastern Ontario Health Unit at the end of March, three staff nurses were transferred to the Department office, one supervisor and three nurses joined the staff of the United Counties Health Unit, one nurse resigned and one was granted six months leave of absence. From April first to the end of the year, the public health nursing staff numbered ten.

In April a nurse was assigned to the 1937 Poliomyelitis Follow-up survey which included field visits to communities in which public health nursing services have not been established. A survey of public health nursing needs in a northern district was carried on in June, July, August and September, by a member of the staff who relieved in the Temiskaming district during November and December when the nurse who serves the area was away because of illness.

Assistance was given in the examination of Normal School and College of Education students. In August when British War Guests arrived nursing service was arranged for the medical examinations and several staff members participated, assisted by the Division of Nursing, Toronto Department of Public Health and a number of nurses who volunteered their services.

The supervisors made visits to 237 nurses in 107 centres. Of these 26 were nurses recently appointed. It is our policy to give to the introduction of public health nurses in new posts sufficient time to study the community needs and to discuss with those responsible the type of program that will make possible a service to meet the needs.

During the year 32 public health nursing positions were filled in municipalities outside the larger cities. Twenty-five of the employing agencies—mainly Boards of Health and School Boards—requested assistance in securing qualified personnel. Through our file of active applications we were able to put applicants and employers in touch with each other.

In April Oxford County initiated a school health service under the provisions of Section 91A of The Public Health Act. A committee was set up by the County Council and two public health nurses were engaged to initiate a programme in co-operation with the medical officer of health in each municipality. All school sections are included in the service, with the exception of Woodstock and Ingersoll where generalized public health nursing services are in operation. The plan of organization provides for additional nursing staff as the programme develops.

For years the town of Thorold and School Section 2 of Thorold Township carried on a combined school health service. In January this section joined with the other school sections in providing a service which covers the entire township. The Town of Thorold in September established a generalized public health nursing service. An office in the township building is shared by the municipal nurse and the Victorian Order Nurse who serves the town and surrounding district through a teaching bedside service.

The United Counties (Stormont, Dundas and Glengarry) Health Unit, was organized April first. The public health nursing personnel consists of a supervisor and eight staff nurses. The headquarters of the Unit are in Cornwall. Three members of the nursing staff use this office while five of the nurses assigned to outlying districts are established in the areas they serve.

Interest in the development of health services in secondary schools continues to increase.

When the Toronto Normal Model School opened in September a school health service was set up by the Department of Education. A physician and a public health nurse are engaged on a part time basis.

With the resignation of the public health nurse for the town of Elmira in March, the service lapsed during the remaining months of the year.

In connection with the War Emergency Course in Nutrition organized by the Canadian Red Cross Society, Ontario Division, in co-operation with the Canadian Medical Association and the Ontario Agricultural College, Guelph, letters were sent to all public health nurses employed by official agencies explaining the undertaking and asking that they give assistance to the local Red Cross Branches in the selection of suitable applicants.

Through the co-operation of Boards of Health, School Boards, Health Officers and Public Health Nurses, it was possible to plan a one-month period of field observation and practice for 17 graduate and 3 undergraduate students in public health nursing.

A short course in Administrative Problems in Public Health Nursing offered by the School of Nursing, University of Toronto, was attended by the Chief Public Health Nurse and the Supervisors. The visiting lecturer was Miss Marion Sheahan, Director of Public Health Nursing, New York State Department of Health. Two members of the staff attended a Refresher Course on Group Teaching.

Three folios of public health nursing information were prepared and distributed.

In July Miss Elizabeth L. Smellie, C.B.E., R.R.C., Reg.N., was appointed Matron-in-Chief for Canada, R.C.A.M.C. Miss Smellie who was granted leave of absence by the Victorian Order of Nurses for Canada to accept this responsible post, has consented to continue as our honorary consultant in public health nursing. In this capacity she has given generously of her time and from her wide experience and knowledge she has assisted in the solution of many problems.

During the year the Chief Public Health Nurse visited fifteen centres, including Fort William, Port Arthur and Cornwall, and addressed eighteen meetings with a total attendance of approximately 2,500.

Our work has been strengthened through the active co-operation of the Women's Institutes Branch, Department of Agriculture, and staffs of the Children's Aid and Mothers' Allowance Branches in the Department of Public Welfare.

The administration of public health nursing services and the teaching of nutrition and mental hygiene have received emphasis during the year and will continue to occupy a major place in our supervisory programme.

Direction was given to a programme of First Aid and Home Nursing sponsored by the Queen's Park War Service Guild.

DIVISION OF TUBERCULOSIS PREVENTION

G. C. Brink, M.B., *Director.*

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ANNUAL REPORT, 1940

In 1940 there has been a general increase in the work of the Division, although the number of patients examined in the Provincial Travelling Clinics is somewhat less because the medical staff was called upon to do work not connected with its usual activities, and also because the Central and Fort William Clinics operated for only part of the year.

More than 61,000 examinations were conducted in the various chest clinics operated throughout the Province by (a) the sanatoria, including their extension clinics; (b) local boards of health; (c) the Associated Chest Clinics of the General Public Hospitals of the City of Toronto; and (d) the District Units and Travelling Clinics of the Department of Health of Ontario.

The Boards of Directors and medical staffs of all sanatoria, as well as the staffs of the permanent clinics, have given full co-operation.

During 1940 there has been an increase in the number of persons treated in sanatoria over any previous year, the total number being 6,230.

The number of ex-patients of sanatoria receiving pneumothorax refills has steadily increased. Ten additional pneumothorax centres were organized, bringing the total number to 56.

The total cost of post-sanatorium care to all municipalities was $173,200, of which the province reimbursed them $43,000 for pneumothorax refills. The province expended directly for post-sanatorium care $27,000, which includes the cost of organizing pneumothorax treatment centres.

In 1939 the tuberculosis mortality rate fell 13% to a new low of 28.9 per 100,000 population. The figures for 1940 are not yet available, but it is estimated that the decrease will be approximately 4%.

The fact that 213 persons died in Ontario in 1939 from pulmonary tuberculosis (in 178 of these, tuberculosis was given as the primary cause of death), and who had never had the benefit of sanatorium treatment, indicates the need for more extensive diagnostic and follow-up programmes and greater education of the public in respect to the necessity for segregation of the active infectious case of tuberculosis.

The activities of the Division of Tuberculosis Prevention consist of:

1. Operation of six travelling chest clinics.

2. Annual medical review of the record of all patients undergoing treatment in sanatoria.

3. Compilation of all financial statements and medical statistics of all sanatoria.

4. Payment of the maintenance charges of indigent tuberculous patients in sanatoria.

5. Supervision of the tuberculin testing and X-raying of all non-graduate and graduate nurses in all public and Red Cross Hospitals, hospitals for incurables and sanatoria; and all applicants to teacher training institutions.

6. Reimbursement to municipalities for money expended in payment to approved physicians carrying out pneumothorax refills on indigent and semi-indigent ex-patients of sanatoria.

7. Organization of new pneumothorax refill centres and arrangement for the training of selected physicians.

8. Assistance to the Indian Affairs Branch, Ottawa, in conducting tuberculosis surveys in Indian Residential Schools and Indian Reserves.

9. Supervision of tuberculosis surveys in the Industrial Schools of the province.

10. The recording of all known cases of tuberculosis in the province, both in and out of sanatoria.

11. Responsibility for the post-sanatorium care of ex-patients of sanatoria who have no municipal residence and those from unorganized territory.

12. Assistance in the admission of patients to sanatoria.

13. Co-relation of the activities of the various clinics and sanatoria.

14. Interpretation of X-ray films referred by many hospitals in the province.

15. Supervision of the issuing of free tuberculin to physicians, hospitals and clinics.

16. Co-operation with the other divisions of the Department and other Departments in the examination of applicants for appointments.

17. Two of the medical staff act on the medical advisory board of the Mothers' Allowance Commission.

PART I

REPORT OF THE WORK DONE BY THE TRAVELLING CHEST CLINICS

During 1940 Travelling Chest Clinics have operated with headquarters in Toronto, Ottawa, Belleville, Timmins and North Bay, and since September in Fort William.

Clinics were conducted in 85 centres. It should be noted that patients are referred from outside centres to each clinic headquarters when the staff is not travelling.

Toronto Unit—18 Clinics in 14 Centres.

Owen Sound (3 visits), Oshawa (2 visits), Hanover (2 visits), and one visit to each of the following: Peterborough, Ridgetown, Lindsay, Tillsonburg, Newmarket, Midland, Penetanguishene, Uxbridge, Wiarton, Kincardine and Chesley.

This clinic unit was not operating in July and September, being engaged in examination of refugee children. The staff of the Toronto Unit conducted clinics in Northwestern Ontario in January and February; these are credited to the Fort William Unit.

Ottawa Unit—30 clinics in 16 centres.

Ottawa (12 clinics), Brockville (2 visits), Pembroke (2 visits), Hawkesbury (2 visits) and one visit to each of the following: Carleton Place, Prescott, Arnprior, Rockland, Smiths Falls, Casselman, Eganville, Renfrew, Kemptville, Plantagenet, Perth and Almonte.

Belleville Unit—28 clinics in 16 centres.

Belleville (12 clinics), Peterborough (2 visits) and one visit to each of the following: Picton, Port Hope, Deseronto, Marmora, Stirling, Tweed, Havelock, Campbellford, Bancroft, Haliburton, Cobourg, Madoc, Wellington and Napanee.

Timmins Unit—17 clinics in 8 outside centres.

Clinics in Timmins 3 days each week, when staff not travelling. Hearst (2 visits), Kapuskasing (2 visits), Moonbeam (2 visits), Smooth Rock Falls (3 visits), Cochrane (2 visits), Iroquois Falls (2 visits), Englehart (2 visits), Larder Lake (2 visits).

North Bay Unit—37 clinics, 20 centres.

North Bay (12 clinics), Sudbury (3 visits), Sault Ste. Marie (3 visits), Mattawa (2 visits), Sturgeon Falls (2 visits), and one visit to each of the following:—Chapleau, Verner, Capreol, Blind River, Mindemoya, Gore Bay, Little Current, Parry Sound, Manitowaning, Burks' Falls, Huntsville, Richard's Landing, Thessalon, Hornepayne, Foleyet.

**Fort William Unit—19 clinics in 11 centres.*

Fort Frances (2 visits), Rainy River (2 visits), Kenora (2 visits), Dryden (2 visits), Sioux Lookout (2 visits), Nipigon (2 visits), Nakina (2 visits), Armstrong (2 visits) and one visit to each of the following:—Emo, Schrieber and Geraldton.

*This clinic was only operating for five months of the year.

Table I, General summary.

Tables II, III and IV give details in respect to newly discovered cases of tuberculosis.

Tables V and VI give details in respect to persons recommended for sanatorium treatment.

Table VII gives details regarding changes in diagnoses made in repeat examinations.

Table VIII gives details regarding the present condition of ex-sanatorium patients examined at the clinics.

Table IX gives the classification of non-tuberculous chest conditions in persons examined at the clinics.

TABLE I

SUMMARY OF CLINIC WORK

Findings		Toronto	Ottawa	Belleville	Timmins	North Bay	Fort William	Totals	
1. Pulmonary Tuberculosis	1st Ex.	84	90	93	82	85	48	482	
	Repeat	245	287	247	291	357	143	1570—	2052
(a) Active	1st Ex.	22	29	37	52	46	14	200	
	Repeat	27	16	28	31	86	20	208—	408
Inactive	1st Ex.	62	61	56	30	39	34	282	
	Repeat	218	271	219	261	271	123	1363—	1645
(b) Newly discovered	1st Ex.	39	53	56	56	46	27	277	
	Repeat	8	21	18	10	12	6	75—	352
Already known	1st Ex.	45	37	37	26	39	21	205	
	Repeat	237	266	229	281	345	137	1595—	1800
(c) Childhood (all types)	1st Ex.	2	5	7	2	5	5	26	
	Repeat	7	28	17	49	29	17	147—	173
Minimal	1st Ex.	43	44	47	36	34	24	229	
	Repeat	94	168	112	116	166	55	711—	940
Moderately advanced	1st Ex.	30	28	24	27	27	14	150	
	Repeat	117	82	92	91	108	55	545—	695
Advanced	1st Ex.	9	13	14	17	19	5	77	
	Repeat	27	9	26	36	54	16	168—	245
2. Extra Pulmonary Tuberculosis	1st Ex.	6	2	3	6	2	3	22	
	Repeat	3	4	1	2	1	4	15—	37
3. Suspected Tuberculosis	1st Ex.	5	4	18	4	15	7	53	
	Repeat	1	16	10	13	10	3	53—	106
4. Recommended for Sanatorium	1st Ex.	22	27	42	49	39	15	194	
	Repeat	23	14	26	23	60	21	167—	361
5. Non-Tuberculous Chest Disease	1st Ex.	64	60	84	48	32	14	302	
	Repeat	23	63	55	29	38	12	220—	522
6. No disease	1st Ex.	756	713	1037	1560	1126	455	5647	
	Repeat	568	597	467	824	708	421	3585—	9232
7. Number Individuals Examined		1666	1703	1848	2704	2230	971	11122	
8. Number pneumothorax refills given		0	18	357	340	93	0	808	
9. Totals	1st Ex.	915	869	1235	1700	1260	527	6506	
	Repeat	840	967	780	1160	1114	583	5444—	11950
10. Total Number of Examinations		1755	1836	2015	2860	2374	1110	11950	

TABLE II

1st—1st Examination.
R.—Repeat Examination.

CLASSIFICATION OF NEWLY DISCOVERED CASES—TOTAL 352

Age Groups	Totals		History of Contact	Childhood				Minimal				Moderately Advanced				Advanced				Extra Pulmonary			
				Act.		Inactive		Act.		Inactive		Act.		Inactive		Act.		Inactive		Act.		Inactive	
	1st	R.		1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.
0 to 4	6	6	+	5	2	....	4	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	1	0	—	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
5 to 9	16	3	+	5	....	4	2	2	....	3	....	2	1	....	....	....	....	....	....	....	....	....	....
	1	1	—	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
10 to 14	12	6	+	2	1	2	....	2	1	....	3	3	1	....	....	3	....	....	....	....	....	....	....
	4	1	—	....	....	....	....	2	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....
15 to 19	11	8	+	....	....	....	....	6	5	....	2	2	....	....	....	2	1	....	....	Gland 1	....	....	....
	9	3	—	....	....	....	....	6	2	1	....	1	....	....	....	1	....	....	....	Gland 1	Hip 1	....	....
20 to 24	14	13	+	....	....	....	....	3	5	2	2	7	5	....	....	2	1	....	....	....	....	....	....
	20	9	—	....	....	1	....	3	2	3	3	3	4	....	....	9	....	....	....	....	....	....	....
25 to 29	11	5	+	....	....	....	....	2	1	4	3	....	1	....	....	5	....	....	....	....	....	....	....
	20	0	—	....	....	....	....	5	....	1	....	9	....	1	....	4	....	....	....	....	....	....	....
30 to 39	27	7	+	....	....	....	....	11	3	9	3	3	1	2	....	2	....	....	....	....	....	....	....
	38	3	—	....	....	....	....	8	1	16	1	6	....	2	....	6	1	....	....	....	....	....	....

TABLE II—Continued

1st—1st Examination.
R.—Repeat Examination.

CLASSIFICATION OF NEWLY DISCOVERED CASES—TOTAL 352

Age Groups	Totals		History of Contact	Childhood				Minimal				Moderately Advanced				Advanced				Extra Pulmonary			
				Act.		Inactive		Act.		Inactive		Act.		Inactive		Act.		Inactive		Act.		Inactive	
	1st	R.		1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.
40 to 49	12	2	+	....	....	....	....	....	1	11	1	1	....	....	....	....	....	....	....	....	....	....	....
	25	3	—	....	....	....	....	4	....	11	3	7	....	....	....	3	....	....	....	....	....	....	....
50 to 59	9	3	+	....	....	....	....	1	1	5	1	2	1	....	....	1	....	....	....	....	....	....	....
	16	0	—	....	....	....	....	2	....	6	....	6	....	2	....	....	....	....	....	....	....	....	....
60 to 69	3	0	+	....	....	....	....	....	....	2	....	....	....	1	....	....	....	....	....	....	....	....	....
	13	0	—	....	....	....	....	1	....	6	....	1	....	4	....	1	....	....	....	....	....	....	....
70 and over	4	0	+	....	....	....	....	....	....	2	....	1	....	....	....	1	....	....	....	....	....	....	....
	5	2	—	....	....	....	....	....	....	4	1	....	1	....	....	1	....	....	....	....	....	....	....
	277	75	178+	12	3	6	6	28	17	38	15	21	10	3	....	16	2	....	....	1	0	....	....
	....	....	174—	1	0	1	0	31	6	46	9	36	5	9	....	25	1	....	....	1	1	....	....
	352		....	13	3	7	6	59	23	86	24	57	15	12	....	41	3	....	....	2	1	....	....

Remarks on Table II:

1. 178 of the newly discovered cases gave a history of contact with tuberculosis, while 174 gave no history.

2. 160 or 45.5% of the newly discovered cases were recommended for sanatorium treatment.

3. Of the 178 cases of tuberculosis discovered in the contact group 106 or 59.5% attended the clinic because of contact only and with no symptoms.

TABLE III

TABLE SHOWING RELATION OF NUMBER OF NEW CASES OF TUBERCULOSIS DISCOVERED TO NUMBER OF CONTACTS EXAMINED

Age Groups	Number Contacts Examined for First Time	Number Cases of Tuberculous Disease Discovered (Childhood Type not Included)	Percentage of Contacts Examined Showing Disease %
0 to 4	229	1	.43%
5 to 9	318	7	2.2%
10 to 14	320	8	2.5%
15 to 19	361	11	3.0%
20 to 24	437	14	3.2%
25 to 29	401	11	2.7%
30 to 39	557	27	4.8%
40 to 49	278	12	4.3%
50 to 59	143	9	6.3%
60 to 69	58	3	5.2%
70 and over	16	2	12.5%
Totals	3118	105	3.36%

A contact may be defined as any person who has lived in the same house or has been in close association at school, business or industry, with a person known to have tuberculous disease.

Remarks on Table III:

This Table indicates the necessity for examining contacts in the older age groups. Less than four per cent. of contacts show evidence of tuberculous disease. During the last two years there has been a marked decrease in the percentage of cases of tuberculous disease found in the contact group.

TABLE IV

SUMMARY OF NEWLY DISCOVERED CASES

Classification	Number	Percentage of Total %	Percentage of Number with Adult Type of Disease %
Pulmonary—			
Childhood type	29	8.2	.....
Minimal	192	54.5	60.0
Moderately Advanced	84	23.9	26.2
Advanced	44	12.5	13.8
Extra-Pulmonary	3	.9	.....
Total	352	100.	100.

Remarks on Table IV:

Only 160 of the 352 newly discovered cases required sanatorium treatment; the remainder had disease which was considered inactive. In many instances the disease had been of long standing.

1st—1st Examination.

R—Repeat Examination.

TABLE V

CLASSIFICATION OF CASES RECOMMENDED FOR SANATORIUM TREATMENT—TOTAL 361

Age Groups	Totals		History of Contact	Childhood				Minimal				Moderately Advanced				Advanced				Extra Pulmonary Tuberculosis								Suspects	
				Active		Inactive		Active		Inactive		Active		Inactive		Active		Inactive		Pleurisy with Effusion		Adenitis		Tbc. Hip		Tbc. Rib			
	1st	R.		1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.
0 to 4	5	2	+	3	2	....	....	1	..	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
	0	0	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
5 to 9	3	1	+	2	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	2	0	—	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
10 to 14	10	7	+	1	2	....	....	2	3	....	....	4	2	....	....	3	3	....	....	....	....	....	....	....	....	....	..	....	....
	4	1	—	....	....	....	....	2	1	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
15 to 19	12	16	+	....	....	....	....	6	6	....	....	3	7	....	1	2	2	....	....	....	....	1	....	....	....	....	....	....	....
	8	7	—	....	....	....	....	5	5	....	....	2	....	....	....	1	1	....	....	....	....	....	....	....	1	....	....	....	....
20 to 24	12	26	+	....	....	....	....	3	10	....	....	7	12	....	1	2	4	....	....	....	....	....	....	....	....	....	....	....	....
	23	13	—	....	....	....	....	5	4	....	....	6	9	....	....	11	....	....	....	....	....	....	....	....	....	1	....	....	....
25 to 29	11	14	+	....	....	....	....	1	2	....	....	2	10	....	....	7	2	....	....	....	....	....	....	....	....	....	....	1	....
	22	11	—	....	....	....	....	5	1	....	....	10	6	....	2	7	2	....	....	....	....	....	....	....	....	....	....	....	....
30 to 39	18	14	+	....	....	....	....	8	5	2	1	4	3	....	....	3	5	1	....	....	....	....	....	....	....	....	....	....	....
	21	14	—	....	....	....	....	8	2	....	....	5	5	....	1	8	5	....	....	....	1	....	....	....	....	....	....	....	....

1st—1st Examination.

R—Repeat Examination.

TABLE V—Continued

CLASSIFICATION OF CASES RECOMMENDED FOR SANATORIUM TREATMENT—TOTAL 361

Age Groups	Totals		History of Contact	Childhood				Minimal				Moderately Advanced				Advanced				Extra Pulmonary Tuberculosis								Suspects	
				Active		Inactive		Active		Inactive		Active		Inactive		Active		Inactive		Pleurisy with Effusion		Adenitis		Tbc. Hip		Tbc. Rib			
	1st	R.		1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.	1st	R.
40 to 49	1	6	+	....	....	....	....	....	2	....	....	....	2	....	....	....	2	....	....	....	....	....	....	....	....	....	....	1	....
	17	14	—	....	....	....	....	4	2	....	1	7	8	....	1	5	2	....	....	....	....	....	....	....	....	....	....	1	....
50 to 59	5	5	+	....	....	....	....	2	....	....	....	3	4	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	12	13	—	....	....	....	....	2	....	....	....	7	4	1	1	1	8	....	....	1	....	....	....	....	....	....	....	....	....
60 to 69	0	0	+	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	5	3	—	....	....	....	....	1	....	....	....	....	....	....	....	3	3	....	....	....	....	....	....	....	....	....	....	1	....
70 and over	2	0	+	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
	1	0	—	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
	194	167	170+	6	4	....	....	22	28	2	1	25	41	0	3	18	15	1	....	0	0	2	....	....	0	0	....	2	....
	....	....	191—	1	0	....	....	32	15	0	1	40	32	1	5	37	21	0	....	1	1	0	....	....	1	1	....	2	....
	361		....	7	4	....	....	54	43	2	2	65	73	1	8	55	36	1	....	1	1	2	....	....	1	1	....	4	....

Remarks on Table V:

This table shows the need for periodic re-examination of known cases of tuberculosis. Our records show that approximately 120 of the 167 cases recommended for sanatorium treatment in repeat examination were known cases of tuberculosis in which the disease had become active.

TABLE VI

SUMMARY OF ALL CASES RECOMMENDED FOR SANATORIUM TREATMENT

Classification	Number	Percentage of Total %	Percentage of Number with Adult Type of Disease %
Pulmonary—			
Childhood Type	11	3.0	.....
Minimal	101	27.9	29.7
Moderately Advanced	147	40.7	43.2
Advanced	92	25.5	27.1
Pleurisy with Effusion	2	.6	.....
Extra Pulmonary Tuberculosis	4	1.1	.....
Suspects	4	1.2	.....
Total	361	100.	100.

Remarks on Table VI:

There has been no appreciable change in the percentage of cases with minimal disease being recommended by our travelling clinics for sanatorium treatment during the last three years. This is thought to be due to the fact that approximately 50% of persons with undiagnosed active tuberculous disease are not conscious of being ill.

TABLE VII

CHANGES IN DIAGNOSIS ON REPEAT EXAMINATIONS

DIAGNOSIS AT CLINIC EXAMINATION—1940

PREVIOUS DIAGNOSIS	Total	No Change	No Disease	Suspects	Childhood		Minimal		Moderately Advanced		Advanced		Extra Pul.	Thickened Pleura	Pleurisy with Effusion	Other Non-Tuberculous Conditions
					Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive				
No Disease	3561	3474	....	16	2	4	14	18	11	....	2	....	2	2	2	14
Suspects	81	36	26	....	1	1	6	7	3	....	....	....	....	....	....	1
Childhood—Inactive	139	120	17	....	1	....	1	....	....	....	....	....	....	....	....	....
Childhood—Active	22	4	5	....	....	11	1	1	....	....	....	....	....	....	....	....
Minimal—Inactive	632	575	26	1	....	....	9	....	12	3	2	....	....	2	....	2
Minimal—Active	83	28	2	....	....	1	....	35	9	7	1	....	....	....	....	....
Moderately Advanced—Inactive	441	418	4	....	....	....	1	3	17	....	8	....	....	....	....	....
Moderately Advanced—Active	64	32	1	....	....	....	....	3	....	25	1	2	....	....	....	....
Advanced—Inactive	115	110	....	....	....	....	....	....	....	1	4	....	....	....	....	....
Advanced—Active	42	33	....	....	....	....	....	....	....	4	....	5	....	....	....	....
Extra Pleural	13	12	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Thick. Pleura	62	41	12	....	....	1	2	2	2	....	....	....	....	....	1	1
Pleurisy with Effusion	19	8	1	....	....	....	1	2	....	....	....	....	1	6	....	....
Other Non-Tbc. Cond	160	138	17	....	....	1	....	1	....	1	....	....	....	2	....	....

Remarks on Table VII:

1. Of 3,561 persons examined by our travelling clinics in some previous year and classified as having no disease, 55 or 1.5% developed some form of tuberculous disease.

2. Of 1,188 persons examined by our travelling clinics in some previous year and classified as having inactive adult type of disease, 53 or 4.4% had become reactivated.

3. Of 81 persons examined by our travelling clinics in some previous year and classified as suspects, 18 or 22.2% developed some type of tuberculous disease.

4. Of 161 persons examined by our travelling clinics in some previous year and classified as having childhood type of disease, only 3 or 1.8% had developed adult type of disease.

5. Of 715 persons examined by our travelling clinics in some previous year and classified as having minimal disease, in only 34 or 4.7% had the disease extended.

6. Of 440 persons examined by our travelling clinics in some previous year and classified as having moderately advanced inactive disease, 26 or 5.9% had become active.

7. Of 115 persons examined by our travelling clinics in some previous year and classified as having advanced inactive disease, 4 or 3.4% had become active.

TABLE VIII

CLASSIFICATION (on last examination) OF PATIENTS WHO HAD RECEIVED SANATORIUM TREATMENT—Total 792

Age Groups	Sex	No Tuberculous Disease	Suspect	Childhood		Minimal		Moderately Advanced		Advanced		Extra Pulmonary		Pleurisy with Effussion	Thickened Pleura	Asthma	Lung Abscess	Chronic Bronchitis	Pulmonary Fibrosis
				Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive						
0 to 4	M	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
5 to 9	M	1	....	....	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	2	....	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....
10 to 14	M	2	1	....	5	....	5	....	1	....	....	....	....	....	....	....	....	....	....
	F	2	....	....	3	....	5	....	....	....	....	....	....	....	....	....	....	....	....
15 to 19	M	2	....	....	....	....	13	....	7	....	1	....	1	....	....	....	....	....	....
	F	10	....	....	15	....	15	2	6	1	....	....	....	....	....	....	....	....	....
20 to 24	M	2	....	....	....	1	8	4	16	2	5	....	....	....	1	....	....	....	....
	F	3	....	....	1	1	28	3	17	2	2	....	....	....	1	....	....	....	....
25 to 29	M	6	....	....	2	....	15	3	22	2	8	....	1	....	....	....	....	....	....
	F	6	....	....	....	1	36	7	32	4	10	....	....	....	1	....	....	....	1
30 to 39	M	9	....	....	....	2	33	3	33	5	23	....	....	1	....	....	....	1	....
	F	11	....	....	2	1	57	2	49	6	8	....	1	....	1	2	....	....	....

TABLE VIII—Continued

CLASSIFICATION (on last examination) OF PATIENTS WHO HAD RECEIVED SANATORIUM TREATMENT—Total 792

Age Groups	Sex	No Tuberculous Disease	Suspect	Childhood		Minimal		Moderately Advanced		Advanced		Extra Pulmonary		Pleurisy with Effusion	Thickened Pleura	Asthma	Lung Abscess	Chronic Bronchitis	Pulmonary Fibrosis
				Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive						
40 to 49	M	4	....	....	....	....	12	5	33	2	17	....	....	....	....	....	....	....	....
	F	4	....	....	....	....	17	2	14	1	2	....	1	....	....	....	....	....	....
50 to 59	M	3	....	....	....	1	7	....	23	5	6	....	....	....	1	....	1	....	....
	F	1	....	....	....	....	4	1	9	....	1	....	....	....	....	....	....	....	....
60 to 69	M	1	....	....	....	....	....	....	6	3	1	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....
70 and Over	M	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	F	....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	1	....
Totals	792	70	1	....	18	7	258	32	270	34	86	....	4	1	5	2	1	2	1

Remarks on Table VIII:

1. 792 persons attended the clinics who had received treatment in sanatorium.

2. In 70 or 8.8% the disease by X-ray had cleared or become so well healed that it was not considered to be a factor at the present time.

3. Of the 710 with tuberculous disease still evident, 74 or 10.4% were considered to have active disease and in need of further sanatorium treatment; 636 or 89.6% were considered to have inactive disease.

TABLE IX

CLASSIFICATION OF NON-TUBERCULOUS CHEST CONDITIONS

(Excluding Pleurisy)

Pneumonia	64
Bronchiectasis	60
Asthma	53
Chronic Bronchitis	52
Cardio-vascular condition	35
Silicosis	22
Lung abscess	19
Cancer (provisional diagnosis)	11
Fungus infection	3
Pulmonary fibrosis	3
Syphilis of lung	1
Actinomycosis of pleura	1
Atelectasis	1
Spontaneous Pneumothorax	1
Substernal Goitre	1
Non-Tuberculous Infections of Undiagnosed Conditions	48
Total	375

CLINIC WORK AMONG TREATY INDIANS

739 Examinations were carried out on Treaty Indians, as follows:

(a) Complete surveys were made in 4 residential schools and a partial survey of one other school.	
Number of examinations	507
(b) Referred to the clinics in various centres	232
	739

TABLE X

RESULTS OF CLINIC EXAMINATIONS OF TREATY INDIANS—1940

	Number	Percentage of Total Examined %
Number of cases of active Tuberculosis	57	7.7
Number of cases of inactive Tuberculosis	63	8.5
Number of newly discovered cases of Tuberculosis	38	5.1
Number of cases recommended for sanatorium	54	7.3

TABLE XI
THE AVERAGE COST OF DISCOVERING A CASE OF TUBERCULOUS DISEASE ON FIRST EXAMINATION
(Based on average cost of $5.40 per clinic examination.)

Age Groups	No. First Exams.	Total Cost of Exams.	No Cases Tuberculous Disease Discovered	Average Cost per Case	No Cases Discovered requiring Sanatorium Treatment	Average cost of Discovering a Case requiring Sanatorium Treatment
0 to 4	294	$1,587.60	7	$226.80	6	$264.60
5 to 9	550	2,970.00	17	174.70	6	495.00
10 to 14	590	3,186.00	16	186.68	17	187.41
15 to 19	771	4,163.40	20	208.15	23	181.00
20 to 24	916	4,946.40	34	146.06	42	117.76
25 to 29	900	4,860.00	31	156.77	25	194.40
30 to 39	1,254	6,771.60	65	104.18	40	169.29
40 to 49	668	3,607.20	37	97.49	16	225.45
50 to 59	344	1,857.60	25	74.30	15	123.74
60 to 69	158	853.20	16	53.32	7	121.88
70 and Over	61	329.40	9	36.60	.....	.....
Totals	6,506	$35,132.40	277	$126.83	197	$178.34

TABLE XII
THE AVERAGE COST OF DISCOVERING A NEW CASE OF TUBERCULOUS DISEASE BY REPEAT EXAMINATION
(Based on average cost of $5.40 per clinic Examination.)

Number Repeat Examinations	3,849	
Cost of this Service		$20,784.60
Number of new cases of Tuberculosis discovered	75	
Average cost per case		$ 277.13
Number of cases recommended for sanatorium	47	
Average cost per case		$ 442.22

MISCELLANEOUS

1. 704 chest films have been interpreted in the central office for various agencies:—public hospitals, industrial schools, Home Service Training and schools.

2. 1,007 films were taken in the central office:—197 on applicants; 195 on special provincial police; 68 for the Mothers' Allowance Commission; 39 on ex-patients of sanatoria receiving aftercare from the Department; 15 on Civil Servants being examined for superannuation; 27 on soldiers discharged from the army because of chest findings; 67 on teachers in training; 20 on students in Home Service Training and industrial schools; 60 on nurses from hospitals with no X-ray facilities; and 319 on persons referred by physicians for examination and on Departmental staff.

3. A record has been kept of all soldiers and recruits (residents of Ontario) reported with tuberculous disease. The following is a summary:

(a) Number reported as being discharged or rejected because of tuberculous disease..... 418
(b) Number with inactive disease..... 246
(c) Number with active disease..... 172
(d) Number admitted to sanatorium..... 173
(e) Number discharged from sanatorium..... 71
(f) Number in sanatorium on December 31st, 1940..... 102

PART II

TUBERCULIN TESTING AND X-RAYING OF STUDENTS IN NORMAL SCHOOLS, THE COLLEGE OF EDUCATION AND THE TECHNICAL TEACHERS' TRAINING COLLEGE

The Division co-operated with the Department of Education in tuberculin testing and X-raying of students seeking admission to the above mentioned institutions.

Table XIII gives the result of this work.

TABLE XIII

	No. Enrolled	No. Tuberculin Tested	No. of Reactors	% of Reactors	No. X-Rayed	No. Showing Evidence Active Tuberculous Disease	% with Active Tuberculous Disease
Normal Schools.....	1158	1137	272	23.9	303	4	.34
College of Education.....	245	245	97	39.5	102	0	.0
Technical Teachers' Training College.....	16	0	.....	.....	16	0	.0

The average percentage of normal school students found with active pulmonary tuberculosis from 1936 to 1939 was .8%; in 1940 the precentage had decreased to .34%.

PART III.

The reports from the Public and Red Cross Hospitals, Homes for Incurables and Sanatoria for the calendar year 1940, show a decrease in the number and percentage of nurses developing tuberculous disease.

Of 3,490 graduate nurses 9 new cases of tuberculous disease were reported, or .26% of those employed; this being the lowest rate since the regulations in respect to this work came into effect in 1935.

The incidence of tuberculous disease found among graduate nurses in public hospitals has decreased 68% since 1935.

Of 5,475 non-graduate nurses, 23 or .42% new cases of tuberculous disease were reported. This also is the lowest rate so far recorded and is a decrease of 33% since 1935.

Of the total of 32 new cases of tuberculous disease reported, 24 were classed as minimal, 3 as moderately advanced, 1 as advanced, the remaining 4 as cases of pleurisy, primary infection (childhood type), and adenitis.

TABLE XIV

RECORD OF TUBERCULIN TESTING AND X-RAYING OF GRADUATE AND NON-GRADUATE NURSES IN PUBLIC AND RED CROSS HOSPITALS, HOSPITALS FOR INCURABLES AND SANATORIA, 1940.

	Institutions Reporting	No. Reported	No. Tuberculin Reactors	% Tuberculin Reactors	No. X-Rayed	No. Previously Known Cases TBc. Disease	No. Newly Discovered Cases TBc. Disease	% of Total with Newly Discovered TBc. Disease
Graduates	Public & Red Cross Hospitals	2756	2135	77.3	2030	26	6	.22
	Hospitals for Incurables	141	45	31.9	58	0	0	....
	Sanatoria	593	569	95.9	557	31	3	.50
	Totals	3490	2749	75.7	2645	57	9	.26
Non-Graduates	Public & Red Cross Hospitals	5162	2270	43.9	2642	7	23	.44
	Hospitals for Incurables	185	79	42.7	63	0	0	....
	Sanatoria	128	126	98.4	115	13	0	....
	Totals	5475	2475	45.5	2820	20	23	.42

Notes:—1. All institutions listed above forwarded complete returns.

2. There is a slight discrepancy between the number of positive reactors among the graduates and the number X-rayed. Several left service before their X-ray was due.

GRADUATE NURSES

CLASSIFICATION OF DISEASE		DISPOSAL
1. NEWLY DISCOVERED		
*1 Primary infection (childhood type), active.		Treated at home.
*5 Minimal, active	(a)	4 entered sanatorium.
	(b)	1 went home (Alberta).
3 Minimal, inactive		Remained on duty.

*Of the 9 newly discovered cases of tuberculosis 6 required treatment.

2. PREVIOUSLY KNOWN		
43 Minimal, inactive		Remained on duty.
12 Moderately advanced, inactive		Remained on duty.
2 Advanced, inactive		Remained on duty.

NON-GRADUATE NURSES

CLASSIFICATION OF DISEASE		DISPOSAL
1. NEWLY DISCOVERED:		
*1 Adenitis		Treated at home.
*1 Pleurisy with effusion		Entered sanatorium.
*1 Primary infection (childhood type), active		Treated at home.
*14 Minimal, active	(a)	12 entered sanatorium.
	(b)	1 treated at home.
	(c)	1 treated in hospital, later home.
2 Minimal, inactive		Remained on duty.
*3 Moderately advanced, active	(a)	2 entered sanatorium.
	(b)	1 treated at home.
*1 Miliary		Died in Hospital.

*Of the 23 newly discovered cases of tuberculosis 21 required treatment.

2. PREVIOUSLY KNOWN.		
12 Minimal, inactive		Remained on duty.
6 Moderately advanced, inactive		Remained on duty.
* 1 Moderately advanced, active		Entered sanatorium.
1 Advanced, inactive		Remained on duty.

*Previously known case became active and required treatment.

PART IV

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH IN PERSONS DYING OF TUBERCULOSIS IN ONTARIO IN 1939

With the co-operation of the sanatoria the record of persons dying of tuberculosis in Ontario in 1939, who had received sanatorium treatment within five years of death, was obtained.

Table XV gives the summary of the findings for deaths from all forms of tuberculosis as well as for pulmonary only. A separate tabulation has been made for Indians, Whites, and Whites and Indians combined.

It will be noted that 62.1% of all persons dying of tuberculosis had been in sanatorium, while 70.6% of those dying of pulmonary tuberculosis had received sanatorium treatment. (If only the white population is counted these percentages are 66.9% for all forms and 75.2% for pulmonary only.)

Tables XVI, XVII, XVIII give the details re deaths from pulmonary tuberculosis in counties, districts, cities and towns.

Table XIX shows the analysis of those not treated in sanatorium in 1936 and 1939. In 1939 it will be noted that 60% of those dying of pulmonary tuberculosis without the benefit of sanatorium treatment, were over 50 years of age. That a lesser number of persons are dying of pulmonary tuberculosis without the benefit of sanatorium treatment is indicated by the fact that in 1939 there were 213 such persons (excluding Treaty Indians), as against 366 in 1936.

TABLE XV

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH IN PERSONS DYING OF TUBERCULOSIS IN ONTARIO IN 1939

Place of Residence	Whites and Indians					
	All Forms			Pulmonary Only		
	Number of Deaths	Number Treated in Sanatorium	%	Number of Deaths	Number Treated in Sanatorium	%
*Districts	170	69	40.6	132	65	49.2
*Counties	364	198	54.4	315	193	61.2
Cities and Towns, 5,000 and over	575	422	73.4	510	418	81.9
Totals	1109	689	62.1	957	676	70.6
			Indians			
*Districts	86	14	16.3	64	13	20.3
*Counties	22	5	22.7	18	5	26.6
Cities and Towns, 5,000 and over	0	.....	.....	0	.....	.....
Totals	108	19	17.6	82	.....	21.9
			Whites			
*Districts	84	55	65.5	68	52	76.4
*Counties	342	193	56.4	297	188	63.3
Cities and Towns, 5,000 and over	575	422	73.4	510	418	81.9
Totals	1001	670	66.9	875	658	75.2

*Excluding Cities and Towns of 5,000 and over.

TABLE XVI

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH

In Persons Dying of Tuberculosis (Pulmonary Only) Ontario, 1939.

(Counties Exclusive of Cities and Towns of 5,000 and Over).

County	Pulmonary Tuberculosis Deaths			*Sanatorium Treatment			Per Cent. Treated in Sanatorium		
	Whites	Indians	Total	Whites	Indians	Total	Whites	Indians	Total
Addington	3	0	3	2	0	2	67	0	67
Brant	4	4	8	2	0	2	50	0	25
Bruce	4	2	6	3	0	3	75	0	50
Carleton	8	0	8	6	0	6	75	0	75
Dufferin	4	0	4	3	0	3	75	0	75
Dundas	6	0	6	3	0	3	50	0	50
Durham	3	0	3	3	0	3	100	0	100
Elgin	5	0	5	2	0	2	40	0	40
Essex	10	0	10	7	0	7	70	0	70
Frontenac	5	0	5	2	0	2	40	0	40
Glengarry	10	0	10	7	0	7	70	0	70
Grenville	3	0	3	2	0	2	67	0	67
Grey	10	0	10	7	0	7	70	0	70
Haldimand	4	0	4	1	0	1	25	0	25
Halton	6	0	6	1	0	1	17	0	17
Hastings	11	0	11	6	0	6	55	0	55
Huron	9	0	9	8	0	8	89	0	89
Kent	8	0	8	6	0	6	75	0	75
Lambton	6	4	10	5	1	6	83	25	60
Lanark	12	0	12	6	0	6	50	0	50
Leeds	7	0	7	4	0	4	57	0	57
Lennox	0	0	0	....	....	....	....	....	....
Lincoln	5	0	5	4	0	4	80	0	80
Middlesex	6	5	11	4	3	7	67	60	64
Norfolk	6	0	6	2	0	2	33	0	33
Northumberland	7	0	7	3	0	3	43	0	43
Ontario	4	2	6	4	1	5	100	50	83
Oxford	5	0	5	3	0	3	60	0	60
Peel	7	0	7	4	0	4	57	0	57
Perth	3	0	3	2	0	2	67	0	67
Peterborough	7	0	7	7	0	7	100	0	100
Prince Edward	6	0	6	2	0	2	33	0	33
Prescott	8	0	8	4	0	4	50	0	50
Renfrew	8	0	8	3	0	3	37	0	37
Russell	3	0	3	1	0	1	33	0	33
Simcoe	7	0	7	4	0	4	57	0	57
Stormont	7	1	8	6	0	6	86	0	75
Victoria	6	0	6	4	0	4	67	0	67
Waterloo	4	0	4	4	0	4	100	0	100
Welland	8	0	8	5	0	5	63	0	63
Wellington	12	0	12	8	0	8	67	0	67
Wentworth	1	0	1	1	0	1	100	0	100
York	39	0	39	27	0	27	69	0	69
Total	297	18	315	188	5	193	63.3	26.6	61.2

*Within 5 years of death.

TABLE XVII

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH

In Persons Dying of Tuberculosis (Pulmonary Only) Ontario, 1939

(Districts Exclusive of Cities and Towns of 5,000 and Over).

District	Pulmonary Tuberculosis Deaths			*Sanatorium Treatment			Per Cent. Treatment in Sanatorium		
	Whites	Indians	Total	Whites	Indians	Total	Whites	Indians	Total
Algoma	4	12	16	2	2	4	50	17	25
Cochrane	13	7	20	12	1	13	92	14	65
Haliburton	1	0	1	0	0	0	0	0	0
Kenora	2	5	7	1	1	2	50	20	29
Manitoulin	1	12	13	0	2	2	0	17	15
Muskoka	4	0	4	4	0	4	100	0	100
Nipissing	4	0	4	3	0	3	75	0	75
Parry Sound	4	5	9	4	2	6	100	40	67
Patricia	1	2	3	1	1	2	100	50	67
Rainy River	2	3	5	2	1	3	100	33	60
Sudbury	19	7	26	11	1	12	58	14	46
Temiskaming	7	0	7	6	0	6	86	0	86
Thunder Bay	6	11	17	6	2	8	100	18	47
Total	68	64	132	52	13	65	76.4	20.3	49.3

*Within five years of death.

TABLE XVIII

HISTORY OF SANATORIUM TREATMENT WITHIN FIVE YEARS OF DEATH

In Persons Dying of Tuberculosis, Ontario, 1939

(Cities and Towns, 5,000 Population and Over)

Cities and Towns	Tuberculosis Deaths		*Sanatorium Treatment		Per cent. Treated in Sanatorium	
	All Forms	Pulmonary	All Forms	Pulmonary	All Forms	Pulmonary
Barrie	1	1	1	1	100	100
Belleville	7	6	5	5	71	84
Brampton	0	0	....	....	.....	.....
Brantford	9	8	7	7	78	87
Brockville	3	3	2	2	67	67
Chatham	8	8	8	8	100	100
Cobourg	1	1	1	1	100	100
Collingwood	3	3	2	2	67	67
Cornwall	15	14	7	7	47	47
Eastview	4	3	2	2	50	67
Forest Hill	0	0	....	....	.....	.....
Fort Erie	0	0	....	....	.....	.....
Fort Frances	2	2	2	2	100	100
Fort William	12	9	10	8	83	89
Galt	3	2	2	2	67	100
Guelph	4	3	3	2	75	67
Hamilton	43	38	34	33	79	87
Hawkesbury	5	5	4	4	80	80
Ingersoll	2	1	1	1	50	100
Kenora	4	4	3	3	75	75
Kingston	15	15	14	14	93	93
Kirkland Lake	4	4	2	2	50	50
Kitchener	6	4	4	4	67	100
Leamington	3	3	3	3	100	100
Lindsay	1	1	1	1	100	100
London	21	21	18	18	86	86
Midland	0	0	....	....	.....	.....
Mimico	0	0	....	....	.....	.....
New Toronto	1	1	1	1	100	100
Niagara Falls	3	3	3	3	100	100
North Bay	9	8	8	8	89	100
Orillia	1	1	1	1	100	100
Oshawa	7	6	6	6	86	100
Ottawa	69	57	43	41	62	72
Owen Sound	5	4	2	2	40	50
Pembroke	1	1	1	1	100	100
Peterborough	4	4	4	4	100	100
Port Arthur	9	8	8	7	89	87
Port Colborne	1	1	1	1	100	100
Preston	1	1	1	1	100	100
Renfrew	0	0	....	....	.....	.....
Riverside	1	1	1	1	100	100
St. Catharines	4	2	3	2	75	100
St. Thomas	7	7	5	5	71	71
Sarnia	3	2	1	1	33	50
Sault Ste. Marie	7	6	4	4	57	67
Simcoe	2	2	1	1	50	50
Smith's Falls	0	0	....	....	.....	.....
Stratford	2	2	2	2	100	100
Sudbury	12	9	6	6	50	64
Swansea	4	4	1	1	25	25
Thorold	1	1	0	0	0	0
Timmins	17	15	15	15	89	100
Toronto	193	172	136	130	70	75
Trenton	0	0	....	....	.....	.....
Waterloo	0	0	....	....	.....	.....
Welland	1	1	1	1	100	100
Weston	1	1	0	0	0	0
Whitby	5	3	3	3	60	100
Windsor	28	28	28	28	100	100
Woodstock	0	0	....	....	.....	.....
Total	575	510	422	418	73.4	81.9

*Within five years of death.

TABLE XIX

PERSONS (Excluding Indians) DYING FROM PULMONARY TUBERCULOSIS

Who Did Not Receive Benefit of Sanatorium Treatment

	Age Groups	0 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to	Not Known	Total
1936	Male	6	8	26	25	26	45	41	18	1	1	197
	Female	2	12	32	29	31	15	24	21	3	....	169
	Total	8	20	58	54	57	60	65	39	4	1	366
	Percentage of Total	2.1	5.4	15.8	14.7	15.5	16.4	17.8	10.6	1.	.2	
1939	Male	1	4	10	13	13	25	26	19	3	....	114
	Female	....	2	16	9	13	17	23	15	3	1	99
	Total	1	6	26	22	26	42	49	34	6	1	213
	Percentage of Total	.4	2.8	12.2	10.3	12.2	19.7	23.	15.9	2.8	.4	

PERSONS (Excluding Indians) DYING FROM PULMONARY TUBERCULOSIS

Who Did Not Receive Benefit of Sanatorium Treatment, Ontario, 1939

Age Groups	Pulmonary Tuberculosis Given as Primary Cause	Pulmonary Tuberculosis Given as Secondary Cause	Miliary of Lungs
0 to 9	1	....	....
10 to 19	6	....	....
20 to 29	24	2	....
30 to 39	20	2	....
40 to 49	22	4	....
50 to 59	32	10	....
60 to 69	41	6	2
70 to 79	26	8	....
80 and Over	5	1	....
Not Stated	1	....	....
	178	33	2

That the amendments to the Sanatoria for Consumptives Act which came into effect in 1938 have brought about a definite increase in the hospitalization of tuberculous patients, is well illustrated by Table XX, which shows what the municipalities would have paid if they had been hospitalizing their patients to the same extent as is now being done at the expense of the government.

TABLE XX

PAYMENTS FORMERLY MADE BY CERTAIN MUNICIPALITIES COMPARED WITH AMOUNTS THEY WOULD BE REQUIRED TO PAY FOR THE INCREASED HOSPITALIZATION OF PATIENTS IN SANATORIA AS NOW PERFORMED BY THE PROVINCE

*Counties	Average Expense To Municipalities 1935–1936	Expense Assumed By Province 1940
Brant	$ 3,411 00	$ 6,051 00
Bruce	12,847 00	13,602 00
Carleton	6,651 00	15,182 00
Dufferin	922 00	4,057 00
Elgin	6,118 00	6,555 00
Essex	30,950 00	35,913 00
Frontenac	110 00	5,784 00
Gray	5,630 00	11,361 00
Haldimand	7,984 00	8,567 00
Haliburton	1,355 00	2,427 00
Halton	2,867 00	4,549 00
Hastings	5,304 00	15,686 00
Huron	8,493 00	6,811 00
Kent	8,925 00	17,528 00
Lambton	7,727 00	9,775 00
Lanark	4,413 00	2,634 00
Leeds and Grenville	2,295 00	12,540 00
Lennox and Addington	1,127 00	5,204 00
Lincoln	4,165 00	8,880 00
Middlesex	15,263 00	13,941 00
Norfolk	7,864 00	11,257 00
Northumberland and Durham	11,628 00	17,967 00
Ontario	6,535 00	11,714 00
Oxford	5,379 00	5,175 00
Peel	6,595 00	6,541 00
Perth	3,077 00	9,956 00
Peterborough	2,679 00	10,503 00
Prescott and Russell	8,930 00	22,347 00
Prince Edward	1,387 00	3,490 00
Renfrew	5,226 00	22,551 00
Simcoe	26,127 00	33,177 00
Stormont, Dundas and Glengarry	22,264 00	68,231 00
Victoria	4,409 00	11,211 00
Waterloo	15,524 00	20,583 00
Welland	23,160 00	21,748 00
Wellington	7,568 00	8,199 00
Wentworth	8,139 00	6,018 00
York	62,072 00	73,688 00

*Excludes Cities and Separated Towns.

TABLE XX—(Continued).

Cities	Average Expense To Municipalities 1935–1936	Expense Assumed By Province 1940
Toronto	$ 400,764 00	$ 374,540 00
Hamilton	107,128 00	74,296 00
Ottawa	70,661 00	85,794 00
Windsor	73,979 00	68,004 00
London	31,338 00	31,703 00
Kitchener	16,146 00	23,304 00
Brantford	22,293 00	14,794 00
St. Catharines	7,502 00	10,458 00
Kingston	9,017 00	19,530 00
Oshawa	6,609 00	7,479 00
Peterborough	6,140 00	17,273 00
Guelph	15,232 00	11,946 00
Fort William	9,828 00	16,362 00
Sault St. Marie	8,550 00	10,125 00
Sudbury	10,893 00	27,516 00
North Bay	3,905 00	10,579 00
Niagara Falls	4,101 00	7,142 00
Sarnia	6,191 00	7,804 00
Stratford	5,245 00	3,735 00
St. Thomas	6,301 00	6,128 00
Chatham	9,998 00	11,757 00
Belleville	2,145 00	5,140 00
Galt	7,113 00	10,208 00
Owen Sound	7,043 00	8,121 00
Woodstock	4,325 00	3,270 00
Welland	3,326 00	4,701 00
Port Arthur	9,334 00	10,203 00
Separated Towns		
Brockville	1,767 00	5,493 00
Smiths Falls	1,212 00	2,948 00
Trenton	844 00	2,053 00
Ingersoll	627 00	2,294 00
St. Marys	912 00	1,098 00
Gananoque	27 00	448 00
Prescott	250 00	875 00

PART V

REPORT OF MEDICAL INSPECTION OF SANATORIA

During 1940, visits to various sanatoria by a physician from the Division were continued. It was the intention to visit each sanatorium during the year, but demands incident to the war effort curtailed the number of visits scheduled. The object of the visits was:—

(1) To review the history files and X-rays of all patients who were either in residence at the time of the visit or who had been admitted and discharged in the interval since the previous review. Information regarding the nature of investigation made, treatment applied and progress shown by the patient was recorded on suitable cards and filed for use in the head office.

(2) To see that only proven cases of tuberculosis are retained in sanatorium. When cases of suspected tuberculosis are referred to sanatorium for

investigation it is required that this investigation be completed as promptly as possible; and if tuberculosis is not proven, the patient either be discharged or, if necessary, transferred to a general hospital.

(3) To ensure that Provincial Aid is paid only for patients who are the responsibility of the Government. The following are excluded from the Provincial Grant:—

(a) Wards of the Indian Affairs Branch.

(b) Cases that are the responsibilty of the Workmen's Compensation Board.

(c) Non-residents of Ontario.

(d) Cases that are the responsibility of the Department of Pensions and National Health.

(4) To aid the sanatoria in bringing about the discharge of patients in which the place of residence is under dispute. This refers to the municipality responsible for post-sanatorium care.

(5) To act as liaison officer between the Division and sanatorium in discussing problems relating to enforcement of The Sanatoria for Consumptives Act.

(6) To ensure that nursing, laboratory investigation, medical and surgical care is maintained at a high standard.

During the year a total of 2,723 cases were reviewed. The following information was obtained:—

(a) The percentage of patients with pulmonary tuberculosis on whom pneumothorax was attempted in the different sanatoria varied from 64.1% to 31.%. The average for all sanatoria was 55.3%.

(b) The percentage of patients with pulmonary tuberculosis who were receiving pneumothorax treatment in the different sanatoria varied from 46% to 25.5%. The average for all sanatoria was 40.3%.

(c) All sanatoria are not equipped to treat tuberculosis surgically. When surgery is not available at the sanatorium and the patient requires it, the patient is transferred to the nearest sanatorium equipped to apply various surgical procedures. In four of the larger sanatoria, namely—Hamilton, London, Weston and Gravenhurst, the percentage of patients receiving one or more surgical procedures (excluding pneumothorax) varied from 65.3% in one sanatorium to 43.8% in another. On the average 54.9% of patients received one or more surgical procedures.

PART VI

REPORT OF THE ACCOUNTANT AND INSPECTOR OF SANATORIA

The need for dependable and comparable cost figures and statistics from sanatoria has long been felt by sanatoria themselves and by the Department. In July, 1938, the Department, through the Accountant of the Division of Tuberculosis Prevention, commenced a survey of the accounting methods and business procedure of sanatoria. The survey was completed in 1939.

In the light of this survey, and with the active co-operation of sanatoria, a uniform system of accounting for all sanatoria was developed during 1940. Although the new system entails many changes in present methods, it takes effect in all sanatoria from January 1st, 1941.

In conjunction with the adoption of the uniform system of accounting, a new set of financial returns and a new statistical report form were designed for use in sanatoria.

The new financial returns are calculated to summarize all information necessary for appraising the operations and financial positions of sanatoria and present a means of making a reasonable comparison of the affairs in each.

The new statistical report form is most valuable. It represents a uniform annual report which facilitates the compilation of collective statistics concerning staff, beds, treatment facilities, medical procedures, patient traffic and other information essential for the wise administration of sanatoria.

PART VII

REPORT UPON POST-SANATORIUM CARE OF EX-PATIENTS OF SANATORIA

The Division of Tuberculosis Prevention is responsible to arrange, provide and directly supervise the post-sanatorium care of those patients who were admitted to sanatoria from Unorganized Territory and those who were without Municipal Residence at the time of admission to sanatorium. There were 37 patients from Unorganized Territory and fifteen patients "Without Municipal Residence" discharged during the year whose after-care was potentially the responsibility of this Division, who did not require assistance because of sufficient personal funds, ability of family to provide, or whose chest condition was satisfactory for them to return immediately to suitable employment. The following table shows the number of ex-patients of sanatoria for whom the Division supplied post sanatorium care during the year 1940.

For purposes of comparison, the previous year's figures are shown in brackets:

Ex-Patients of Sanatoria from Unorganized Territory or Without Municipal Residence	No. Receiving Board and Lodging in Approved Homes	No. Receiving Assistance in Home of Relative	Total No. Receiving Board and Lodging in Own or Other Homes	Number Receiving Pneumothorax Refill Treatments
1. On after-care as at Dec. 31/39	28(10)	25(3)	53(13)	26(26)
2. Placed on after-care during 1940	37(30)	41(32)	78(62)	36(14)
3. Total receiving after-care during the year 1940	65(40)	66(35)	131(75)	62(40)
4. Discontinuance of after-care measures during the year 1940 because of the following:—				
I Assistance no longer required	23(8)	24(8)	47(16)	3(3)
*II Re-admitted to Sanatorium	11(4)	6(2)	17(6)	8(7)
III Against medical advice	2(0)	0(0)	2(0)	2(3)
5. On after-care as at Dec. 31/40	29(28)	36(25)	65(53)	†49(26)

*Includes one returning for surgery of suprapubic and perineal fistulae; one for treatment of ischio rectal abscess; one for discontinuance of pneumothorax under sanatorium supervision.

†Included in total number receiving pneumothorax refills, 24 are also in receipt of board and lodging in boarding home or assistance in home of relative; remaining 25 do not require such additional assistance.

From the table it may be noted that the number on after-care as at December 31st, 1939, is a definite increase over the number of one year previous, and the number added during 1940 is somewhat larger than the number added during 1939. Conversely, the number in which after-care was discontinued during 1940 because they no longer required it, was markedly increased over the year previous, while the number returning to sanatorium for treatment was approximately the same proportion of the total discontinuing after-care, for the two years under discussion. While the number on after-care as at December 31st, 1940, is only slightly larger than the number as at December 31st, 1939, as shown above, the number receiving benefits of this assistance during the year 1940 is considerably increased over the previous year.

Transportation to and from the pneumothorax centre, while not a costly item, is in some cases a very necessary one. This necessity varies from supplying city street car tickets to providing railway transportation of 120 miles round trip. Of the 49 patients receiving pneumothorax refills under supervision of this office, transportation to and from the treatment centre was provided for 24.

Arrangements are made for re-examination including chest X-rays, at intervals of three to six months, on persons who are in receipt of after-care from this Division. When it is determined by these routine examinations that such person no longer requires special assistance in so far as his chest condition is concerned, after-care is discontinued. In a number of these cases it is inadvisable that the ex-patient undertake work of a strenuous nature and when suitable employment is not immediately available, obviously such a person would then be eligible for ordinary welfare assistance, For persons who were resident in Unorganized Territory, such assistance, when requested of the Provincial Department of Welfare, is readily arranged. However, the arrangements for "relief" for persons who were without Municipal Residence at the time of admission to sanatorium present a greater problem, owing to the fact that a great many of these cases had been transients for many years and it is therefore difficult to place the responsibility for relief on any definite municipality. When difficulty in this regard is encountered, the matter is referred to the Provincial Department of Public Welfare. The latter Department then establishes the bonafide residence for relief purposes and arranges to provide relief if such is required. The close co-operation of this Department has, to a great extent, eliminated the difficulties that previously presented in such cases.

The Division of Tuberculosis Prevention in its administration of the Sanatoria for Consumptives Act is concerned with the responsibility of organized municipalities to provide adequate after-care assistance to ex-patients of sanatoria, who had established residence in such municipality at the time of their admission to sanatorium. During the year, a relatively small but definite number of cases have required investigation to determine the adequacy of the after-care being supplied by the municipalities concerned. The advisability and necessity for adequate after-care was indicated to these municipalities and in practically every case a satisfactory adjustment was made. This work by the central office entails a considerable amount of time-consuming investigation and correspondence.

This Division has assisted in bringing about settlement in numerous misunderstandings and controversies arising between municipalities in regard to the responsibility of supplying after-care to certain patients. These controversies are generally the result of a patient, after discharge, locating in a municipality other than the municipality of which he was previously a resident. The difficulties in this regard were two-fold; first, the municipality where the patient settled after discharge was reluctant to provide after-care, although according

to the Act, Section 50, Subsection 4 they could recover the cost from the municipality of which he was previously a resident; second the municipality of which the patient was acknowledged as a resident, in some cases denied their responsibility to reimburse the municipality which had provided after-care. These controversies were settled satisfactorily.

During the year, a great deal of correspondence was necessary in order to convince some of the organized municipalities that it was their responsibility to acknowledge certain patients, at the time of admission to sanatorium, as residents of their municipality (and so acknowledge their responsibility for after-care, if such were needed), in compliance with the Sanatoria for Consumptives Act. Such municipalities, apparently not previously conversant with the Act, when shown their responsibility, acknowledged that responsibility.

Another function of this Division is a matter related to after-care, namely, the follow-up of patients leaving sanatorium without the approval of the superintendent. Patients under such circumstances, are usually not eligible for after-care. In a case where the home has been receiving Mothers' Allowance because the head of the house is suffering from tuberculosis, such allowance may be discontinued when he leaves sanatorium against advice. This office then writes the Medical Officer of Health of the municipality to which the patient was going, and the family physician, urging return of patient to sanatorium, when indicated. If the patient is known to be infective, this Division advises and approves compulsory hospitalization be carried out by the local Medical Officer of Health. In the cases of patients receiving pneumothorax refills, who leave against advice, the local Medical Officer of Health is advised as to the name and address of the nearest physician approved to give refills in case immediate return to sanatorium cannot be arranged.

Each municipality is required to pay the approved physician, clinic or hospital for pneumothorax treatments upon their indigent patients requiring these treatments following discharge, but the Provincial Department of Health through this Division reimburses the municipalities for the amounts they pay for the pneumothorax refills up to $3 per refill.

In view of the growing need for physicians approved to give these specialized treatments, the Division during 1940 arranged for the adequate training and approval of additional physicians. The existence of such treatment centres and the provision for these treatments throughout the Province makes possible the discharge of many patients who otherwise would remain in sanatorium. The following figures will give some indication of the extent of the pneumothorax programme in Ontario. In view of the fact that the present arrangement came into effect July 1st, 1938, and is therefore comparatively new, as a matter of interest the figures for 1939 are included in brackets for comparison.

For the Period	No. of Individuals Receiving Refills	No. of Refill Treatments Given	Payment made for Refill Treatments
Jan. 1/40—Dec. 31/40	978	14680	$43,218.98
(Jan. 1/39—Dec. 31/39)	(735)	(11080)	($31,556.15)

PART VIII

ANNUAL REPORT OF CHEST CLINICS CONDUCTED BY THE STAFFS OF PUBLIC HOSPITALS IN TORONTO FOR THE YEAR ENDING DECEMBER 31, 1940

	Hospital for Sick Children	Toronto General	St. Michael's	Toronto Western	St. Joseph's	Women's College	Total
Total number of new cases during year	653	422	612	439	200	86	2,412
Number of old cases and contacts	1,373	782	476	865	241	38	3,775
Grand Total	2,026	1,204	1,088	1,304	441	124	6,187
Total number examinations on old cases	1,296	3,152	3,328	6,397	1,165	175	15,513
Total number examinations on old contacts	1,942	316	134	710	166	28	3,296
Classification of new cases:—							
1. Pulmonary (a) ADULT TYPE—							
Minimal—Active	.....	4	1	9	.....	.....	14
Inactive	.....	21	13	9	1	4	48
Moderately Advanced—Active	.....	13	18	18	4	2	55
Inactive	.....	60	40	37	.....	.....	137
Far Advanced—Active	1	14	22	10	1	.....	48
Inactive	.....	24	10	9	.....	.....	43
Pulmonary (b) PRIMARY TYPE—							
Parenchymal	5	5	.....	.....	.....	.....	10
Tracheo-bronchial	8	1	1	.....	.....	.....	10
Combined	1	.....	.....	.....	.....	.....	1
2. Non-Pulmonary—Active	2	4	3	3	.....	.....	12
Inactive	12	6	2	.....	14	.....	34
3. Pleurisy—with Effusion	.....	5	3	.....	.....	.....	8
without Effusion	.....	2	.....	.....	.....	.....	2
4. Suspects	64	56	19	118	37	16	310
5. Non-Tuberculous	92	78	412	132	35	50	799
6. Undiagnosed	365	106	53	75	54	11	664
7. No disease	103	23	15	19	54	3	217
Total	653	422	612	439	200	86	2,412
New Contacts Examined	395	126	49	146	10	8	734

PART IX

SANATORIUM STATISTICS

LABORATORY EXAMINATIONS IN SANATORIA DURING 1940

	Number
Chemical Laboratory	64,267
Bacteriology	64,300
Biochemistry	3,696
Pathology	5,164
Miscellaneous	415
	137,842

DIAGNOSTIC CLINICS STAFFED BY SANATORIUM PERSONNEL DURING 1940

	Patients Examined	X-Ray Films
Municipal Clinics	9,023	3,181
Sanatorium Clinics	7,859	10,963
Extension Clinics	15,674	6,777
	32,556	20,921

RADIOLOGY IN SANATORIA DURING YEAR 1940

X-Ray Examinations:

Stereoscopic Chest	7,162
Single Chest	14,170
Spine and other bones and joints	3,430
Gastro-intestinal	1,652
Accessory nasal series	151
Orthodiagram films	8
Others	374
	29,046

ADMISSIONS TO SANATORIA BY AGE GROUPS DURING 1940

	Number	Percentage
9 years and under	116	4.0%
10–19 years	350	12.0
20–29 years	887	30.4
30–39 years	639	21.9
40–49 years	468	16.0
50–59 years	291	9.9
60–69 years	132	4.5
70 and over	37	1.3
	2,920	100.0%

APPLICATION OF SURGERY FOR TUBERCULOUS CONDITIONS IN SANATORIA DURING THE YEAR 1940

	No. of Patients having the Procedure	No. of Individual Operations Performed
Thoracoplasty	268	485
Extra-pleural pneumothorax (apicolysis)	51	53
Intra-pleural pneumolysis	412	446
Phrenic nerve operations	490	500
Rib-resections	6	6
Bronchoscopy	239	268
Pneumothorax attempted unsuccessfully (several attempts listed only as one)	348	348
Pneumothorax established (unilateral only)	887	887*
Pneumothorax established—bilateral (unilateral made bilateral)	120	120
Pneumoperitoneum	76	774
Spinal fusion operations	20	20
Arthrodesis operations	12	12
Ischiorectal operations	31	39
Nephrectomy	16	16
Epididymectomy, Orchidectomy, etc	3	3
Cauterization of larynx	33	33
Excision of tuberculous glands	9	9
Others	345	514
	3,366	4,533*

*Excludes routine pneumothorax refills.

FINANCIAL STATUS OF PATIENTS IN RESIDENCE IN SANATORIA AS AT DECEMBER 31st, 1940

	Number	% of Total
Payments by Patients:—		
No contribution (indigents)	2,910	86.0
$1.00 per week	3	.1
More than $1.00 to $2.00 per week	27	.8
More than $2.00 to $3.00 per week	32	.9
More than $3.00 to $4.00 per week	84	2.5
More than $4.00 to $5.00 per week	42	1.2
More than $5.00 to $10.00 per week	56	1.6
More than $10.00 to $11.00 per week	50	1.4
More than $11.00 per week	27	.8
	3,231	95.5
Infants born in sanatorium for whom the Province is paying $1.00 per day	2	.1
Patients paid for by Workmen's Compensation Board	25	.7
Patients paid for by Indian Affairs Branch	61	1.8
Patients paid for by Department of Pensions and National Health	47	1.4
Others for whom no contribution is received from Province	16	.5
	3,382	100.0%

SANATORIUM BEDS AS AT DECEMBER 31, 1940

	Number	Percentage of Average Occupancy
Permanent	3,624	93.8%
Contingency	97	
	3,716	

PATIENT DAYS DURING THE YEAR 1940

In Sanatoria	1,236,562
On Temporary Leaves of Absence	4,526
On Temporary Transfer to General Hospital:—	
Surgery for Pulmonary Tuberculosis	385
Other Purposes	889
	1,242,362

MOVEMENT OF SANATORIUM PATIENT POPULATION DURING 1940

In Residence December 31, 1939	3,310
Admitted to Sanatoria During 1940	3,177
Births in Sanatoria	11
Patients Treated During 1940 (Gross)	6,498
Deduct:—Transfers from one Sanatorium to Another	268
Patients Treated During 1940 (Net)	6,230
Patients Discharged During 1940	2,604
Patients Died	512
Patients in Residence at December 31, 1940	3,382
	6,498
Deduct:—Transfers from One Sanatorium to Another	264
	6,230

COMBINED STAFF OF SANATORIA IN THE PROVINCE OF ONTARIO AT DECEMBER 31st, 1940

Classification	Number Employed
Salaried Doctors:—	
Full Time	56
Part Time (excluding Consultants)*	7
Internes (Graduate and Undergraduate)	6
Nurses—Graduate	424
Post-Graduate	6
Non-Graduate	98
Affiliates	24
Dietitians—Graduate	16
Student	2
Orderlies	121
Ward Aides	52
Occupational Therapists	15
School Teachers	18
Paid Social Service Workers	4
Clerical—Business	59
Medical	36
Farm Hands	36
All Others	876
Total Staff	1,856

*Consultant services for the various sanatoria are provided by arrangement with 58 consultants in medicine and surgery.

COMPARISON OF ADMISSIONS AND DISCHARGES DURING 1940 BY DIAGNOSIS ESTABLISHED AFTER ADMISSION

(Excludes Births in Sanatoria.)

Diagnosis Established after Admission		Admissions		Discharges and Deaths	
		Number	%	Number	%
No evidence of tuberculosis	(a) Negative tuberculin reactors	47	1.6	54	1.9
	(b) Positive tuberculin reactors	89	3.1	100	3.6
Presumptive evidence and/or suspect tuberculosis		54	1.8	67	2.4
Tuberculosis, not requiring treatment—only investigation or observation		57	2.0	68	2.4
Childhood tuberculosis (all types)	(a) Pulmonary only	71	2.4	91	3.2
	(b) with extra-pulmonary tuberculosis	9	.3	3	.1
Pleurisy with effusion	(a) Pleural effusion only	67	2.3	58	2.1
	(b) with other tuberculosis	41	1.4	29	1.0
Minimal	(a) Pulmonary only	393	13.5	336	11.9
	(b) with extra-pulmonary tuberculosis	29	1.0	29	1.0
Moderately Advanced	(a) Pulmonary only	782	26.9	676	24.0
	(b) with extra-pulmonary tuberculosis	46	1.6	85	3.0
Advanced or Far Advanced	(a) Pulmonary only	914	31.4	820	29.1
	(b) with extra-pulmonary tuberculosis	174	6.0	283	10.0
Extra-pulmonary tuberculosis only		136	4.7	118	4.3
		2,909	100.0	2,817	100.0

CLASSIFICATION OF ADMISSIONS TO SANATORIA DURING THE YEAR 1940

	Number	Percentage
New Cases	2,182	74.7%
Reviews	58	2.0
*Re-Admissions	669	22.9
Newborn	11	.4
Total Net Admissions (Excluding Transfers)	2,920	100.0

*Re-Admissions:—

1st	510
2nd	100
3rd	59
	669

TREATMENT APPLIED DURING LAST STAY IN SANATORIUM FOR PATIENTS DISCHARGED AND DIED DURING THE YEAR 1940

Diagnosis Established after Admission		Number Discharged or Died.	*Number of Patients who Received Treatments Indicated Since Last Admission										
			Pneumothorax attempted unsuccessfully	Pneumothorax estab. (unilateral only).	Pneumothorax established (bilateral).	Intrapleural Pneumolysis	Phrenic Nerve Crush	Phrenic Nerve Evulsion	Pneumoperitoneum.	Extrapleural Pneumothorax (apicolysis)	Thoracoplasty	Others	Total Treatments
Childhood Tuberculosis (all types)	(a) Pulmonary only	91	.....	.....	.....	.....	.....	....	....	....	....	....	.....
	(b) with extra pulmonary tuberculosis	3	.....	.....	.....	.....	.....	....	....	....	....	....	.....
Pleaurisy with Effusion	(a) Pleural Effusion only	58	.....	1	.....	.....	4	....	....	....	....	....	5
	(b) with other Tuberculosis	29	1	1	.....	.....	2	....	....	....	....	....	4
Minimal	(a) Pulmonary only	336	11	72	3	10	36	2	....	....	1	4	139
	(b) with extra pulmonary tuberculosis	29	.....	2	.....	.....	3	....	....	....	....	20	25
Moderately Advanced	(a) Pulmonary only	676	68	288	26	79	99	11	....	20	23	28	642
	(b) with extra pulmonary tuberculosis	85	12	21	2	7	8	2	....	4	2	20	78
Advanced or Far Advanced	(a) Pulmonary only	820	167	246	70	100	120	16	21	28	80	44	892
	(b) with extra pulmonary tuberculosis	283	43	57	16	30	24	5	1	4	16	24	220
Extra-pulmonary tuberculosis only		118	.....	.....	.....	.....	.....	....	....	....	....	82	82
Totals		2529	302	688	117	226	296	36	22	56	122	222	2087

*Treatments applied on same patient more than once are counted only as one.

NET ADMISSIONS TO SANATORIA DURING THE YEAR 1940, SHOWING DIAGNOSIS ESTABLISHED AFTER ADMISSION—BY AGE GROUPS

(Excludes transfers from other Sanatoria and New Borns)

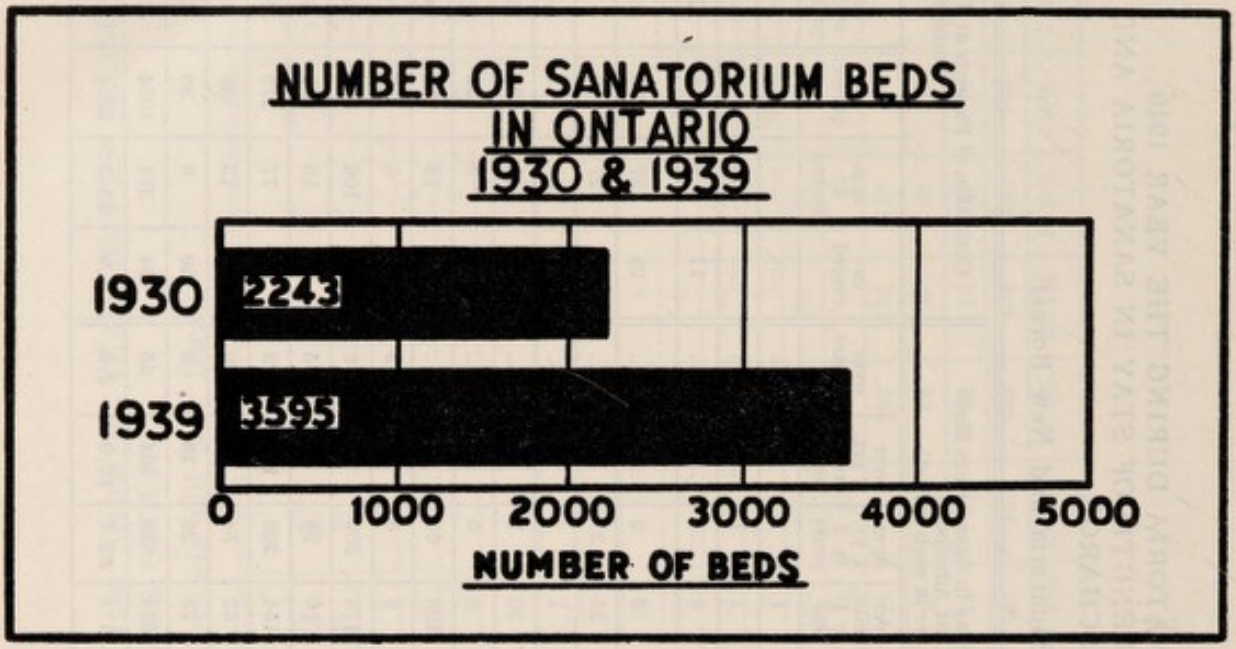
Diagnosis Established After Admission		Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 and Over	Total	Percentage of Total Net Adm.
No evidence of tuberculosis	(a) Neg. I. C. reactors	1	4	2	6	8	5	9	4	3	5	....	47	1.6%
	(b) Pos. I. C. reactors	4	5	1	6	10	7	14	22	9	9	2	89	3.1%
Presumptive evidence and /or suspect tuberculosis		1	2	2	2	8	7	8	13	6	5	....	54	1.8%
Tuberculosis requiring no treatment—only investigation or observation		1	.....	.....	1	8	13	10	17	6	1	....	57	2.0%
Childhood tuberculosis	(a) Pulmonary only	29	25	14	2	.....	.....	1	.....	.....	.....	....	71	2.4%
	(b) with extra-pul. tbc	5	1	2	1	.....	.....	.....	.....	.....	.....	....	9	.3%
Pleurisy with effusion	(a) Pleural eff. only	2	5	7	16	11	8	8	4	5	.....	1	67	2.3%
	(b) with other tbc	.....	.....	2	6	7	5	13	3	3	2	....	41	1.4%
Minimal	(a) Pulmonary only	.....	2	14	79	77	70	76	40	20	13	2	393	13.5%
	(b) with extra-pul. tbc	.....	.....	.....	2	9	4	7	3	4	.....	....	29	1.0%
Moderately advanced	(a) Pulmonary only	.....	1	6	68	145	128	184	134	74	31	11	782	26.9%
	(b) with extra-pul. tbc	.....	.....	.....	1	3	10	17	4	6	4	1	46	1.6%
Advanced or Far Advanced	(a) Pulmonary only	3	1	13	56	117	150	220	173	118	46	17	914	31.4%
	(b) with extra-pul. tbc	.....	.....	1	12	15	34	38	33	26	13	2	174	6.0%
With extra-pulmonary tuberculosis only		4	9	10	18	16	12	34	18	11	3	1	136	4.7%
Totals		50	55	74	276	434	453	639	468	291	132	37	2,909	100%
Percentage of Total Net Admissions		1.7%	1.9%	2.5%	9.5%	14.9%	15.6%	22.0%	16.1%	10.0%	4.5%	1.3%	100%	.....

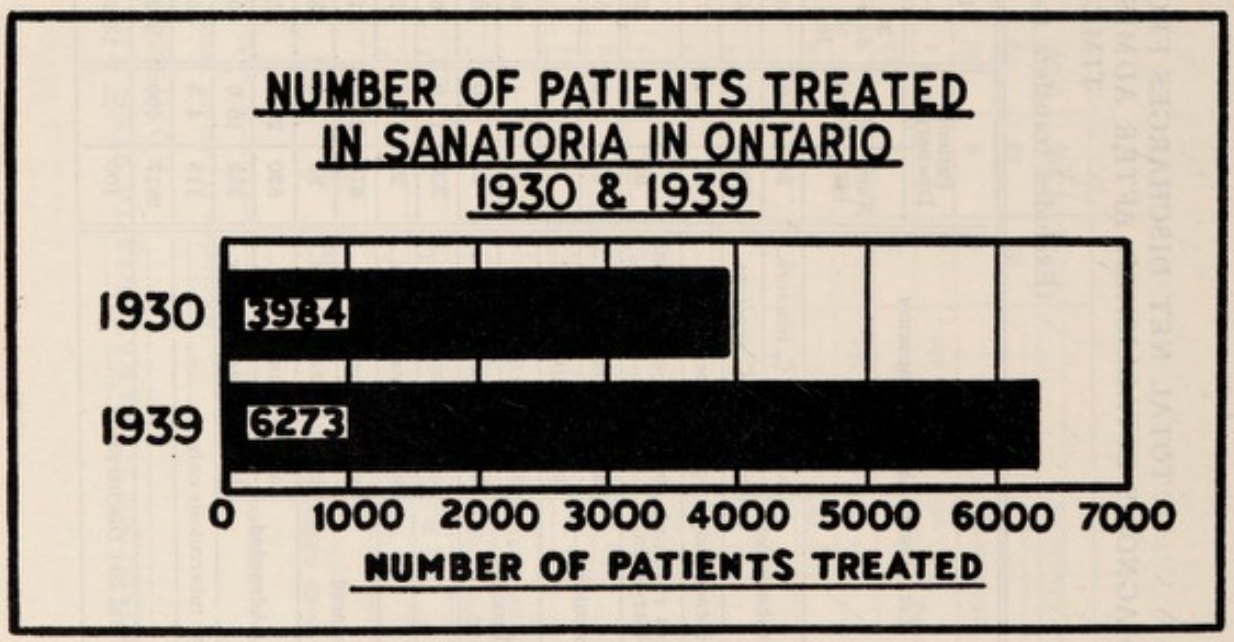
TOTAL NET DISCHARGES FROM SANATORIA DURING THE YEAR 1940
SHOWING DIAGNOSIS ESTABLISHED AFTER ADMISSION, LENGTH OF STAY IN SANATORIA AND CONDITION AT TIME OF DISCHARGE

(Excludes transfers to other Sanatoria and New Borns)

Diagnosis Established After Admission		Patients Discharged		Length of Stay in Sanatorium Since Last Admission (number in each period)						Condition of Patients at Time of Discharge or Transfer					
		Number	% of Total	30 days or less	31 days to 6 mos.	over 6 mos. to 1 year	over 1 yr. to 2 years	over 2 yrs. to 5 years	over 5 years	ar-rested	app. ar-rested	quiesc.	un-stable (or)act.	Died	No evid. of TBc.
No evidence of tuberculosis	(a) Neg. I. C. reactors	54	1.9	40	11	1	1	1	.....	.....	.....	.....	.....	2	52
	(b) Pos. I. C. reactors	100	3.6	54	44	1	1	.....	.....	.....	.....	.....	.....	6	94
Presumptive evidence and/or suspect tuberculosis		67	2.4	37	26	4	.....	.....	.....	11	4	5	17	2	28
Tuberculosis, not requiring treatment—only investigation or observation		68	2.4	42	22	2	2	.....	.....	25	27	10	6	.....	.....
Childhood tuberculosis (all types)	(a) Pulmonary only	91	3.2	5	28	25	31	2	.....	11	27	10	6	.....	.....
	(b) with extra-pul. tbc	3	.1	.....	.....	1	1	1	.....	2	.....	1	.....	.....	.....
Pleurisy with effusion	(a) Pleural eff. only	58	2.1	6	30	20	1	1	.....	14	10	22	11	1	.....
	(b) with other tbc	29	1.0	6	7	9	5	2	.....	3	3	20	2	1	.....
Minimal	(a) Pulmonary only	336	11.9	26	126	108	62	14	.....	24	78	183	49	2	.....
	(b) with extra-pul. tbc	29	1.0	2	7	6	8	4	2	7	5	6	5	6	.....
Moderately advanced	(a) Pulmonary only	676	24.0	31	173	173	209	84	6	32	106	382	129	27	.....
	(b) with extra-pul. tbc	85	3.0	3	15	10	28	24	5	7	16	31	14	17	.....
Advanced or Far Advanced	(a) Pulmonary only	820	29.1	75	199	154	209	154	29	15	77	275	186	267	.....
	(b) with extra-pul. tbc	283	10.0	30	69	52	54	58	20	4	15	36	63	165	.....
Extra-pulmonary tuberculosis only		118	4.3	15	27	28	26	19	3	39	6	36	23	14	.....
Totals		2817	100	372	784	594	638	364	65	194	374	1054	510	511	174
Percentage of Total Net Discharges		100	.....	13.2	27.8	21.1	22.7	12.9	2.3	6.9	13.3	37.4	18.1	18.1	6.2

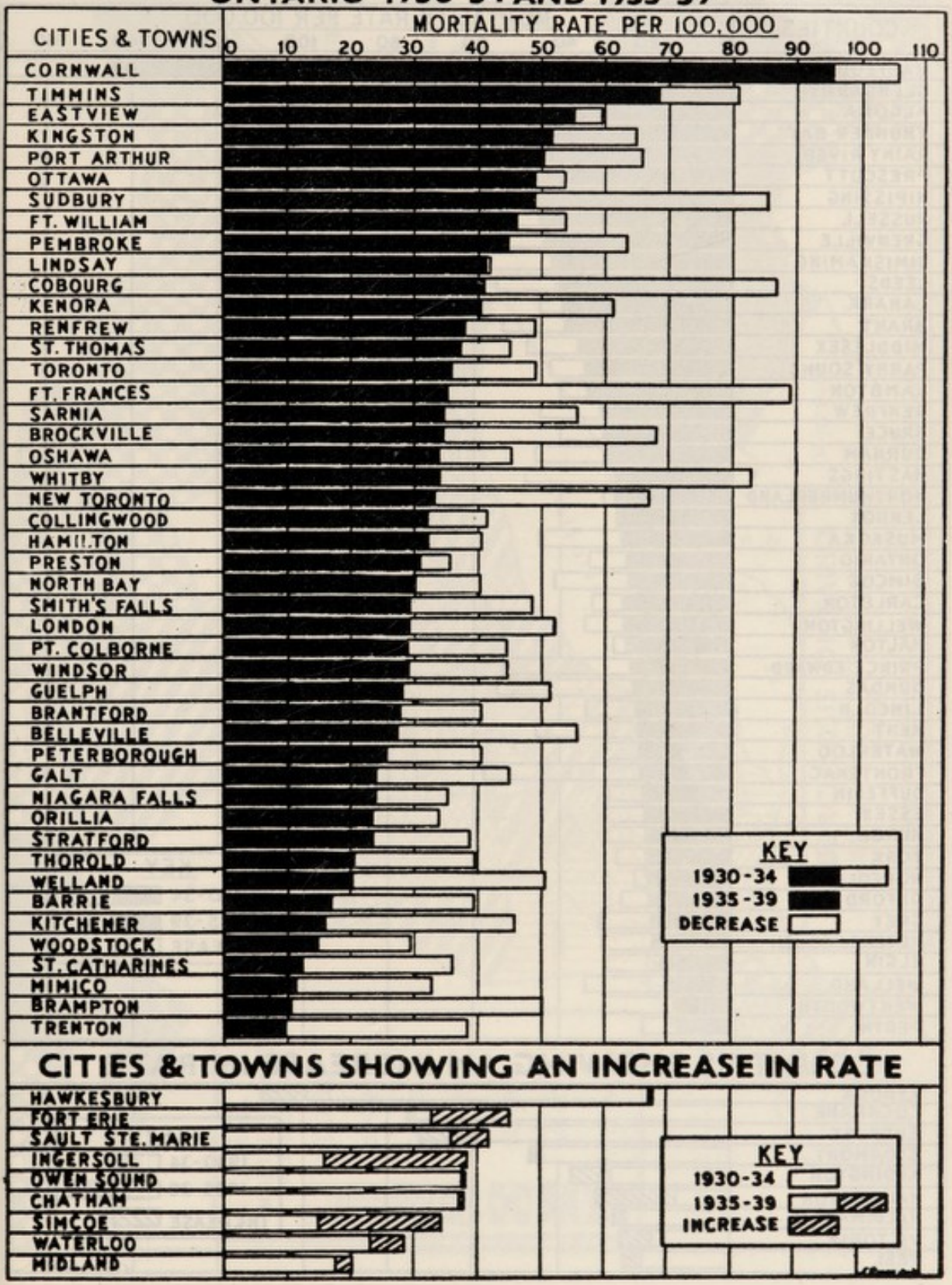
PART X (a)


NUMBER OF SANATORIUM BEDS
IN ONTARIO
1930 & 1939
1930
2243
1939
3595
0
1000
2000
3000
4000
5000
NUMBER OF BEDS


NUMBER OF PATIENTS TREATED
IN SANATORIA IN ONTARIO
1930 & 1939
1930
3984
1939
6273
0
1000
2000
3000
4000
5000
6000
7000
NUMBER OF PATIENTS TREATED

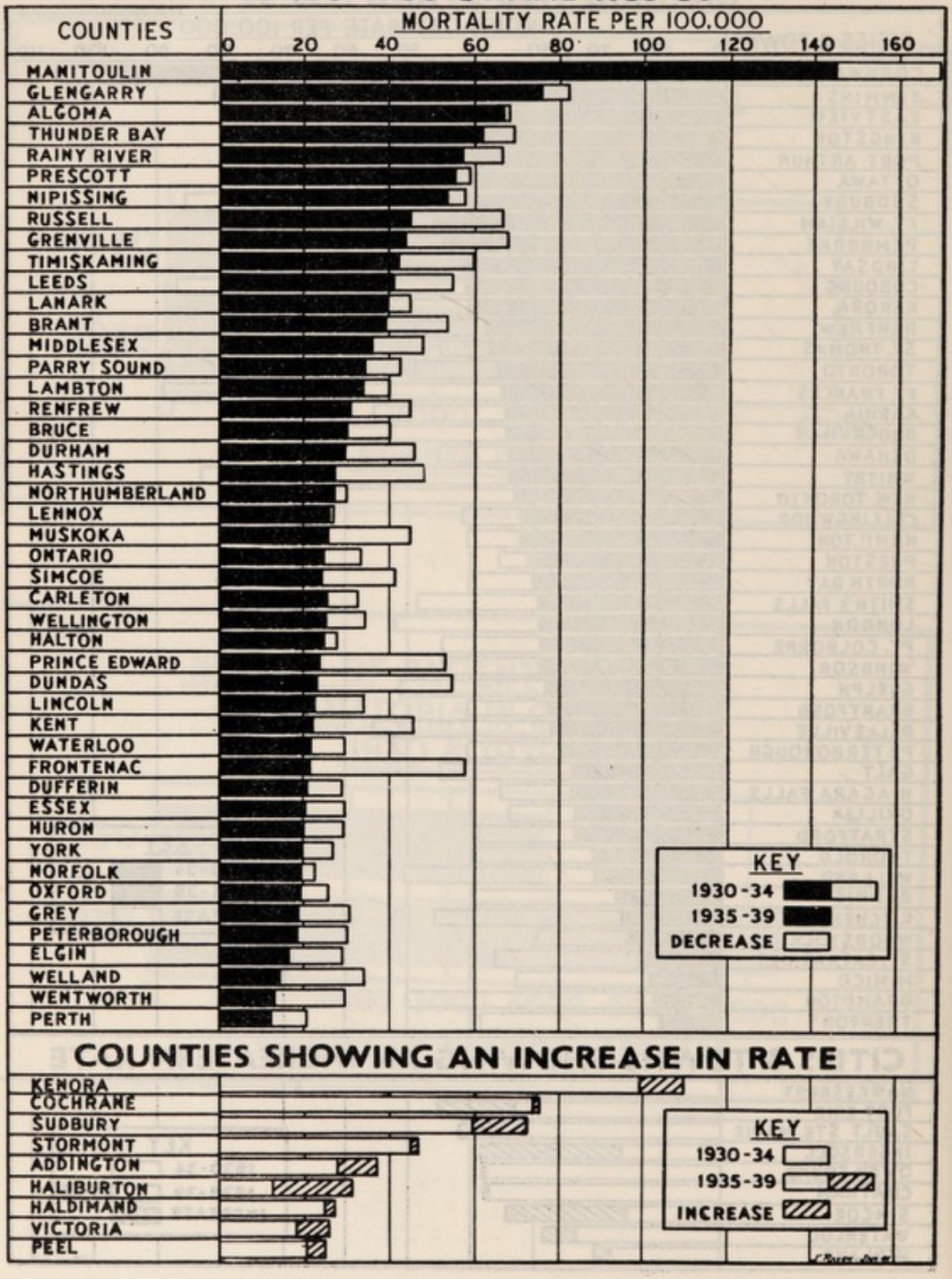
PART X (b)

RESIDENT TUBERCULOSIS MORTALITY RATE FOR CITIES & TOWNS OF 5,000 & OVER AVERAGE RATE FOR TWO - 5 YEAR PERIODS ONTARIO - 1930-34 AND 1935-39



PART X (c)

RESIDENT TUBERCULOSIS MORTALITY RATE BY COUNTIES (EXCLUDING CITIES & TOWNS OF 5,000 & OVER) AVERAGE RATES FOR TWO - 5 YEAR PERIODS ONTARIO - 1930-34 AND 1935-39



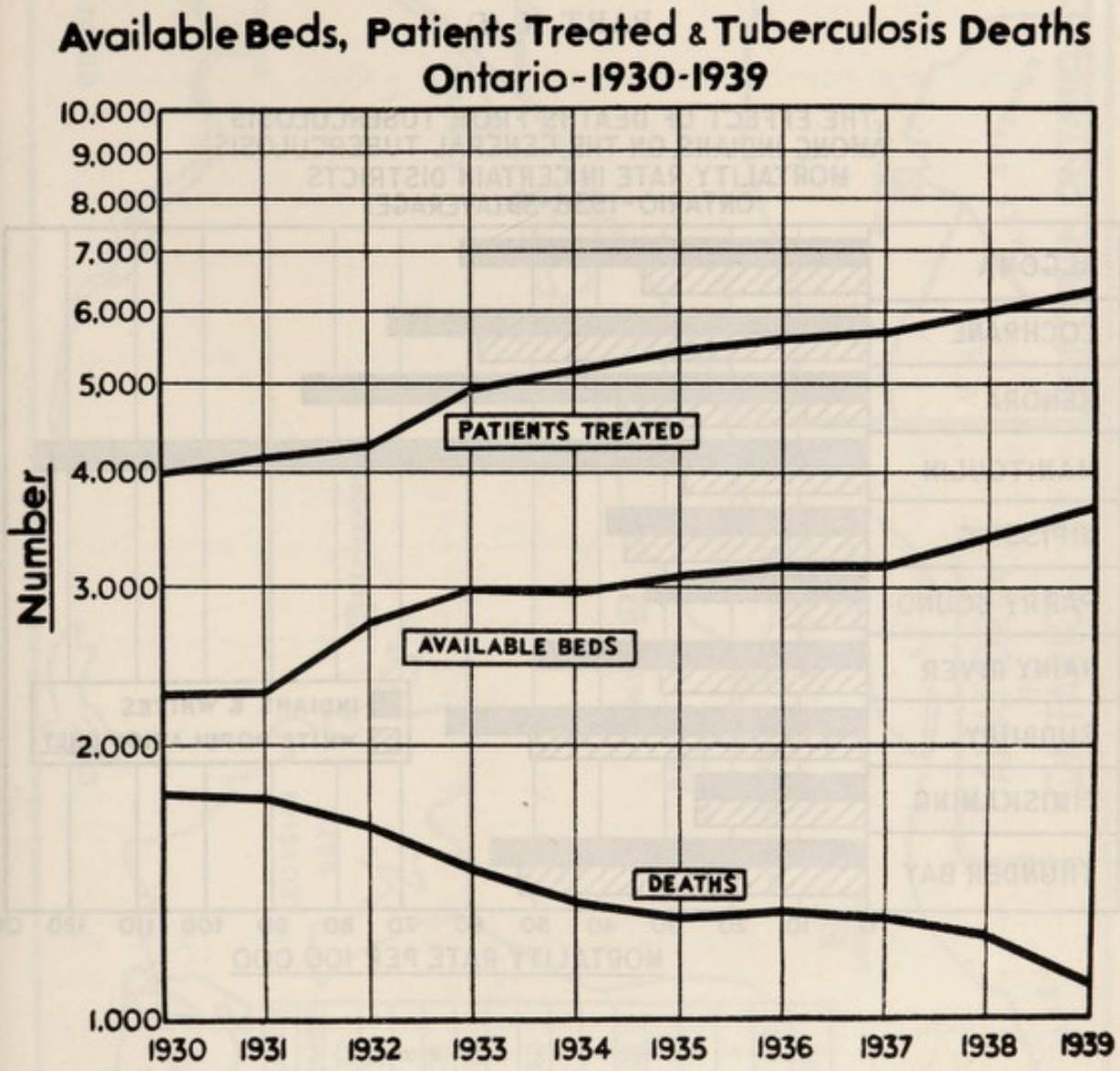
PART X (d-1)

TUBERCULOSIS-ONTARIO
RESIDENT MORTALITY RATE BY COUNTIES
1931-33
AVERAGE PROVINCIAL RATE - 45·7
KEY
MORTALITY RATE PER 100,000
UNDER 20
20-29
30-39
40-49
50-59
60-69
70 & OVER
QUEBEC
UNITED STATES
LAKE ONTARIO
LAKE ERIE
GEORGIAN BAY
LAKE SUPERIOR
JAMES BAY
NORTHERN ONTARIO

PART X (d-2)

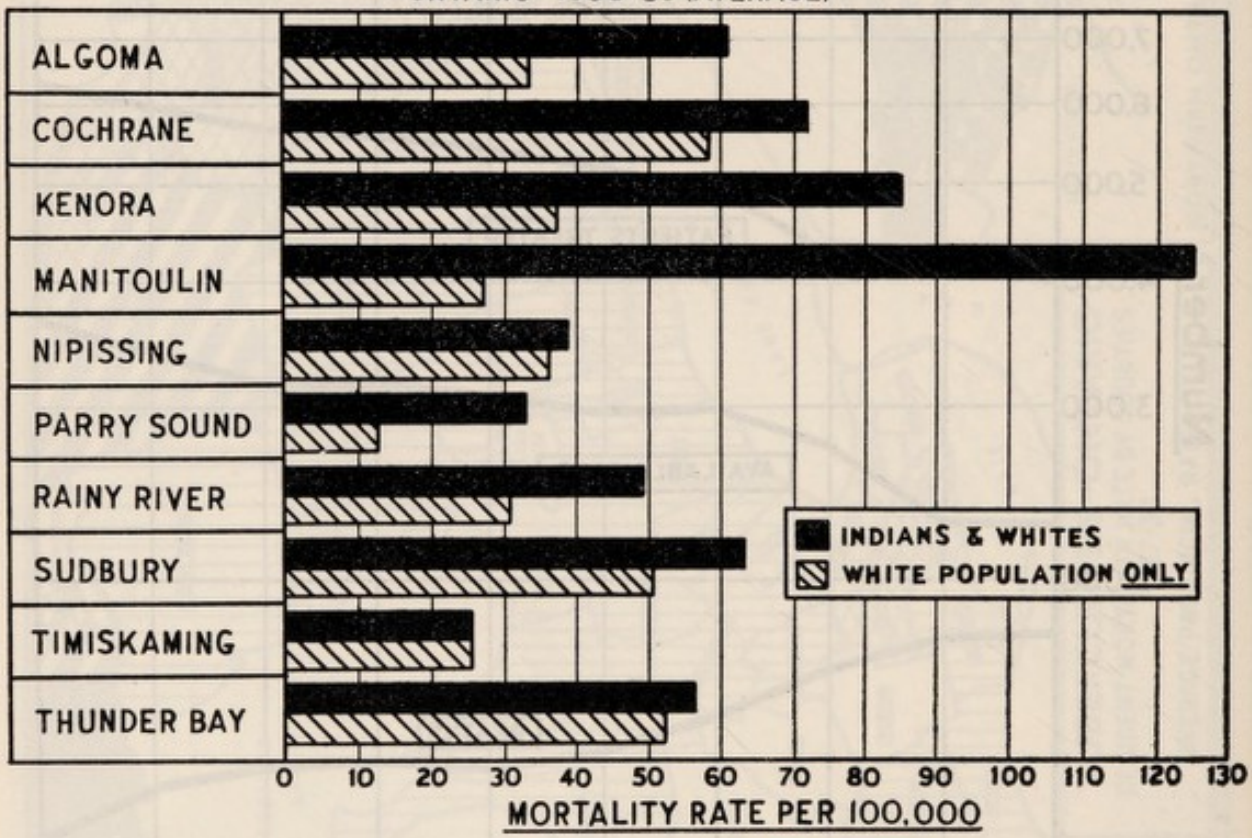
TUBERCULOSIS-ONTARIO
RESIDENT MORTALITY RATE BY COUNTIES
1937-39
AVERAGE PROVINCIAL RATE - 32·3
KEY
MORTALITY RATE PER 100,000
UNDER 20
20-29
30-39
40-49
50-59
60-69
70 & OVER
QUEBEC
UNITED STATES
JAMES BAY
LAKE SUPERIOR
NORTHERN ONTARIO
LAKE ONTARIO
LAKE ERIE
GEORGIAN BAY
LAKE HURON
LAKE ST. CLAIR

PART X (e)


Available Beds, Patients Treated & Tuberculosis Deaths
Ontario-1930-1939
Number
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
PATIENTS TREATED
AVAILABLE BEDS
DEATHS
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939

PART X (f)

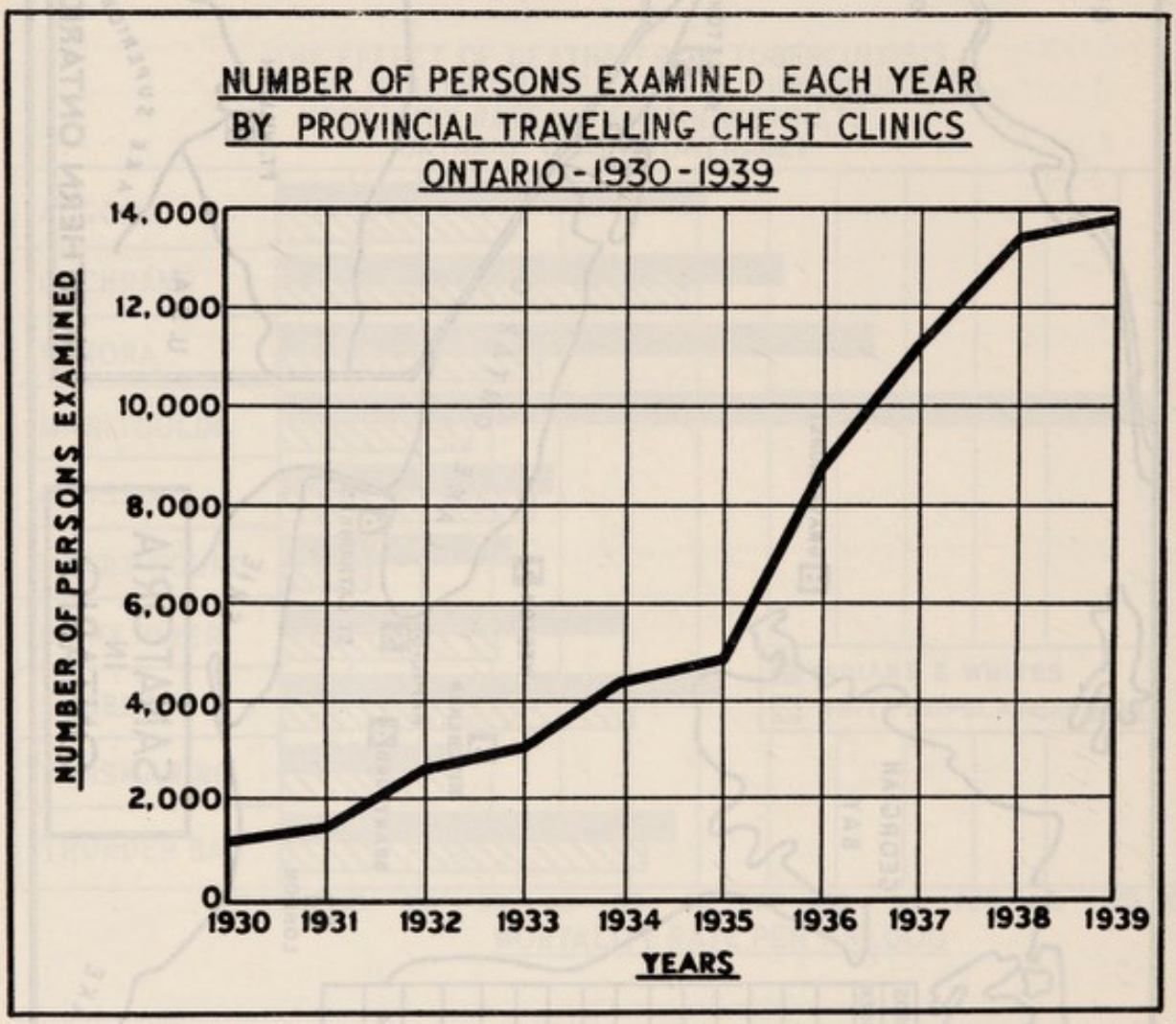
THE EFFECT OF DEATHS FROM TUBERCULOSIS AMONG INDIANS, ON THE GENERAL TUBERCULOSIS MORTALITY RATE IN CERTAIN DISTRICTS ONTARIO - 1938-39 (AVERAGE)



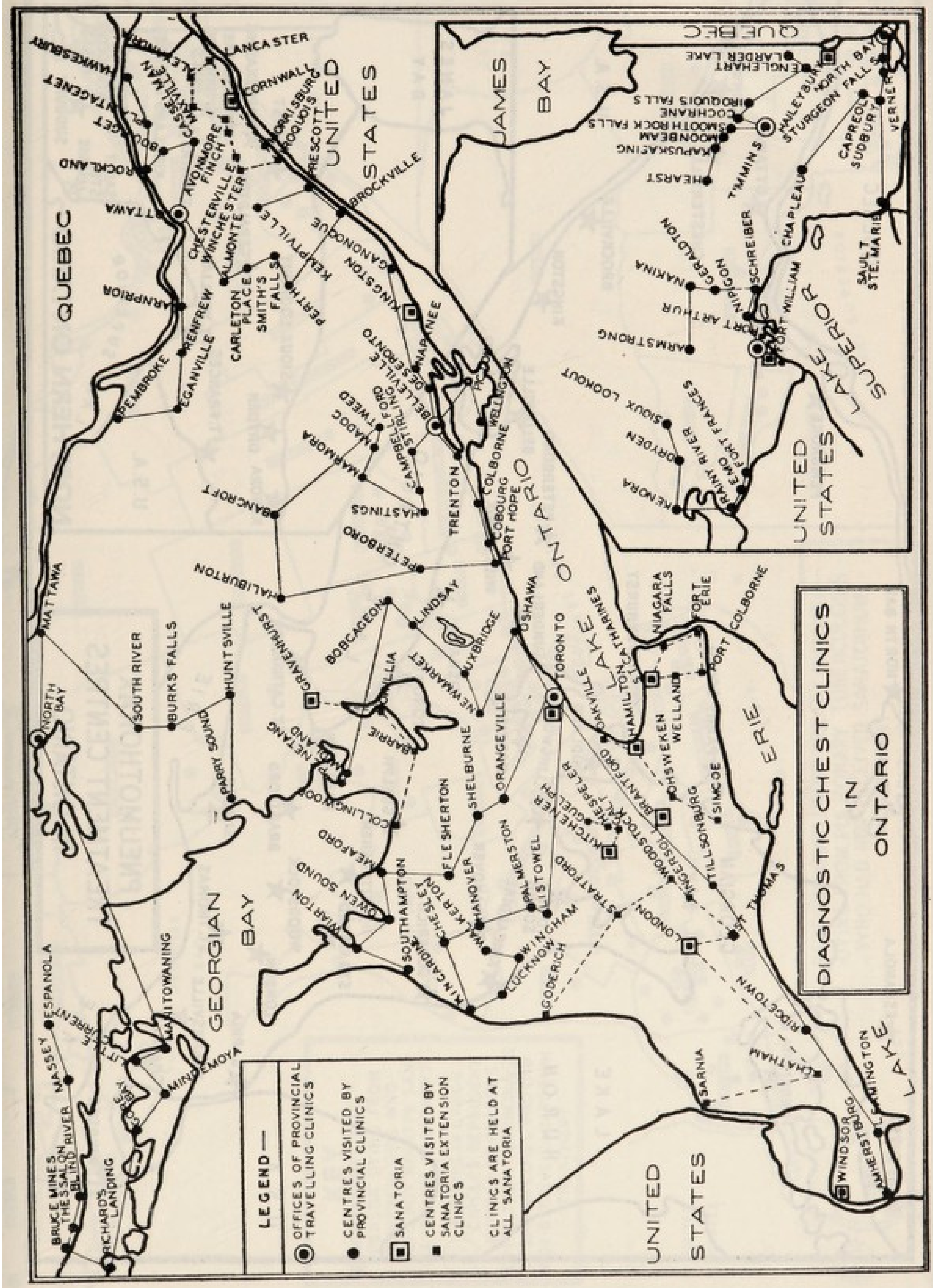
PART X (g)

SANATORIA	AVAILABLE BEDS	
	ADULTS	CHILDREN
1. WINDSOR	139	32
2. LONDON	576	34
3. KITCHENER	140	8
4. BRANTFORD	84	25
5. HAMILTON	697	25
6. ST. CATHARINES	86	-
7. WESTON	601	62
8. GRAVENHURST	440	-
9. KINGSTON	47	-
10. OTTAWA	182	28
11. CORNWALL	112	-
12. HAILEYBURY	106	-
13. FT. WILLIAM	184	-
TOTAL -	3,394	214
GRAND TOTAL -	3,608	

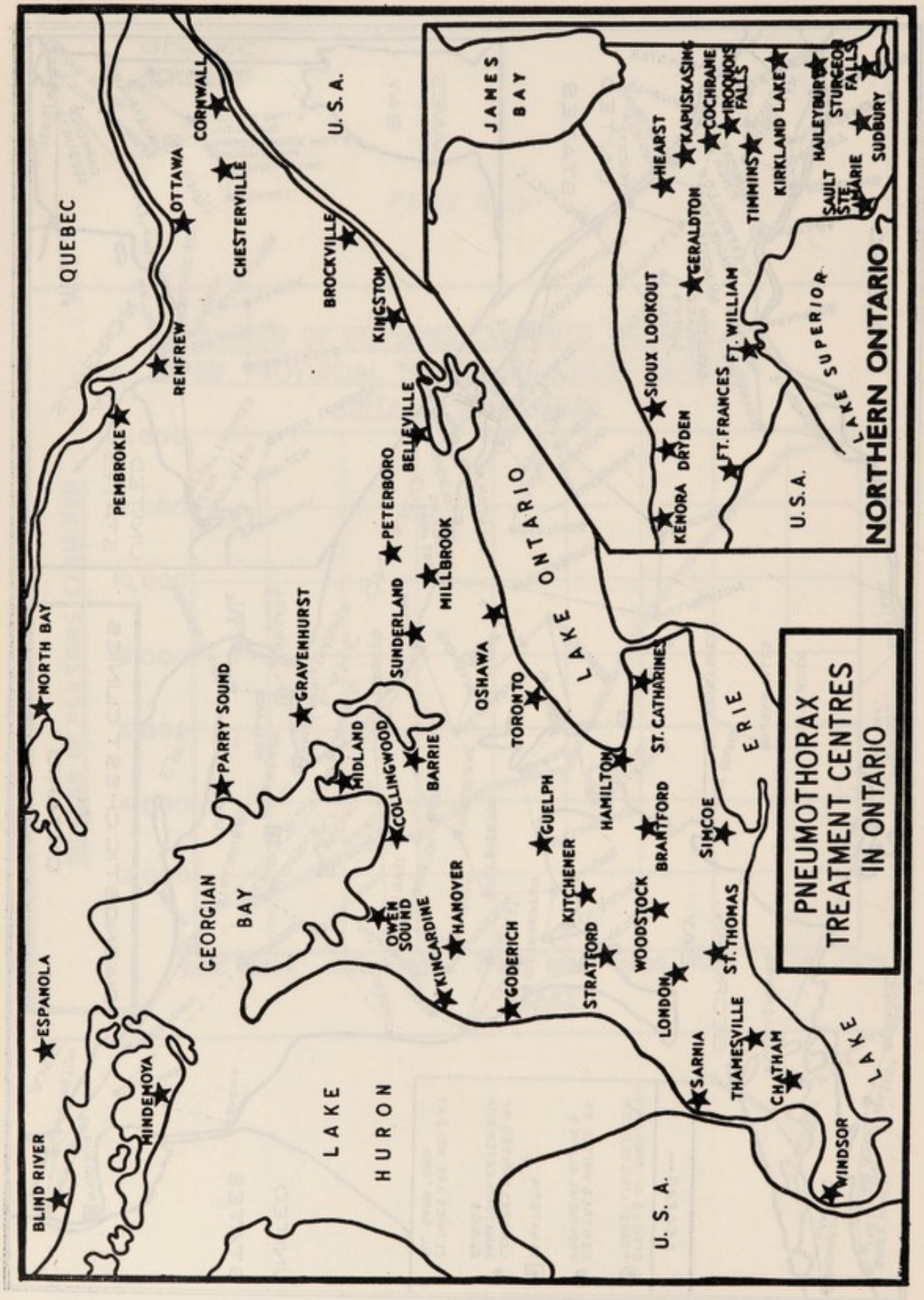
PART X (h)

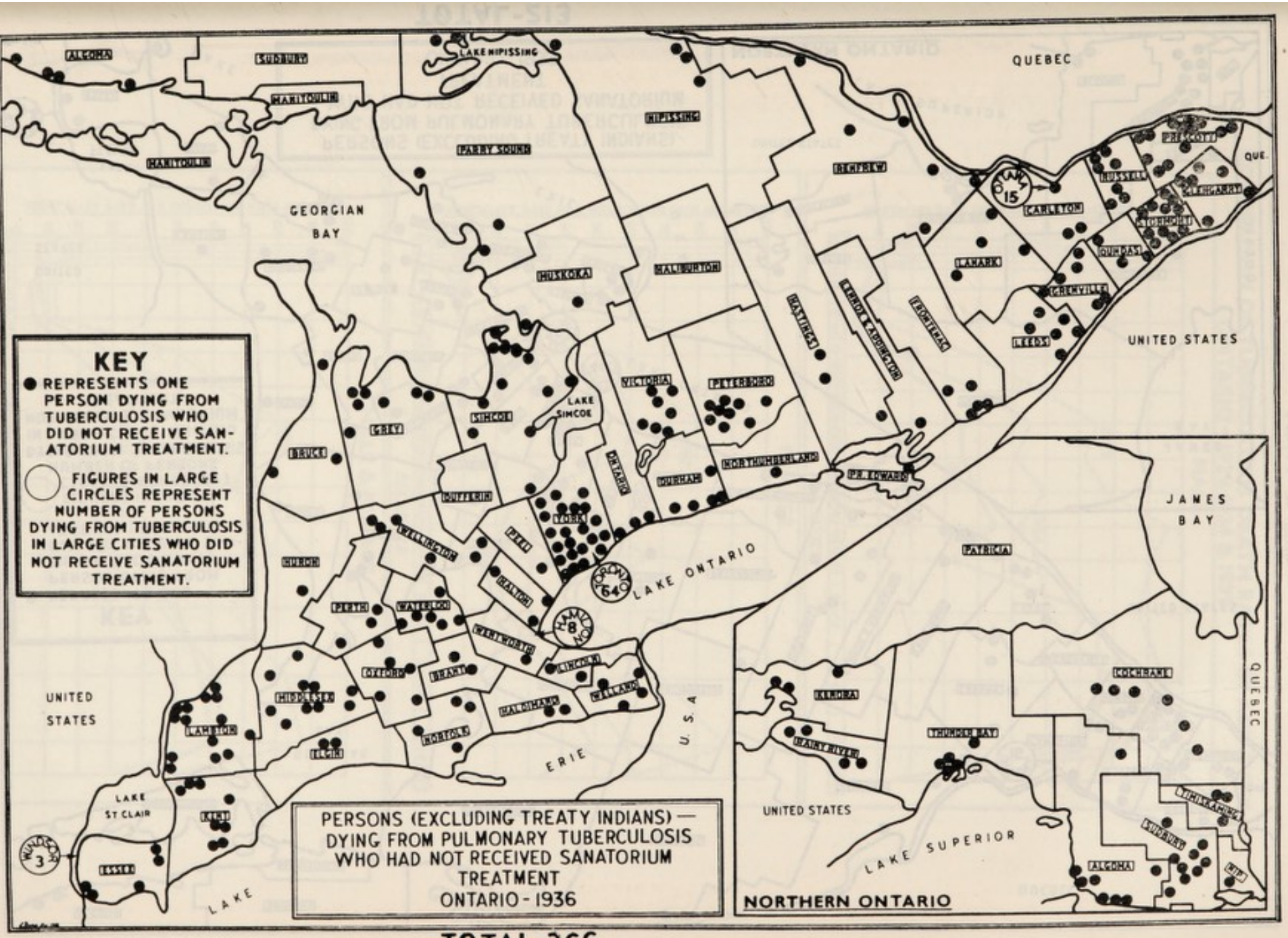

NUMBER OF PERSONS EXAMINED EACH YEAR
BY PROVINCIAL TRAVELLING CHEST CLINICS
ONTARIO - 1930 - 1939
NUMBER OF PERSONS EXAMINED
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1930 1931 1932 1933 1934 1935 1936 1937 1938 1939
YEARS

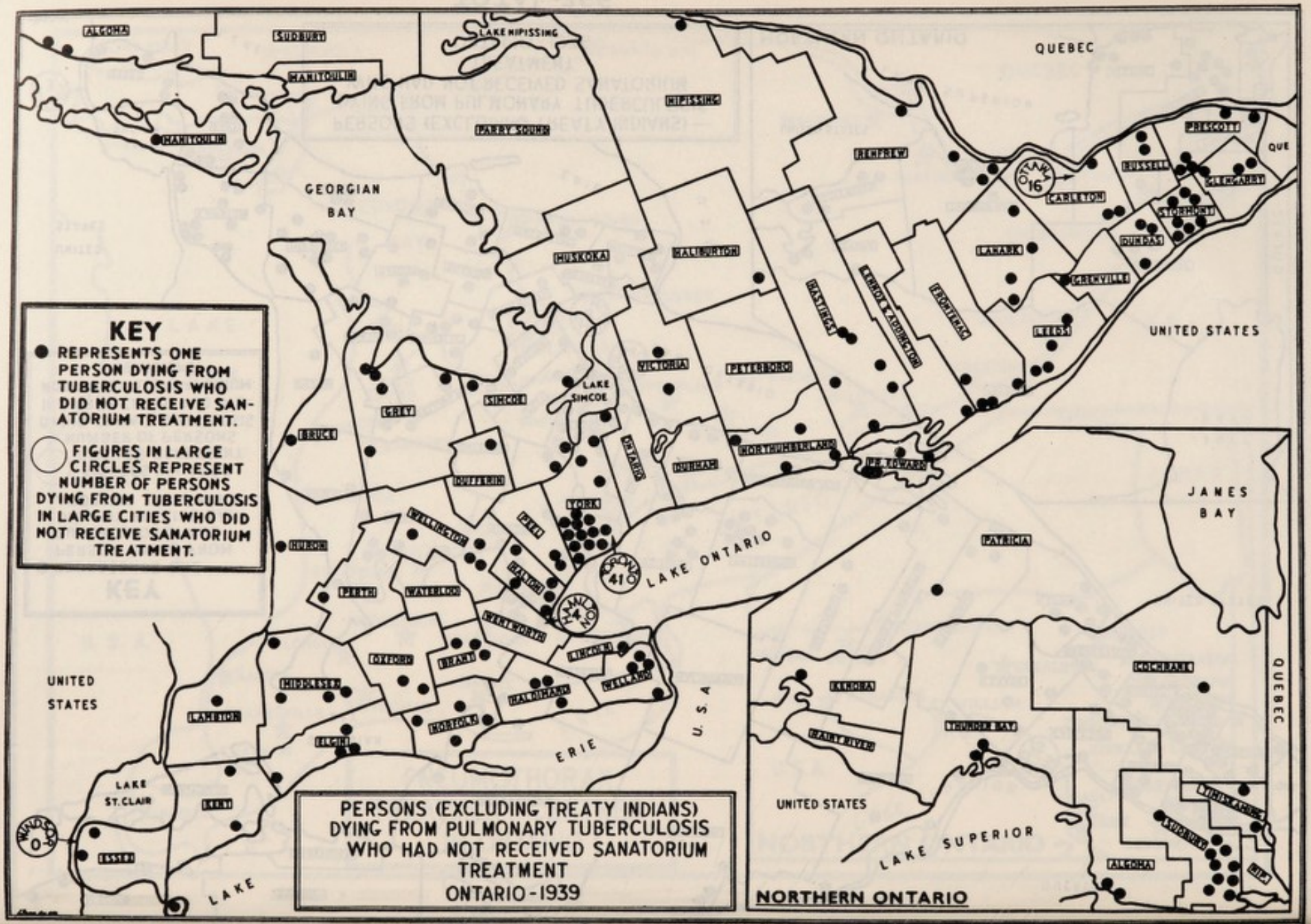
PART X (i)


DIAGNOSTIC CHEST CLINICS IN ONTARIO
LEGEND—
OFFICES OF PROVINCIAL TRAVELLING CLINICS
CENTRES VISITED BY PROVINCIAL CLINICS
SANATORIA
CENTRES VISITED BY SANATORIA EXTENSION CLINICS
CLINICS ARE HELD AT ALL SANATORIA
QUEBEC
UNITED STATES
JAMES BAY
GEORGIAN BAY
LAKE ONTARIO
LAKE ERIE
LAKE SUPERIOR
OTTAWA
ROCKLAND
HAWKESBURY
CORNWALL
LANCASTER
BROCKVILLE
KINGSTON
NAPANEE
BELLEVILLE
TRENTON
COBOURG
PORT HOPE
PETERBORO
LINDSAY
OSHAWA
TORONTO
HAMILTON
NIAGARA FALLS
FORT ERIE
PORT COLBORNE
WELLAND
BRANTFORD
SIMCOE
WOODSTOCK
LONDON
ST. THOMAS
RIDGETOWN
CHATHAM
WINDSOR
AMHERSTBURG
LEAMINGTON
SARNIA
GODERICH
STRATFORD
KITCHENER
GUELPH
ORANGEVILLE
BARRIE
ORILLIA
GRAVENHURST
HUNTSVILLE
PARRY SOUND
NORTH BAY
MATTAWA
PEMBROKE
RENFREW
ARNPRIOR
OWEN SOUND
COLLINGWOOD
TIMMINS
SUDBURY
SAULT STE. MARIE
FORT WILLIAM
PORT ARTHUR
KENORA
FORT FRANCES

PART X (j)

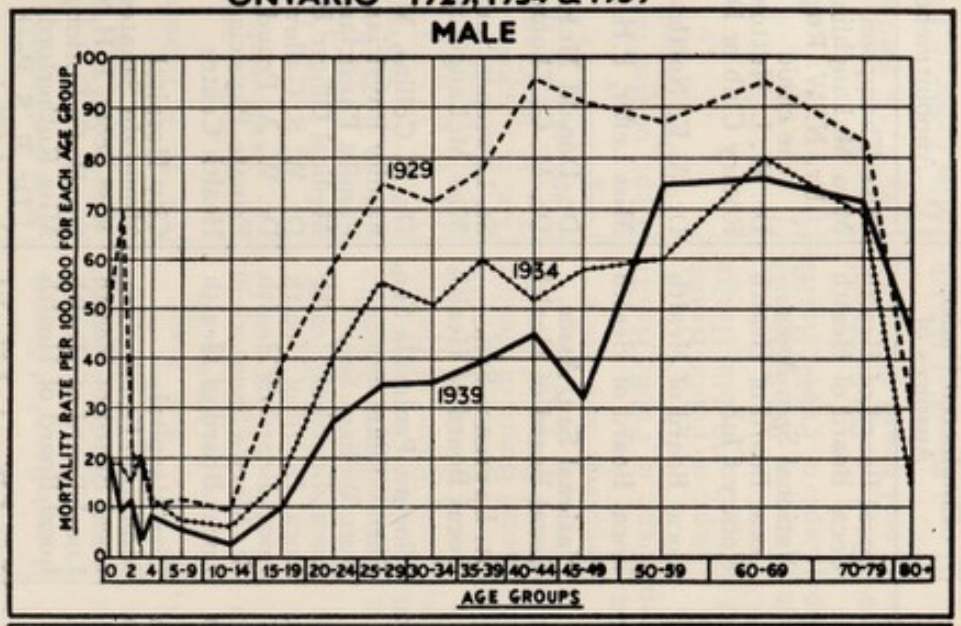

QUEBEC
U. S. A.
JAMES BAY
NORTHERN ONTARIO
LAKE SUPERIOR
LAKE HURON
GEORGIAN BAY
LAKE ONTARIO
LAKE ERIE
U. S. A.
U. S. A.
BLIND RIVER
ESPANOLA
MINDEMOYA
NORTH BAY
PARRY SOUND
GRAVENHURST
PEMBROKE
RENFREW
OTTAWA
CORNWALL
CHESTERVILLE
BROCKVILLE
KINGSTON
PETERBORO
BELLEVILLE
MILLBROOK
SUNDERLAND
MIDLAND
COLLINGWOOD
BARRIE
OSHAWA
TORONTO
OWEN SOUND
KINCARDINE
HANOVER
GODERICH
GUELPH
KITCHENER
STRATFORD
HAMILTON
ST. CATHARINES
WOODSTOCK
BRANTFORD
SIMCOE
LONDON
ST. THOMAS
SARNIA
THAMESVILLE
CHATHAM
WINDSOR
SIOUX LOOKOUT
DRYDEN
KENORA
FT. FRANCES
FT. WILLIAM
GERALDTON
HEARST
KAPUSKASING
COCHRANE
IROQUOIS FALLS
TIMMINS
KIRKLAND LAKE
HAILEYBURY
STURGEON FALLS
SUDBURY
SAULT STE. MARIE
PNEUMOTHORAX TREATMENT CENTRES IN ONTARIO

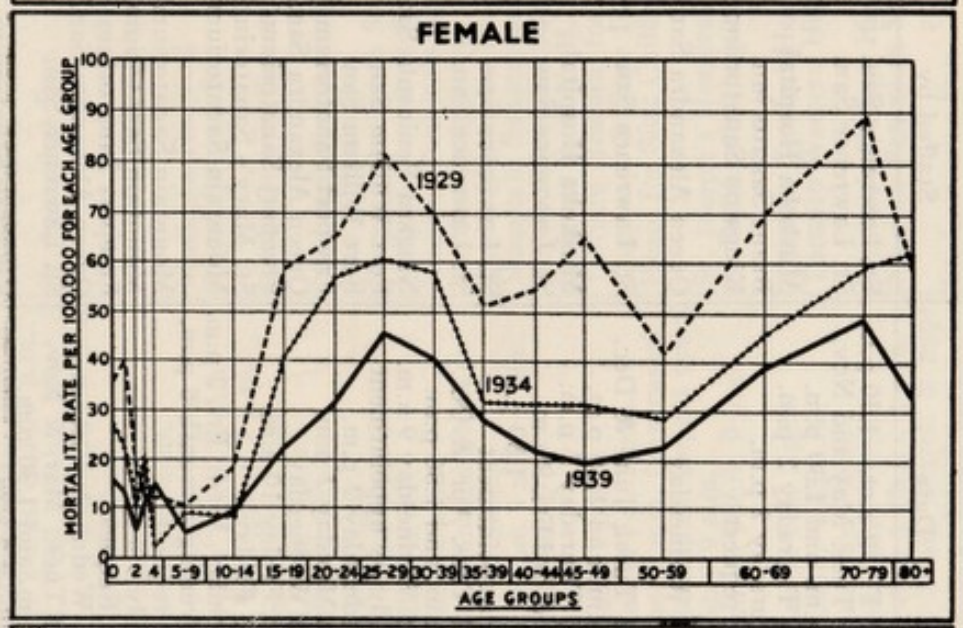

KEY
● REPRESENTS ONE PERSON DYING FROM TUBERCULOSIS WHO DID NOT RECEIVE SANATORIUM TREATMENT.
FIGURES IN LARGE CIRCLES REPRESENT NUMBER OF PERSONS DYING FROM TUBERCULOSIS IN LARGE CITIES WHO DID NOT RECEIVE SANATORIUM TREATMENT.
PERSONS (EXCLUDING TREATY INDIANS) — DYING FROM PULMONARY TUBERCULOSIS WHO HAD NOT RECEIVED SANATORIUM TREATMENT
ONTARIO - 1936
NORTHERN ONTARIO
ALGOMA
SUDBURY
MANITOULIN
NIPISSING
PARRY SOUND
TIMISKAMING
HALIBURTON
HASTINGS
RENFREW
LENNOX & ADDINGTON
FRONTENAC
LANARK
PRESCOTT
RUSSELL
CARLETON
GLENGARRY
STORMONT
DUNDAS
GRENVILLE
LEEDS
QUEBEC
QUE.
UNITED STATES
GEORGIAN BAY
HURON
BRUCE
GREY
SIMCOE
LAKE SIMCOE
YORK
PEEL
HALTON
WENTWORTH
WELLINGTON
DUFFERIN
ONTARIO
VICTORIA
PETERBORO
DURHAM
NORTHUMBERLAND
PR. EDWARD
LAKE ONTARIO
TORONTO 64
HAMILTON 8
WATERLOO
PERTH
OXFORD
BRANT
NORFOLK
HALDIMAND
WELLAND
LINCOLN
ESSEX
KENT
LAMBTON
MIDDLESEX
ELGIN
LAKE ST CLAIR
WINDSOR 3
ERIE
LAKE
U.S.A.
PATRICIA
JAMES BAY
KENORA
THUNDER BAY
RAINY RIVER
KOCHBANK
QUEBEC
SUDBURY
ALGOMA
TOTAL-366

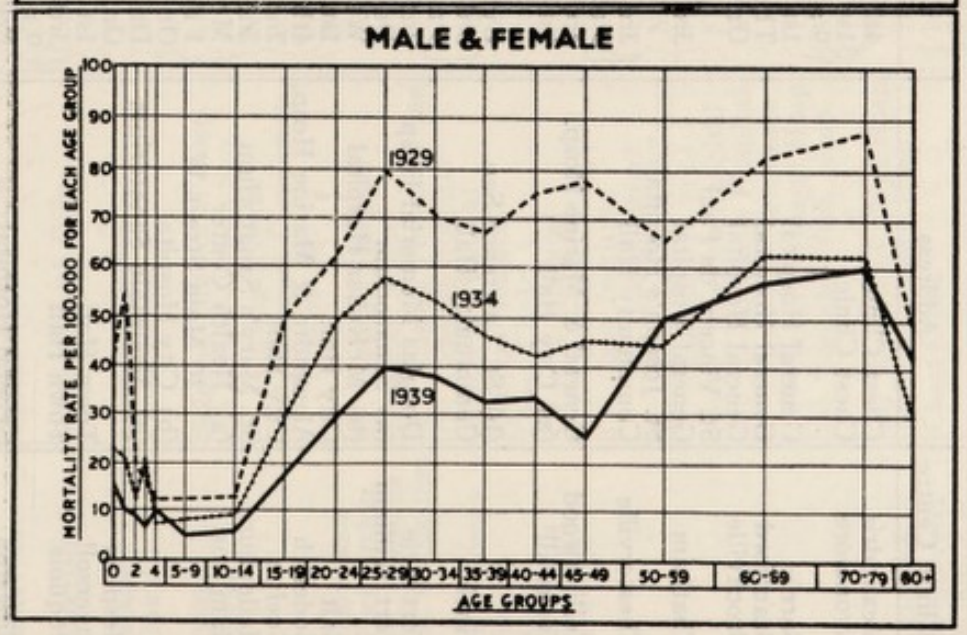

KEY
REPRESENTS ONE PERSON DYING FROM TUBERCULOSIS WHO DID NOT RECEIVE SANATORIUM TREATMENT.
FIGURES IN LARGE CIRCLES REPRESENT NUMBER OF PERSONS DYING FROM TUBERCULOSIS IN LARGE CITIES WHO DID NOT RECEIVE SANATORIUM TREATMENT.
PERSONS (EXCLUDING TREATY INDIANS) DYING FROM PULMONARY TUBERCULOSIS WHO HAD NOT RECEIVED SANATORIUM TREATMENT
ONTARIO - 1939
TOTAL-213
NORTHERN ONTARIO
ALGOMA
SUDBURY
MANITOULIN
LAKE NIPISSING
NIPISSING
PARRY SOUND
GEORGIAN BAY
HURON
BRUCE
GREY
SIMCOE
LAKE SIMCOE
DUFFERIN
YORK
PEEL
WENTWORTH
HALTON
WATERLOO
PERTH
OXFORD
BRANT
NORFOLK
HALDIMAND
WELLAND
HAMILTON
LINCOLN
WELLAND
ONTARIO
DURHAM
VICTORIA
PETERBORO
HASTINGS
NORTHUMBERLAND
PR. EDWARD
PRESCOTT
RUSSELL
CARLETON
LANARK
RENFREW
GRENVILLE
LENNOX & ADDINGTON
FRONTENAC
LAKE ONTARIO
UNITED STATES
QUEBEC
ERIE
LAKE ST. CLAIR
ESSEX
KENT
LAMBTON
MIDDLESEX
U.S.A.
JAMES BAY
PATRICIA
KENORA
RAINY RIVER
THUNDER BAY
COCHRANE
TIMISKAMING
NIPISSING
SUDBURY
ALGOMA
SAULT STE. MARIE
LAKE SUPERIOR

PART X (m)

COMPARISON OF TUBERCULOSIS DEATH RATES BY AGE & SEX ONTARIO—1929, 1934 & 1939







PART X (n)

CHEST CLINICS IN ONTARIO

(Exclusive of Provincial Travelling Chest Clinics.)

Clinic Centre	Address	Date	Staffed by	Conducted Under Auspices of	Appointments Made Through
Alexandria	Chest Clinic	4th Fri. 9 a.m.—1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Thompson, P.H.N., Alexandria
Avonmore	Chest Clinic	1st Tues. May and Nov. 9 a.m. and 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss McLaughlin, P.H.N., Finch
Barrie	General Hospital	1st Thursday 2 p.m.	Muskoka Hospital	National San. Assoc.	Dr. N. W. Rogers, M.O.H. or with the clinic
Brantford	General Hospital	Thursday 2 p.m.	Brant Sanatorium	Local Board of Health	Dr. W. L. Hutton, M.O.H., City Hall
Brockville	General Hospital St. Vincent de Paul	On request	Kingston Sanatorium	Rotary Club	Rotary Club or Director of Clinic
Chatham	General Hospital St. Joseph's Hospital	3rd Wednesday	Queen Alexandra San.	Local Board of Health	Dr. A. E. Northwood, M.O.H.
Chesterville	Community Hall	3rd Tues., June & Dec. 9 a.m. and 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Lefler, P.H.N., Winchester
Collingwood	General & Marine Hosp.	3rd Thursday 2 p.m.	Muskoka Hospital	National San. Assoc.	Dr. Donald McKay, M.O.H.
Cornwall	(a) City Hall	1st & 3rd Fri. 9 a.m. 1.30 p.m.	St. Lawrence San.	Local Board of Health	Dr. M. G. Thompson, Health Unit.
	(b) St. Lawrence San.	By appointment	St. Lawrence San.	St. Lawrence San.	St. Lawrence Sanatorium
Finch	Community Hall	3rd Tues. Apr. & Oct. 9 a.m. and 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss McLaughlin, P.H.N., Finch
Fort Erie	Douglas Memorial Hosp.	2nd Wednesday 9 a.m.	Niagara Peninsula San.	Niagara Peninsula San.	Dr. A. Collins, M.O.H.
Fort William	(a) Sanatorium	Daily by appointment	Fort William San.	Fort William San.	Family Physician or M.O.H.
	(b) McKellar Hospital	Wednesday 2 p.m.	Fort William San.	Fort William San.	Family Physician or M.O.H.
Galt	City Hall	1st Monday 2 p.m.	Freeport Sanatorium	Local Board of Health	Medical Officer Health
Goderich	Alexandra & Marine Hosp.	4th Wednesday	Queen Alexandra San.	Local Board of Health	Dr. W. S. Gallow, M.O.H.
Guelph	City Hall	2nd Friday 10 a.m.	Freeport Sanatorium	Local Board of Health	Dr. W. A. Proud, M.O.H.
Haileybury	St. Mary's Sanatorium	2nd Friday	St. Mary's Sanatorium	St. Mary's Sanatorium	Private Physician or through clinic
Hamilton	(a) Health Center 20 Main Street W.	Monday, Wed., Fri. 2 p.m. 1 evening a month 6 p.m.	Mountain Sanatorium	Local Board of Health	Health Centre
	(b) City Hospital	On request	Mountain Sanatorium	City Hospital	City Hospital
	(c) Mountain Sanatorium	Daily 9 a.m.	Mountain Sanatorium	Mountain Sanatorium	Mountain Sanatorium
Hespeler		On Request	Freeport Sanatorium	Local Board of Health	Miss Scott, P.H.N.
Ingersoll	Town Hall	1st Wednesday 10 a.m.	Queen Alexandra San.	Local Board of Health	Dr. H. G. Furlong, M.O.H.
Iroquois	Town Hall	3rd Tues., Mar. & Nov. 9 a.m. and 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Rutherford, P.H.N., Morrisburg
Kingston	General Hospital	Fridays 2 p.m.	Kingston Sanatorium	Local Board of Health	Dr. R. S. Peat, M.O.H. or Director of Clinic.
Kitchener	(a) City Hall	2nd & last Monday 2 p.m.	Freeport Sanatorium	Local Board of Health	Dr. J. W. Fraser, M.O.H.
	(b) Freeport Sanatorium	Wed. & Saturday 3 p.m.	Freeport Sanatorium	Waterloo Health Assoc.	Medical Supt. Freeport Sanatorium
Lancaster	Chest Clinic	2nd Fri., June & Dec. 9 a.m. & 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Petrie, P.H.N., Lancaster

London	(a) Victoria Hospital	Tuesday & Thurs. 2 p.m.	Queen Alexandra San.	Local Board of Health	Dr. C. A. Harris, M.O.H. or through the hospital
	(b) St. Joseph's Hospital	Monday 2 p.m.	Queen Alexandra San.	Local Board of Health	
	(c) Westminster Hosp.	Mon., Wed and Friday	Queen Alexandra San.	Dept. P. & N. H.	Dr. A. D. McKay, C.M.O.
Maxville	United Church Hall	1st Tues. Feb., June & Oct. 9 a.m. & 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Thompson, P.H.N., Alexandria
Morrisburg	Public Health Office	3rd Tues., Jan., May & Sept. 9 a.m. & 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Rutherford, P.H.N., Morrisburg
Niagara Falls	General Hospital	Tuesday 2 p.m.	Niagara Peninsula San.	Local Board of Health	Dr. H. Logan, M.O.H.
Oakville	Chest Clinic	3rd Monday 2 p.m. alternate months.	Mountain Sanatorium	Local Board of Health and I.O.D.E.	Dr. J. H. Stead, M.O.H.
Orillia	Soldiers' Memorial Hosp.	1st Thursday 9 a.m.	Muskoka Hospital	National San. Assoc.	Dr. W. E. Brown, M.O.H.
Ottawa	(a) Royal Ottawa San. Carling Avenue	Tues. & Thurs. 2 p.m. 1st Wednesday 7 p.m.	Royal Ottawa San.	R.O.S. & Ottawa Tb. Association	Dr. T. A. Lomer, M.O.H. or Sanatorium Staff
	(b) Maycourt Dispensary Besserer St.	Mon. & Fri. 2 p.m. 3rd Wed. 7 p.m.	Royal Ottawa San.	R.O.S. & Maycourt Cl'b	
Oshweken		3rd Wed. 10 a.m.	Mountain Sanatorium	Indian Medical Service	Dr. W. Davis, Oshweken
Port Arthur	St. Joseph's Hospital	Friday 2 p.m.	Fort William San.	Fort William San.	Family Physician or M.O.H.
Pt. Colborne	East Side School	4th Thursday 2 p.m.	Niagara Peninsula San.	Local Board of Health	Dr. E. A. McKenzie, M.O.H.
St. Catharines	(a) Niagara Peninsula San.	Daily 9 a.m.	Niagara Peninsula San.	Niagara Peninsula San.	Dr. C. G. Shaver, Med. Supt.
	(b) General Hospital	Friday 2 p.m.	Niagara Peninsula San.	Local Board of Health	Dr. D. V. Currie, M.O.H.
St. Thomas	Memorial Hospital	4th Wednesday 10 a.m.	London Sanatorium	Local Board of Health	Dr. E. V. Potts, M.O.H.
Sarnia	General Hospital	2nd Wednesday	Queen Alexandra San.	Local Board of Health	Dr. H. Carter, M.O.H.
Simcoe	Chest Clinic	2nd Mon. 9 a.m.–2 p.m.	Mountain Sanatorium	Local Board of Health	Dr. S. English, M.O.H.
Stratford	General Hospital	2nd Monday	Queen Alexandra San.	Local Board of Health	Dr. H. B. Kenner, M.O.H.
Toronto	(a) Christie St. Hospital	Daily	Dept. of P. & N. H.	Dept. P. & N. H.	Dept. of P. & N. H.
	(b) Gage Institute 223 College Street	Friday 7 p.m. Tues. & Fri. 2 p.m.	Toronto Hospital for Consump. & Gage Inst.	National San. Ass'n	Gage Institute
	(c) Hosp. for Sick Children (age limit 14 yrs.)	Mon. 2 p.m. (new cases) Wed. 2 p.m. (repeat cases)	Hosp. for Sick Children	Dept. of Public Health	Dept. of Health, City Hall or Out-Patient Dept.
	(d) St. Joseph's Hospital	Friday 9 a.m.	St. Joseph's Hospital	Dept. of Public Health	" " "
	(e) St. Michael's Hospital Victoria St. Entrance	Mon. & Thurs. 9 a.m.	St. Michael's Hospital	Dept. of Public Health	" " "
	(f) Toronto General Hosp.	Tues. & Fri. 1 p.m.	Toronto General Hosp.	Dept. of Public Health	" " "
	(g) Toronto West. Hosp.	Monday 4.45 p.m. Thursday 9 a.m.	Toronto Western Hosp.	Dept. of Public Health	" " "
	(h) Women's College Hosp.	Wednesday 9 a.m.	Women's College Hosp.	Dept. of Public Health	" " "
Welland	Welland County Hosp.	1st & 3rd Thurs. 2 p.m.	Niagara Peninsula San.	Local Board of Health	Dr. W. G. Rieve, M.O.H.
Winchester	Chest Clinic	1st Tues., March & Sept. 9 a.m. and 1.30 p.m.	St. Lawrence San.	Local Board of Health	Miss Lefler, P.H.N., Winchester
Windsor & Riverside	Capitol Theatre Building	Tuesday, Thursdays, & Saturdays 9 a.m.	Dr. C. R. Weber	Local Board of Health	Chest Clinic
Woodstock	General Hospital	1st Wednesday 1 p.m.	Queen Alexandra San.	Local Board of Health	Dr. F. S. Ruttan, M.O.H

DIVISION OF INDUSTRIAL HYGIENE

J. G. CUNNINGHAM, B.A., M.B., D.P.H., *Director*

The war has emphasized the attention which must be directed to measures for the control of general sickness, occupational diseases, and fatigue in industrial workers. Health, important for its own sake, becomes much more important as a factor in maximum sustained output as required at the present time. As far as industry is concerned, when the need has been pointed out, the initiative rests with employers of labor.

1. General Sickness:

It should be appreciated that general sickness is the main cause of lost time from work, responsible for ten times as much absence as industrial accidents. If this sickness is to be recognized early and disability prevented the physician requires to be brought to the workman in the factory for day-to-day supervision of personal health and of conditions of work—no more than is now provided for the armed forces.

An increasing number of factories provide for varying degrees of supervision not for treatment but for prevention, but this is apt to be limited to those who have large numbers employed, whereas the majority of workers are in plants employing less than two hundred. Only a few of the factories developed for war purposes have such facilities. It should be recognized that the details of personnel and equipment for this purpose require the same careful consideration as those for the engineering, administrative or other aspects of plant organization. It is quite practical to extend the same facilities to small factories and this should be carried out without delay.

A recent survey by the Department of Pensions and National Health, Ottawa, covering existing medical facilities and records of sickness in industry showed that in Ontario in plants with less than five hundred employees, twenty-one per cent. of these reporting, representing twenty-nine per cent. of the employees in the group, had a physician in some capacity. Five per cent. of these plants with thirteen per cent. of the employees had a nurse. Fifteen per cent. of these plants with twenty-seven per cent. of the employees had physical examination. The service is by no means even as complete as this suggests since most of these physicians are merely called in case of accident.

The British Factory Act re-written in 1937, anticipated to a limited degree what was required in 1940, namely, that the Minister will indicate what physicians, nurses and welfare workers the employer is required to provide in war industries; again, not for the treatment of disease but for the supervision of health and working conditions to prevent lost time and disability. This Division of the Department has access to the experience which has been gained with such measures in factories here and elsewhere and is ready to assist in their extension.

2. Occupational Diseases:

Longer working hours, new employees, new processes and pressure for maximum output increase the number of cases of occupational disease.

(1) Almost daily consultation with the Department of Labour on plans for new factories or extensions required to be submitted, have made it possible to anticipate to a considerable extent the new hazards which may arise and to make recommendations for their control.

(2) The reporting of occupational diseases to the Department is quite unsatisfactory but judging by the number which has been recorded and excluding the manufacture of munitions, there is already a marked increase, particularly in the reporting of cases of skin irritation and of lead poisoning.

(3) Markedly increased machine tool work with constant contact with lubricating oil has produced groups of cases of "boils" which are apt to spread rapidly through the shop, with discomfort, lack of rest and consequent inefficiency. Strict cleanliness and local skin protection are necessary for control.

(4) In aircraft factories where sandblasting and the use of "dopes" present hazards, in foundry extensions, rail car wheel manufacture, industrial x-ray installations and more directly touching the war, in the manufacture of munitions and explosives, detailed recommendations have been made.

(5) The assaying of metals has been an important source of lead poisoning, but since the distribution of cases has broadened, the extent of the disability associated with this condition may be stressed by reference to two cases at first presenting the ordinary manifestations of this condition. One of them has for six years presented marked weakness of certain muscle groups, considerable cardio-vascular change and has been able to do very light work; the other after five years is still totally disabled with wasting of muscles, numbness, excessive sweating and marked and progressive nervous instability.

(6) The importance of persistent maintenance of dust control equipment is illustrated by tests for load in the air in storage battery manufacture all in excess of the allowable limit, in a factory known to be interested in the health of its employees.

(7) Nitrous fume exposures are dangerous in low concentrations and require special mention because of the few hours delay between the exposure and onset of symptoms which make it difficult to relate cause and effect. There have been a few cases with no known deaths this year but nitration processes are becoming extensive.

(8) Trinitrotoluene (T.N.T.)manufacture and use presents a hazard, which as with nitrous fumes, was the frequent cause of serious disability in the last war. T.N.T. attacks the liver and the blood and may enter the body by the inhalation of dust or fumes, or by absorption through the skin. Disability can largely be avoided with adequate ventilation and frequent periodic physical examination now in effect. There have been two mild cases.

(9) Three cases of gassing with chlorine in an industrial laboratory emphasize the need for all precautions by chemists and technicians, who are apt to discount the hazard even when familiar with it.

(10) Difficulties in replacing staff have reduced the detailed structural recommendations for dust control in foundries and particularly the tests of the adequacy of recent installations. Progress has been made in the control of dust at shake-out operations and general housekeeping is widely improved. Wheel foundries present special problems which have been investigated in some detail.

Gross dust exposure where little or no silica was involved as with talc, gypsum, cement, iron ore sinter, grain, nepheline syenite, abrasive grinding, should not be ignored. Enquiry is made as the opportunity offers, including dust counts and x-ray examinations. Occasional cases with x-ray changes have arisen, e.g., in gypsum with a small amount of silica dust added, and in artificial abrasive grinding and polishing, the dust containing 4.8% silica (total), where they might not be expected, but, apart from this, the bronchial irritation from non-siliceous dusts probably influences the incidence of non-tuberculous respiratory disease.

(11) Twenty-one companies have reported regularly on periodic physical examinations conducted among workers exposed to lead, benzol and radium in accordance with the regulations under The Factory, Shop and Office Building Act. There has been no case of poisoning in this group although a few transfers have been made to avoid the possibility of poisoning.

(12) The industrial clinic has conducted physical examinations either on survey to determine the presence of a hazard, or to assist in diagnosis as follows:

Silicosis Referee Board Examinations	434
Factory Examinations	178
Examinations for Mining Certificates	19
Miscellaneous Examinations	30
Industrial X-ray film interpretations for physicians in Ontario	635
Industrial X-ray film interpretations for physicians in other Provinces	145
Normal School Students	269
Selected cases for investigation on aluminum dust (thirty of these were chosen for observation by Dr. D. W. Crombie and Dr. J. L. Blaisdell)	100
NON-INDUSTRIAL BOARDS:	
Superannuation Board	14
Civil Service Corps	565
Employment Board	266
Police and Guards Board	195

(13) Laboratory determinations include examinations of one thousand blood smears for assistance in diagnosis. The distribution of samples for chemical analysis is as follows:—

SUMMARY OF LABORATORY WORK

Number of Samples	Nature of Samples	Hazard
94	Urines	Lead
10	Paints and lacquers	
37	Air samples and dusts	
5	Miscellaneous	
32	Urine, hair and finger nails	Arsenic
206	Press cakes and refining solutions	
3	Drinking waters	
8	Rocks, air samples, etc	
3	Paints and dust	Antimony
3	Textiles (sized)	Chromium
27	Furs	Mercury
19	Air samples	
13	Lungs	Silica
10	Rocks and minerals	
11	Partines	
4	Abrasives	
26	Air samples and dusts	
7	Blood and air samples	Carbon Monoxide
4	Miscellaneous	Cyanides
11	Paints and lacquers	Benzene
26	Solvents and diluents	
1	Urine	
28	Urines	Trinitrotoluene
4	Solvents	Chlorinated Hydrocarbons
2	Solvents	Methyl Alcohol
17	Oils and fats	Skin Irritation
20	Textiles (sized)	
8	Miscellaneous	
6	Solvents, etc	Fire
645	Total Samples	

There has been a fifty per cent. increase in the number of requests for investigations, some small and others of considerable scope. These cover the usual wide variety of subjects affecting the health of wage-earners, such as welding, radium dial painting, nitrous fumes, nickel formate, pitch dermatitis, lead poisoning from ship breaking, lead azide, control of tuberculosis, canisters for carbon dioxide, silicosis in coal miners, diphenyl and diphenyloxide, chlorosulphonic acid, etc.

The Division has rendered technical assistance to the Factory Inspection Branch of the Department of Labour, the Workmen's Compensation Board, the Industrial Accident Prevention Associations, industries and physicians.

Some Subjects of Special Investigation:

(1) In co-operation with the Department of Mines a survey was made in gold refining mills to determine the arsenic content of cyanide solutions on account of the development of certain cases of arsine poisoning. These were of a chronic type not usually encountered, associated with exposure to exceedingly small amounts over a period of time. From previous experience it was possible to make correction without temporarily closing the mill. To avoid other cases of the type, there was developed a ready field means for the determination of arsine in air to be conducted by mill superintendents. Frequent periodic physical examination was initiated. No further cases have developed.

(2) Carotting of furs is not carried out in the Province but with storage, mercury vapor is emitted which contaminates the air in storage rooms and at nearby operations. Analyses of the air in these locations showed

amounts in excess of the allowable limit at nearby operations in one of three plants, so that the arrangements for storage were changed to avoid this. Examination of workmen exposed presented no gross evidence of mercurial poisoning.

(3) Some cases of skin irritation and gastro-intestinal disturbance were encountered among farmers, associated with the use of a product containing ethyl mercury phosphate. No serious cases of mercury poisoning have arisen here but as this product is used as a disinfectant for seed grain, it is important that the precautions indicated on the label of the container be observed in its use.

(4) In rayon manufacture the concentrations of carbon bisulphide in the churn-room and of hydrogen sulphide in the spinning-room were determined and arrangements made whereby the company would carry out its own analyses. In the churn-room in spite of good general ventilation and local ventilation on the churns which operates when being emptied, some tests reached fifty parts per million. There has been no evidence of poisoning, but rotation of workmen is in effect.

(5) Artificial resins made outside the country and used for sizing cloth have been responsible for outbreaks of skin irritation in those working with them and in those using the material in apparel. Tests made to determine the offending agent have resulted in its removal. To an increasing extent this type of test is being carried out by those marketing new products, to reduce to a minimum the likelihood of occupational disease.

(6) Five workmen with many years' exposure to low concentrations of sodium silicate dust presented no abnormality on x-ray examination.

(7) Tests of lead in air at the operation of hardening files showed concentrations in excess of the accepted limit. The dipping pots covered with charcoal and with adequate temperature control apparently discharged sufficient oxide of lead to constitute a hazard.

Development or Revision of Equipment for Special Purposes:

(1) Development of equipment for a routine collection and quantitative analysis of arsine in air for the mining industry.

(2) A portable carbon monoxide detector.

(3) An auxiliary fitting for the Midget Impinger for use by one person.

Physiological Hygiene:

Under the arrangement for industrial hygiene at the School of Hygiene, University of Toronto, inquiry has been made into the toxicity of benzol of petroleum origin marketed under a trade name. Experiments indicate that benzol from this source produces effects in animals comparable to those of benzol of coal tar origin.

Experiments with the Fujiwara test suggest that it may be useful for the determination of the excretion products of T.N.T. in urine. The test is being applied to workers so exposed.

Chemical enquiry and animal experiments with suspected carcinogenic material are in progress.

Fatigue:

The importance of this state is apt to be discounted, but its possible effect on output under war conditions can hardly be over-emphasized. The recorded increase in sickness absence under conditions of stress is very largely attributable to it, brought about by unfavourable conditions of work and of living incidental to rapid expansion in industry. Many men are working sixty and some seventy hours a week. There is an optimum figure for this which is not always easy to determine and varies with the kind of work, but it is important to remember that the response to excessive hours of work is immediate in reduced output, while recovery when the condition is corrected is a matter of months. There enters also night work and conditions of ventilation, lighting, speed of operation, which, if unfavourable, contribute to reduced output through ill-health. The requests to the Department of Labour for permits for overtime and night work for women sometimes suggest total lack of appreciation of these facts. It is wise to recall that the death rate from tuberculosis in women fifteen to twenty-four in the last war increased by fifty per cent. while no increase was recorded in those over forty-five years of age not employed or in those in non-industrial areas. In these respects it is essential that existing information be applied in the interest of sustained output.

The following articles have been prepared and delivered or published during the year:

"Industrial Medical Service in Peace and War," by Dr. F. M. R. Bulmer, published in The Canadian Public Health Journal, March, 1940.

"Chronic Arsine Poisoning Among Workers Employed in the Cyanide Extraction of Gold: A Report of Fourteen Cases," by F. M. R. Bulmer, H. E. Rothwell, S. S. Polack and D. W. Stewart, published in the Journal of Industrial Hygiene and Toxicology, April, 1940.

"Problems Which Arise in the Handling of Illness among Wage-Earners," by Dr. A. R. Riddell, presented at a meeting of the Academy of Medicine, April, 1940, and published in the Canadian Public Health Journal, May, 1940.

"Maintenance of Health Among Insustrial Workers," by Dr. J. G. Cunningham, presented at the meeting of the Industrial Relations Section, Queen's University, Kingston, June, 1940.

"Silicosis in the Ceramic Industry," presented by Dr. J. G. Cunningham, at the meeting of the Canadian Ceramic Society, Ottawa, October, 1940, and published in the Canadian Ceramic Journal, December, 1940.

"Industrial Health and National Defence," presented by Dr. J. G. Cunningham, at the joint session of the Canadian Public Health Association, Winnipeg, September, 1940, and published in the Canadian Public Health Association Journal, November, 1940.

"Bedding Regulations of the Province of Ontario," presented by Dr. C. M. Jephcott at the meeting of the Montreal Section of the Society of Chemical Industry, December, 1940.

The Committee on Eye Screens for Welders with Dr. L. B. Leppard as Chairman, drew up a report containing specifications for use of equipment designed for protection of welders against injurious radiation.

Since the beginning of the year Dr. L. B. Leppard has enlisted in the Navy and is now overseas. Dr. E. O. Braaten has severed his connection with

the Department for work in war industry. These members of the staff are difficult to replace. They are well-trained physicists and their work has been of a high order.

Enforcement of the Bedding Regulations:

In September of this year an amendment was made to the Bedding Regulations providing for a new green label designated "renovated" to be used by those reupholstering or renovating mattresses, pillows, etc. This label avoids the necessity of returning to the customer with a second-hand label, an article which has been sent for repair.

Over one thousand inspection visits were made covering manufacturers, suppliers, retailers and renovators in the enforcement of the regulations. Five hundred and twenty-six articles were placed "off sale", seventy per cent. of them being improperly labelled and the remainder carrying no label. In the course of this work twenty-three hundred chemical determinations were made, on four hundred and fifty samples of material from ninety-six companies, representative of mattress manufacturers, upholsterers, supply houses and renovators, large and small.

In the main, those subject to these regulations have co-operated with the Department in the effort to meet the conditions required, but all five manufacturers prosecuted were convicted and fined as a result of incorrect labelling of product.

Cyanide Fumigation:

It is gratifying to record that there have been no deaths associated with the use of cyanide compounds for fumigation in the Province this year. Three new household licenses and six new commercial licenses have been issued by the Department for this work. Nineteen license renewals each for household fumigation and for commercial fumigation were issued. The number of inquiries as to suitable means for the elimination of vermin is considerable. While the use of hydrocyanic acid gas for this purpose is the most effective means, the dangers associated with it require careful consideration especially when other less dangerous even if less satisfactory materials, are available.

Enforcement of the Regulations for Medical Care of Workmen and Sanitation of Camps in Northern Ontario:

There has been considerable discussion with employers, employees and physicians on the medical aspect of these regulations, directed particularly to possible arrangements for establishing industrial medical services and for correction of some of the difficulties inherent in contract practice. Questions, such as the increased cost of medical care, hospitalization, convalescence outside hospital, consultant services, treatment by physicians other than the contract physician, particularly at a distance, are some of those involved.

The employment of physically handicapped workers *for this type of work* due to the war is likely to be associated with an increased liability to the employer and contract physician for medical care. On this account, consideration has been given to a reduction in the period of liability of the employer for the illness of those leaving work for treatment, from three months to one month.

The scarcity of young assistant physicians for this work in unorganized territory is apparent.

Report of the Chief Sanitary Inspector, Mr. D. S. McKee:

During the year industrial operators in the territorial districts have shown keen interest in the regulations and have closely co-operated with the district inspectors and the Department in the construction of camps and in the improvement of living and working conditions for the employees; also in providing more accessible medical service for the workmen in the camps.

Industrial Camps:

The following summary indicates the extent of industrial operations located in the territorial districts coming under the regulations.

Industry	No. Operations	No. Camps	No. Men Employed	Average Duration
Lumber and pulpwood	149	431	28,857	6 mos.
Sawmills	27	31	2,586	5 mos.
Mining	60	54	12,995	12 mos.
Construction	23	53	3,681	6 mos.
	259	569	48,119	

In 1940, 7,144 more workmen were employed than in the previous year.

Sanitary Supervision and Medical Service:

A total of 669 investigations and inspections were made by the district sanitary inspectors. This together with 2,208 visits of inspection made by the contract physicians show a grand total of 2,877 camp inspections made during the year.

The economic importance of sanitary supervision of industrial camps and medical care of workmen has been brought to the attention of the operators at every opportunity. Such questions as a safe drinking water supply, sterilization of culinary utensils, adequate accommodation in sleeping quarters to prevent overcrowding and direct contact of occupants, ventilation and the sanitary disposal of human wastes, are all subjects now recognized by the employer as contributing factors to illness, labour turnover, frequency of accidents and lost time which are all directly or indirectly associated with the ultimate cost of production. With these points in view the employers have co-operated with the district inspectors in an effort to improve housing and living conditions in the camps. During the past year an earnest effort has been made by the employers to bring medical service to the camps and workmen rather than sending workmen a long distance for minor treatments, entailing transportation costs and lost time. In such circumstances, the employee too often does not return to the camp, making replacements necessary.

Under the present regulations the employer with 500 or more workmen and with camps located in the same vicinity has the choice of three types of medical service:

(1) He may apply to the Department for authority to establish a full time medical service under Section 21, subsection (6). The service might include the employment of industrial nurses and the establishment of local infirmaries at the operations with an arrangement for all major cases to be treated in a general hospital centre;

(2) Employers may contract with a physician in a hospital centre, who would engage a full-time assistant physician as resident in the camps;

(3) As an established policy the employer is required to enter into medical and sanitation contracts with the nearest or most accessible physician to the camps and workmen employed.

At a meeting in Port Arthur of the lumber and pulpwood operators in September the employers of the districts of Thunder Bay, Kenora and Rainy River had the opportunity of discussing their problems under the regulations with Dr. J. G. Cunningham, Director of the Division of Industrial Hygiene. Such meetings stimulate keen interest and afford an opportunity of giving consideration to any suggested changes in the regulations which might be to the interest of the workmen and the industry in general.

Mining Camps.

The mining industry in the unorganized territorial districts coming under the regulations consisted of 60 operations, 54 camps, employing 12,995 workmen as compared in 1939 with 72 operations, 75 camps and 9,813 workmen. During 1940, 3,182 more workmen were employed and the decrease in the total number of operations and camps may be accounted for by the number of small prospective mining camp operations having closed owing to present war conditions. The producing mines, however, have increased the number of workmen during the year considerably.

The mining industry with camps usually of a permanent nature and established for a long duration, does not present the same problems as other industrial operations. Lumber and construction or other industrial camps whose sites are more or less of a temporary nature, stay from two to three years, and often left entirely in the control of contractors, sub-contractors or jobbers, make necessary more frequent investigations and return inspections by the district sanitary inspectors.

For years the problem of new townsites developing adjacent to or near the mines has presented sanitary problems. However, the present arrangement whereby the Surveyor-General's Department will not issue final approval for the promotion of new townsites before a sanitary survey is made by one of our inspectors is more satisfactory and should eliminate considerable difficulty regarding water supplies, drainage and sewage disposal as the townsites develop.

Construction Camps:

In the construction operations of various types throughout the year as reported, we have had 23 operations, 53 camps, 3,681 workmen employed against only 580 workmen employed in 1939. Evidently with the uncertainties of war during 1939, road and other construction work was curtailed to the minimum whereas during 1940, power line and other industrial camp construction work was stimulated to some extent.

Industrial Physicians:

During the year the industrial physician has shown sympathy in our problems under the regulations and has assisted very materially by close co-operation with the district inspectors and with the central office. It is evident by the increased number of physician's first and subsequent reports received monthly that more frequent visits of inspection by the doctors are now made and more time spent in the camps, which is desirable for the workmen. The following is a brief summary of medical services rendered by the contract physicians as compiled from the monthly reports submitted to the district inspector and to the central office during the year:

Camp Inspection Reports Received	No. of Men Treated	Physical Examinations	Communicable Diseases	Immunizations
2,208	28,760	14,303	1,871	7,276

In comparing the number of industrial physicians' monthly reports recieved with other years it should be borne in mind that there has been a gradual increase in the number of reports and the type of information submitted though there is still room for improvement in regular monthly inspections and reports on many of the more isolated camps.

Communicable Diseases:

The following list of communicable diseases is compiled from the contract physicians' monthly reports:

Influenza	1213	Scarlet Fever	12
Diarrhoea	315	Typhoid Fever	10
Scabies	82	Tuberculosis	5
Conjunctivitis	51	Mumps	5
Pneumonia	48	Chickenpox	3
Gonorrhoea	44	Syphilis	3
Dysentery	33	Erysipelas	1
Impetigo	28	Encephalitis	1
Measles	17		

It will be noted that ten cases of typhoid fever developed. These were more or less of a sporadic nature: 4 cases at the mines in the Geraldton area; 1 case in a lumber camp in Timmins area; 1 case in a construction camp, Matheson; 2 cases reported from the lumber camps, Heron Bay; and 2 cases in lumber camps, North Bay area. Influenza was epidemic in some camps during the late Fall. Diarrhoea and dysentery were prevalent in many camps, but at no time epidemic, and as reported would show a considerable reduction over other years.

One of the most important potential causes of infection in industrial camps is the open top drinking-water container and common drinking cup or dipper. Provision has been made in the regulations requiring standard drinking water containers with lid and tap. During the past year the inspectors were instructed to give more attention to this question. From reports received from the inspectors apparently they have met with very satisfactory results and co-operation from the operators.

It might be borne in mind that many of these industrial camps are located miles from the nearest railway centre or highway. Two operations were recently established, one at Berens River, 198 miles north of Kenora, and another at Sachigo River, 300 miles north of Kenora. Reports are received regularly each month on both these camps from the contract physicians.

Combined with communicable disease in industry the inspectors have been called upon to investigate 575 cases of communicable disease in the unorganized settlements to enforce the regulations. When necessary the assistance of the nearest and most accessible resident physician is engaged for diagnosis or other advice by the inspectors.

Again this year your inspectors have taken over new fields of work under The Public Health Act and Regulations, such as the sanitary supervision of blueberry pickers' camps, investigations on home conditions of convalescent tuberculosis patients; and the registration of known chronic and convalescent typhoid carriers in the inspectors' districts.

Typhoid Carriers:

During the year a measure of supervision and recording of known typhoid and paratyphoid carriers resident in unorganized territory has been put into effect. These records will be of interest and possibly some assistance to the inspector relative to new developments of the disease which might be traced to such carriers. In all we have to date a record of 12 known chronic carriers and 5 convalescent carriers residing in the unorganized districts under supervision.

Blueberry Picking Camps:

Following the policy of the Department adopted in 1939 in regard to the prevalence of typhoid among the blueberry pickers in the Matheson area, Mr. N. Laxton was again appointed from July to September 15th. The area covered by Mr. Laxton in the sanitary supervision of the camps included six townships, 137 established camps housing 327 adults and 133 children, as well as the blueberry pickers who moved into the area and established camps. Hundreds of other pickers go out to the same townships by auto and in trucks in the early morning, returning at night, making sanitary supervision very difficult. However, it is gratifying to note that not one case of typhoid or other communicable illness developed among this group in the past two years.

During the spring and summer months the district sanitary inspectors have carried out sanitary surveys and investigations of complaints in the various unorganized towns and villages, covering at the same time inspections of tourist camps, summer fresh air camps and motor camps, etc.

In regard to the sanitary supervision of the unorganized settlements with a population of from 500 to 2,000, it has again been drawn to our attention that further consideration might be given to some form of legislation to make provision in The Public Health Act for the establishment of local sanitary area boards, giving them authority to deal with purely local conditions and follow-up work after our inspectors have spent considerable time in the area on sanitary surveys. During the year the district sanitary inspectors report having made 1,070 investigations in these unorganized communities, many of which are follow-up inspection work, which might be dealt with by a local sanitary area board, if such were in existence.

CANCER CONTROL ANNUAL REPORT, 1940.

The statistical summary of new cancer cases treated in the cancer clinics of Ontario follows this report. (See page 164).

The report of the Department of Health to the British Empire Cancer Campaign contained a statement by Dr. G. E. Richards, Director, Ontario Institute of Radiotherapy, Toronto General Hospital, of five years' experience with the radium bomb provided by the Government. The conclusions cited were as follows:

> "Teleradium therapy has proved itself to be an extremely valuable method of administering radium to tumours of relatively small size which are situated in accessible locations. These include lesions occurring in the nose and throat, lips and oral cavity, pharynx and larynx, certain primary breast tumours, occasional cases of skin cancer, and the male genital organs.
>
> "Owing to the relatively small size of the beam of radiation it is unsuitable for use in very large or bulky tumours of those deeply situated in the body.

"When administered by the fractional-dose method it presents no greater difficulty and carries no greater risks than High Voltage X-ray therapy in general and the safety precautions both for patient and personnel are similar."

The meeting of the cancer clinic directors projected for June, 1940, was held for the discussion of technical problems. The arrangement was very satisfactory and culminated with a joint meeting with the Cancer Committee of the Ontario Medical Association for discussion of the definition of stages of the disease looking toward more uniform records. It is desirable that these meetings be held twice a year as far as present conditions permit.

The increase in the number of new cases of cancer coming to the clinics for treatment is gratifying but in too many instances the stage at which they arrive still leaves much to be desired. The question of transportation of indigent, and especially near-indigent, patients is an important one. The extent to which various schemes in effect in the Province for medical care provide for the treatment of cancer varies considerably, but at least such schemes are likely to assist in bringing cases of cancer under treatment at an earlier stage.

A total of 6,686 millicuries of radon were supplied from the emanation plant in radon seeds, mainly to the clinics.

The X-ray equipment of the cancer clinics was calibrated each six months, including measurement of output, quality of radiation and percentage depth-dose. At the same time the radium supplied by the Government to the clinics was checked.

Lost radium was recovered with the aid of the Geiger Counter on three occasions. One ten-milligram needle was found in a hospital laundry, one six-milligram needle was found in the incinerator and one ten-milligram needle and two five-milligram needles were found at several feet depth in a dump. A fourth needle of ten-milligrams was destroyed by fire. In only one of these instances was Government radium involved.

Several pieces of equipment were either built or modified in connection with this work:—

(1) A portable Geiger Counter, housed in a single unit weighing about twenty pounds to take the place of our former instrument comprising three units and weighing over eighty pounds. The advantages are obvious.

(2) Equipment (temporary) was set up for the purpose of electrolysing mercury solutions.

(3) A series of fittings and auxillary equipment was developed to aid in the measurement of X-ray quality, depth-doses, etc.

THE FIFTH ANNUAL STATISTICAL REPORT ON CANCER

CALENDAR YEAR 1940

This report presents certain information on cancer mortality which is now available for the year 1939, and describes the work performed by the seven Cancer Centres in Ontario during the year 1940.

CANCER MORTALITY

The volume of deaths attributed to cancer in Ontario annually since 1920 is shown in Table A. It is necessary to emphasize that the figures shown in this table refer to deaths *attributed* to cancer and that all such statistics dealing with causes of death over a considerable period of time must be viewed with caution because of possible changes in methods of death certification. Keeping this in mind, it nevertheless appears that the gross number of deaths in this province attributed to cancer has nearly doubled during the last twenty years. The proportion of all deaths attributed to this cause has risen from 6 to 12 per cent. since 1920. The crude death rate for cancer, which showed a steady and continuous increase from 95.1 per 100,000 population in 1925 to 120.4 per 100,000 population in 1936, has remained at about that level for the past four years.

TABLE A

RECORDED CANCER MORTALITY

ONTARIO, 1920-1939

Year	Total Deaths All Causes	Cancer Deaths	Per Cent. of Total Deaths	Crude Death Rate*
1920	40,440	2,464	6.1	85.2
1921	34,551	2,585	7.5	88.1
1922	34,034	2,609	7.7	87.5
1923	35,636	2,724	7.6	89.9
1924	33,078	2,946	8.9	96.2
1925	33,960	2,951	8.7	95.1
1926	35,909	3,116	8.7	99.0
1927	34,775	3,117	9.1	99.7
1928	37,128	3,441	9.3	106.8
1929	38,123	3,402	8.9	104.0
1930	37,313	3,635	9.7	109.7
1931	35,705	3,726	10.4	108.6
1932	36,436	3,825	10.5	110.1
1933	35,301	4,044	11.5	114.7
1934	35,105	4,034	11.5	113.2
1935	36,317	4,214	11.6	117.1
1936	37,571	4,441	11.3	120.4
1937	38,475	4,527	11.8	122.0
1938	36,890	4,472	12.1	119.9
1939	37,530	4,567	12.2	121.7

*Rate per 100,000 population (estimated).

Site of Disease.—A study of the recorded cancer deaths by site and sex for the five-year period 1935-1939 provides some indication of organ incidence among men and women. The distribution of cases is shown in Table B. of the

22,241 deaths attributed to cancer during this five year period nearly one-third (31.2%) were classifiable as cancer of the digestive tract (other than stomach and duodenum.) This is the most frequent site for both men and women. Among men the next most frequent site is the stomach and duodenum which is reported in more than one-quarter (25.1%) of male cancer deaths. Among women the next most frequent sites are the genital organs and breast with approximately one-fifth of female cancer deaths classified under each.

TABLE B

CANCER DEATHS BY SEX AND SITE

ONTARIO, 1935-1939

Site	Males		Females		Both Sexes	
	Deaths	Per Cent. of Total	Deaths	Per Cent. of Total	Deaths	Per Cent. of Total
Stomach and Duodenum	2,627	25.1	1,603	13.6	4,230	19.0
Other Digestive Tract	3,337	32.0	3,610	30.6	6,947	31.2
Genital Organs	1,289	12.4	2,417	20.5	3,706	16.7
Breast	27	0.3	2,414	20.4	2,441	11.0
Buccal Cavity	630	6.0	145	1.2	775	3.5
Urinary Organs	726	7.0	380	3.2	1,106	5.0
Respiratory Organs	650	6.2	279	2.4	929	4.2
Skin	272	2.6	180	1.5	452	2.0
Other or Unspecified Sites	871	8.4	784	6.6	1,655	7.4
All Sites	10,429	100.0	11,812	100.0	22,241	100.0

Three-quarters of all cancer deaths recorded during this five year period were classified under one or other of the first four sites listed in Table B.

Age.—The relative importance of cancer as a cause of death in the various age groups is indicated in Table C. During 1939, 12.2 per cent. of all deaths in the province were attributed to cancer. This disease holds second place as a cause of death at ages over 50 and under 70. At these ages it is exceeded in frequency as a cause of death only by diseases of the heart. At ages 20-49 and at ages above 70 cancer ranks as the third most frequent cause of death. While the death rate for cancer increases rapidly at ages over 50 it should be noted that nearly 14 per cent. of the cancer deaths in 1939 occurred at ages under 50.

TABLE C

CANCER AS A CAUSE OF DEATH BY AGE

ONTARIO, 1939

Age Group	Cancer Deaths	Per Cent. of All Deaths	Rank as a Cause of Death	Specific* Death Rate	Per Cent. of Cancer Deaths
0–19	38	0.8	.....	3	0.8
20–49	595	11.7	Third	37	13.0
50–59	893	20.2	Second	260	19.6
60–69	1,211	17.6	Second	533	26.5
70 and Over	1,827	11.1	Third	1,182	40.0
All Ages	4,567	12.2†	Second	121.7	100.0

*Per 100,000 population. †Total deaths in 1939 were 37,530.

Special concern is naturally directed toward those cases in which a death is attributed to cancer of an accessible site at ages under 70 years. Table D provides some information in respect to these cases. Of the 1,230 cancer deaths which occurred among males under 70 years of age, only 81 or 6.6 per cent. were classifiable under the accessible sites listed. In striking contrast to this is the fact that of the 1,507 cancer deaths occurring among females under seventy years of age 668 or 44.3 per cent. were so classified. Nearly one-quarter of the cancer deaths among females under seventy years of age were breast cases.

TABLE D

"ACCESSIBLE" CANCER MORTALITY AT AGES UNDER 70

ONTARIO, 1939

Site	Males		Females	
	Deaths	Per Cent.	Deaths	Per Cent.
Oral Cavity	54	4.3	13	0.9
Breast	6	0.5	373	24.7
Uterus	0	.....	271	18.0
Skin	21	1.7	11	0.7
Total	81	6.6	668	44.3
Other Sites	1,149	93.5	839	55.7
All Sites	1,230	100.0	1,507	100.0

ONTARIO CANCER CENTRES—CALENDAR YEAR 1940

At the beginning of each calendar year the Provincial Department of Health receives from each of the seven Cancer Centres, the statistical record cards for all new patients admitted to these clinics during the previous year. The Division of Medical Statistics tabulates the information shown on these cards and prepares a statistical report dealing with the age, sex, site of disease, place of residence, etc., of all new patients seen by the clinics. This procedure makes available uniform statistical information in respect to a large proportion of the new cancer patients under treatment in this province. Each Cancer Centre is supplied by the Division with an individual report concerning its own patients and these individual reports when combined provide the data for the present report.

Table 1 shows the volume of new cases seen and treated by each clinic during the calendar year 1940. A total of 4,238 new patients were *treated* in these centres during the year. One-half of these were cancer cases, the other half being classified as cases with non-malignant tumours and non-neoplastic diseases.

TABLE 1

NEW CASES ADMITTED — BY CENTRE

CALENDAR YEAR 1940

Centre	New Cancer Cases						Non-Cancer Cases†	Total New Patients Treated
	On Record			Treated*				
	Private	Public	Total	Private	Public	Total		
Hamilton	250	77	327	245	77	322	394	716
Kingston	127	49	176	120	42	162	379	541
London	98	73	171	93	55	148	169	317
Ottawa (C)	185	87	272	169	68	237	205	442
Ottawa (G)	57	56	113	44	42	86	93	179
Toronto	483	536	1,019	474	499	973	670	1,643
Windsor	169	51	220	157	44	201	199	400
Total	1,369	929	2,298	1,302	827	2,129	2,109	4,238

*Treated by any method or combination. Includes cases treated by surgery alone, but excludes palliative surgery.

†Non-malignant tumours and non-neoplastic diseases.

A total of 2,298 new cases of cancer were *seen* during the year. All but 169 of these cases received some form of treatment in the clinics. Thus in 1940, 2,129 new cancer patients received treatment, as compared with the total of 2,267 cases treated during the previous year.

It will be observed that the number of private cases exceeds that of public cases at every centre, except Toronto. Sixty-one per cent. of all new cancer cases treated were private cases.

Table 2 shows the number of new cancer cases seen during the year by site of disease for each of the Cancer Centres. A comparison of these figures with comparable figures for the previous year shows slight increases for cases classified under breast, air passages and rectum. There was a decrease in the number of cases classified under oral cavity from 366 in 1939 to 331 in 1940.

TABLE 2

NEW CANCER CASES ADMITTED—BY SITE OF DISEASE

CALENDAR YEAR—1940

Centre	Breast		Uterus		Oral Cavity		Air Passages		Rectum		Other Sites		Total	
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Private	Public
Hamilton	72	20	30	14	18	8	3	0	8	1	119	34	250	77
Kingston	28	8	7	12	15	6	2	2	3	2	72	19	127	49
London	19	8	18	8	15	7	1	3	3	3	42	44	98	73
Ottawa (C)	41	11	12	16	29	10	6	4	3	10	94	36	185	87
Ottawa (G)	8	10	6	12	5	11	0	1	3	1	35	21	57	56
Toronto	91	96	32	94	94	96	9	22	4	14	253	214	483	536
Windsor	31	8	24	5	12	5	6	2	6	2	90	29	169	51
Total	290	161	129	161	188	143	27	34	30	33	705	397	1,369	929
Total by Site	451		290		331		61		63		1,102		2,298	
Per Cent	19.6		12.6		14.4		2.7		2.7		48.0		100.0	

A comparison of the volume of new cancer cases treated by radiotherapy (alone or in combination with other methods) in each centre during the four year period 1937-1940 inclusive, is shown in Table 3. The total number of new cancer patients so treated in 1940 was 2,079. This represents a decrease from the previous year.

TABLE 3

NEW CANCER CASES TREATED BY RADIOTHERAPY*

1937-1940

Centre	Private				Public				Total			
	1937	1938	1939	1940	1937	1938	1939	1940	1937	1938	1939	1940
Hamilton	189	233	265	244	77	69	108	77	266	302	373	321
Kingston	153	135	129	117	45	48	55	42	198	183	184	159
London	72	80	75	92	55	64	64	51	127	144	139	143
Ottawa (C)	148	159	172	165	85	81	85	62	233	240	257	227
Ottawa (G)	30	44	41	32	34	40	55	38	64	84	96	70
Toronto	505	498	501	474	470	477	509	487	975	975	1,010	961
Windsor	108	99	133	155	28	31	33	43	136	130	166	198
Total	1,205	1,248	1,316	1,279	794	810	909	800	1,999	2,058	2,225	2,079

*Alone or in combination with surgery or other methods. Cases treated by surgery alone and cases not treated are excluded.

A summary of the new cases treated during the year by site of disease is provided in Table 4. This table also shows the number of cases recorded as alive on December 31, 1940. There is little change in the distribution of cases according to site as compared with the previous year. Again slightly over 70 per cent. of the new cases treated were classifiable under "accessible" sites (breast, uterus, oral cavity and skin) which are particularly amenable to radiotherapeutic treatment.

TABLE 4

TOTAL NEW CASES TREATED DURING 1940 — BY SITE

Site of Cancer	Private		Public		Total		Grand Total	
	Alive†	Dead	Alive†	Dead	Alive†	Dead	Number	Per Cent.
Breast	261	17	132	20	393	37	430	20.2
Cervix Uteri	80	12	116	15	196	27	223	10.5
Body of Uterus	30	4	15	5	45	9	54	2.5
Lip	113	2	67	6	180	8	188	8.8
Tongue	18	5	17	2	35	7	42	2.0
Other Oral‡	36	8	31	12	67	20	87	4.1
Air Sinuses	3	3	11	2	14	5	19	0.9
Larynx	9	0	8	1	17	1	18	0.8
Other Air Passages	10	2	5	5	15	7	22	1.0
Rectum and Anus	22	4	19	3	41	7	48	2.3
Skin	376	5	109	3	485	8	493	23.2
Vagina	1	0	5	2	6	2	8	0.4
Ovary	23	5	15	2	38	7	45	2.1
Bone	17	4	4	1	21	5	26	1.2
Other Dig. Tract	16	11	5	14	21	25	46	2.2
Other Sites*	162	43	139	36	301	79	380	17.8
Total	1,177	125	698	129	1,875	254	2,129	100.0

†As at December 31, 1940 (reported). ‡Including tonsil.

*Comprising leukaemia, Hodgkin's disease, etc.

Table 5 shows the distribution of new treated cases by site, centre and status. As compared with comparable figures for the previous year there has been some increase in the number of cases classified as breast, cervix uteri and tongue, whereas, a slight decrease is shown in the number of cases classified under corpus uteri, lip and other oral sites. Of the total number of new cases treated, breast cases constituted 20.2 per cent., uterus cases 13.0 per cent., buccal cavity 14.9 per cent. and skin cases 23.2 per cent. Taken together these include 71.3 per cent. of all new treated cases.

TABLE 5

NEW CANCER CASES TREATED‡ BY SITE, CENTRE AND STATUS

CALENDAR YEAR—1940

Site of Cancer	Hamilton		Kingston		London		Ottawa (C)		Ottawa (G)		Toronto		Windsor		All Centres		
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Total
Breast	72	20	26	7	19	5	35	11	8	9	89	92	29	8	278	152	430
Cervix Uteri	17	11	4	9	15	7	11	10	4	12	26	80	15	2	92	131	223
Corpus Uteri	13	3	3	1	2	1	1	3	2	0	4	9	9	3	34	20	54
Lip	9	3	9	3	10	3	20	6	2	6	56	51	9	1	115	73	188
Tongue	3	2	1	0	0	1	3	0	1	1	14	14	1	1	23	19	42
Other Oral*	6	3	3	2	4	3	4	4	2	3	23	25	2	3	44	43	87
Air Passages†	3	0	2	1	1	3	6	4	0	1	9	21	6	2	27	32	59
Rectum	8	1	3	2	2	2	3	3	1	0	3	12	6	2	26	22	48
Skin	61	11	55	12	19	14	56	9	12	5	147	49	31	12	381	112	493
Ovary	5	1	2	1	0	1	3	4	2	0	13	10	3	0	28	17	45
Other Sites	48	22	12	4	21	15	27	14	10	5	90	136	46	10	254	206	460
Total	245	77	120	42	93	55	169	68	44	42	474	499	157	44	1,302	827	2,129
Clinic Totals	322		162		148		237		86		973		201		2,129		.....

‡By radium, X-ray or surgery, or any combination of these three.

†Includes air sinuses, larynx, pharynx and nasal fossae.

*Includes buccal surface of cheek, tonsil, etc.

The effectiveness of treatment is significantly related to the stage of the disease at the time when the patient first presents himself for treatment. Information on the stage of the diseases found among new patients is therefore a matter of considerable importance. Table 6 shows the distribution of new cases by site and stage for the year 1940 and also for the five year period 1935-1939 as a basis for comparison. For each of the six sites shown in this table there has been some increase in the proportion of cases presenting themselves for treatment while the disease is still in stage I. In breast cases there has been a considerable annual decline in the proportion of new cases found to be in stage III, as is shown by the following figures: 1934—40.2 per cent.; 1935—36.5 per cent.; 1936—35.5 per cent.; 1937—28.2 per cent.; 1938—23.0 per cent.; 1939—20.4 per cent.; and 1940—20.9 per cent.

TABLE 6

STAGE OF DISEASE ON ADMISSION—CERTAIN SITES*

NEW TREATED CASES—1935-1939 AND 1940

Site of Cancer	Stage of Disease	1935–1939		1940	
		Cases	Per Cent.	Cases	Per Cent.
Breast	I	328	30.7	90	34.9
	II	437	41.0	114	44.2
	III	302	28.3	54	20.9
	Total	1,067	100.0	258	100.0
Cervix Uteri	I	120	13.6	34	16.1
	II	295	33.5	61	28.9
	III	347	39.4	75	35.5
	IV	119	13.5	41	19.4
	Total	881	100.0	211	100.0
Lip	I	687	75.5	136	77.7
	II	176	19.3	27	15.4
	III	38	4.2	8	4.6
	IV	9	1.0	4	2.3
	Total	910	100.0	175	100.0
Tongue	I	42	24.4	11	26.8
	II	61	35.5	17	41.5
	III	54	31.4	11	26.8
	IV	15	8.7	2	4.8
	Total	172	100.0	41	100.0
Other Oral	I	67	18.6	24	29.3
	II	177	49.0	26	31.7
	III	90	24.9	22	26.8
	IV	27	7.5	10	12.2
	Total	361	100.0	82	100.0
Skin	I	2,111	85.1	389	88.0
	II	285	11.5	44	10.0
	III	65	2.6	6	1.4
	IV	21	0.8	3	0.7
	Total	2,482	100.0	442	100.0

*Recurrences excluded.

There continues to be evidence of greater delay in beginning treatment for public patients as compared with private patients. Table 7 illustrates this difference in the stage of the disease at the time when treatment is begun. In breast cases during 1940, 38.6 per cent. of the private cases presented themselves for treatment before local spread or metastases had ocurred, whereas, this was true of only 26.8 per cent. of public cases. In the other sites shown the contrast is no less striking.

TABLE 7

STAGES OF DISEASE—PUBLIC AND PRIVATE CASES—CERTAIN SITES*

NEW CASES TREATED ONLY—1940

Stage	Breast				Cervix Uteri				Oral Cavity			
	Private		Public		Private		Public		Private		Public	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
I	68	38.6	22	26.8	18	21.7	16	12.5	119	71.3	52	39.7
II	77	43.8	37	45.1	29	34.9	32	25.0	29	17.4	41	31.3
III	31	17.6	23	28.1	29	34.9	46	35.9	13	7.8	28	21.4
IV	....	.....	....	.....	7	8.4	34	26.6	6	3.6	10	7.6
Total	176	100.0	82	100.0	83	100.0	128	100.0	167	100.0	131	100.0

*Excluding recurrences.

Table 8 shows the number of new patients seen, the number of patients with recurrences and the number of patients not treated, by site for the year 1940. The number of patients treated for recurrences has decreased from 184 in 1939 to 147 in 1940. It will be noted that one-third of these 147 recurrences were breast cases. The number of cases not treated has increased from 123 in 1939 to 169 in 1940.

TABLE 8

CLASSIFICATION OF NEW CASES ADMITTED DURING 1940

Site of Cancer	Classification				Total
	Primary	Previous	Recurrent	Not Treated	
Breast	147	230	53	21	451
Cervix Uteri	207	10	6	12	235
Corpus Uteri	39	12	3	1	55
Oral Cavity	292	13	12	14	331
Air Passages	55	2	2	2	61
Rectum andAnus	34	11	3	15	63
Skin	437	28	28	15	508
Other Sites	339	126	40	89	594
Total	1,550	432	147	169	2,298
Per Cent	67.4	18.8	6.4	7.4	100.0

Table 9 shows the frequency of histological examination by site of disease for public and private cases separately. A pathological report was obtained in 1,735 of the 2,129 new treated cases. Histological confirmation of clinical diagnosis was available in 80.9 per cent. of breast cases, 92.4 per cent. of uterus

cases and 91.5 per cent. of oral cases. Histological confirmation was available in 81.5 per cent. of all treated cases. These figures represent a very considerable improvement over comparable figures for the previous year.

TABLE 9
HISTOLOGICAL EXAMINATION—BY SITE OF DISEASE
NEW CASES TREATED DURING 1940

Site of Cancer	Pathol. Done		No. Path. Exam.		No Data		Total	
	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.	Priv.	Pub.
Breast	226	122	29	19	23	11	278	152
Cervix Uteri	84	123	5	4	3	4	92	131
Body of Uterus	31	18	3	1	....	1	34	20
Oral Group	159	131	17	2	6	2	182	135
Air Passages	25	30	1	2	1	....	27	32
Rectum and Anus	22	17	2	3	2	2	26	22
Skin	284	98	89	13	8	1	381	112
General	199	166	59	39	24	18	282	223
Total Cancer	1,030	705	205	83	67	39	1,302	827
Per Cent	79.2	85.3	15.7	10.0	5.1	4.7	100.0	100.0

Table 10 provides a summary showing the proportion of cases in each clinic for which a pathological report was available. These figures also show an increase over comparable figures for the previous year, reflecting more extensive confirmation of clinical diagnosis by tissue examination. At all centres except at the Ottawa General there has been an increase in the number of histological examinations made in private cases. In the case of the Kingston clinic the 78.4 per cent. shown for 1940 is in marked contrast with the 42.2 per cent. shown for the previous year. In respect to public cases the proportion in which histological examinations were available has been increased in the Kingston and London clinics but shows slight decreases for the other centres.

TABLE 10
HISTOLOGICAL EXAMINATIONS—CERTAIN SITES*
NEW CASES TREATED DURING 1940

Centre	Private Cases			Public Cases		
	Histological Exams.		Total	Histological Exams.		Total
	Number	Per Cent.		Number	Per Cent.	
Hamilton	112	85.5	131	33	76.7	43
Kingston	40	78.4	51	16	64.0	25
London	48	90.6	53	24	96.0	25
Ottawa (Civic)	73	88.0	83	37	90.2	41
Ottawa (General)	17	85.0	20	27	84.4	32
Toronto	189	84.4	224	287	94.4	304
Windsor	68	88.3	77	17	77.3	22
All Centres	547	85.6	639	441	89.6	492

*Including breast, uterus, oral cavity, air passages and rectum.

Table 11 provides a summary of the new cases seen during 1940 according to prognosis (i.e. whether regarded at the outset as treatable for cure or for palliation only). In 1,375 cases (59.8 per cent. of the total) the patient was classified as treatable for cure. Excluding the cases for whom no prognosis was made it will be seen that more than two-thirds of the remainder were classified as treatable for cure.

TABLE 11

TOTAL NEW CASES BY PROGNOSIS

CALENDAR YEAR 1940

Site	Treatable for			No Data	Not* Treated	Total
	Cure	Palliation	Ratio			
Breast	282	130	2.2	18	21	451
Cervix Uteri	119	91	1.3	13	12	235
Body of Uterus	36	16	2.3	2	1	55
Lip	171	7	24.4	10	5	193
Tongue	32	9	3.6	1	4	46
Other Oral	52	31	1.7	4	5	92
Air Passages	26	24	1.1	9	2	61
Rectum	14	31	0.5	3	15	63
Skin	467	13	35.9	13	15	508
Ovary	21	20	1.1	4	4	49
Other Sites	155	250	0.6	55	85	545
Total Cancer	1,375	622	2.2	132	169	2,298
Per Cent	59.8	27.1	.....	5.7	7.4	100.0

*For any reason—see subsequent section and tabulation.

The method of treatment employed with new cases in 1940 is shown in Table 12. As compared with the previous year the number of cases treated by radium alone decreased from 584 to 504. The use of radium alone or in combination with X-ray, surgery or both, has shown a decrease especially in cases where the site is the oral cavity (279 to 221) and skin (430 to 363). The number of cases treated by X-ray alone has increased from 567 to 584.

TABLE 12

METHOD OF TREATMENT OF NEW CASES DURING 1940—BY SITE*

Treatment	Site of Disease								Total	
	Breast	Cervix Uteri	Corpus Uteri	Oral Cavity	Air Passages	Rectum	Skin	Other Sites	No.	Per Cent.
X-Ray	74	48	8	78	32	17	82	245	584	27.1
Radium	0	12	8	150	3	2	314	15	504	23.4
Radium & X-Ray	6	142	9	56	10	5	23	16	267	12.4
Surgery & X-Ray	264	5	15	5	7	17	17	146	476	22.1
Surgery & Radium	2	5	6	10	2	0	21	10	56	2.6
Surg., Rad. & X-Ray	15	5	4	5	2	0	5	9	45	2.1
Not Treated	21	12	1	14	2	15	15	89	169	7.9
Surgery Alone	16	0	1	1	1	4	3	24	50	2.3
Total	398	229	52	319	59	60	480	554	2,151	100.0

*Recurrences excluded.

The distribution of treated cases by centre and method of treatment is shown in Table 13. Marked variation is shown from clinic to clinic in respect to the number of cases in which radium was used either alone or in combination with other methods. The proportion of patients receiving radium ranges all the way from 17 per cent. at Hamilton to 54 per cent. at London. While differences in the site distribution of cases may be a factor in this variation, it does not seem adequate to account for the size of the difference shown.

TABLE 13
NEW TREATED CASES BY CENTRE AND METHOD OF TREATMENT*
CALENDAR YEAR 1940

Method of Treatment	Hamilton	Kingston	London	Ottawa(C)	Ottawa(G)	Toronto	Windsor	Total Cases
	Cases							
X-Ray	136	51	31	42	21	263	40	584
Radium	14	60	41	77	9	278	25	504
Radium and X-Ray	33	17	19	32	16	108	42	267
Surgery and X-Ray	107	19	21	51	19	220	39	476
Surgery and Radium	1	1	6	6	2	35	5	56
Surgery, Radium and X-Ray	5	2	3	1	2	11	21	45
Surgery Alone	1	3	5	10	16	12	3	50
Total	297	153	126	219	85	927	175	1,982
Method of Treatment	Per Cent							Total
X-Ray	45.8	33.3	24.6	19.2	24.7	28.4	22.9	29.5
Radium	4.7	39.2	32.5	35.2	10.6	30.0	14.3	25.4
Radium and X-Ray	11.1	11.1	15.1	14.6	18.8	11.7	24.0	13.5
Surgery and X-Ray	36.0	12.4	16.7	23.3	22.3	23.7	22.3	24.0
Surgery and Radium	†	†	4.8	2.7	†	3.8	2.9	2.8
Surgery, Radium and X-Ray	1.7	†	†	†	†	1.2	12.0	2.3
Surgery Alone	†	†	4.0	4.6	18.8	1.3	†	2.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Excluding recurrences.
†Percentages calculated only where 5 or more cases.

Table 14 shows the proportion of cases treated with radium in each centre. It will be seen that radium alone is used more extensively at Kingston, London, Ottawa Civic and Toronto than at the other three centres. A similar difference was reflected in the figures for 1939. In cervix cases the proportion of cases treated by radium in each of the centres shows relatively slight variation, ranging from 72 per cent. at Toronto to 90 per cent. at London. In oral cases, Hamilton with 43 per cent. and Toronto with 69 per cent., use radium in a smaller proportion than do the other centres. In skin cases, however, the centres differ widely, ranging from 5 per cent. at Hamilton and 18 per cent at the Ottawa General to 95 per cent. at Toronto, 96 per cent. at London and 100 per cent. at Windsor.

TABLE 14
PROPORTION OF CASES TREATED WITH RADIUM—BY CENTRE†
CALENDAR YEAR 1940

Centre	Radium Alone (%)			Radium Alone and in Combination* (%)		
	Cervix	Oral	Skin	Cervix	Oral	Skin
Hamilton	0	22	5	75	43	5
Kingston	0	50	79	73	83	84
London	15	67	89	90	83	96
Ottawa (C)	10	60	88	86	89	92
Ottawa (G)	6	40	12	69	80	18
Toronto	6	54	82	72	69	95
Windsor	0	0	62	76	93	100
Total %	6	49	68	76	72	78

*With X-ray, surgery or both. †Recurrences excluded.

During the year a number of cases are seen at each of the clinics who are not treated there. Patients who receive palliative surgery only are included in this "not treated" group for purposes of clinic statistics. The number of untreated cancer cases and the reason for non-treatment are shown in Table 15. Of the 2,298 cases seen during the year, 169 were untreated. These cases were distributed as follows: Hamilton, 5; Kingston, 14; London, 23; Ottawa Civic, 35; Ottawa General, 27; Toronto, 46; Windsor, 19.

TABLE 15

UNTREATED CANCER CASES—REASON FOR NON-TREATMENT

CALENDAR YEAR 1940

Reason for Non-Treatment	Site of Disease						Total
	Breast	Uterus	Oral Cavity	Air Passages	Rectum	Other Sites	
Too far advanced	9	7*	3	1	2	26	48
Refused treatment	1	2	0	1	2	9	13
Did not return	4	0	1	0	2	13	20
Died before treatment	0	0	0	0	0	2	2
Co-existent disease	0	0	0	0	0	0	0
Age and general condition	1	1	3	0	2	15	22
Other or no data	6	3	7	0	7	41	64
Total	21	13	14	2	15	104	169
Total Treated	430	277	317	59	48	998	2,129

*One body of uterus.

Of the 169 untreated cases 48 or 28.4 per cent. were considered to be too far advanced for treatment; 22 or 13 per cent. were not treated because of age or general condition; and 20 or 11.8 per cent. did not return for treatment. It will be observed that 9 of the 21 untreated breast cases and 7 of the 13 untreated uterus cases were found to be too far advanced for treatment at the time of their first examination by the clinic.

The distribution of new treated cases by age and sex for each site of disease is given in Table 16. As in 1938 and 1939, there is a slight excess of female over male cancer cases in 1940. This excess of female cases is found in age groups under 70 only. Four-fifths of the female cases as compared with two-thirds of the male cases were under 70 years of age. Sex differences in the incidence of cancer of the breast and cancer of the oral cavity are pronounced.

TABLE 16

NEW CASES TREATED DURING 1940—BY AGE AND SEX

CALENDAR YEAR 1940

Site of Cancer	Under 40		40–49		50–59		60–69		70–79		80+		Not Stated		Total	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Breast	0	36	1	122	1	121	0	88	2	47	0	5	0	7	4	426
Cervix Uteri	0	49	0	74	0	60	0	33	0	5	0	0	0	2	0	223
Body of Uterus	0	1	0	12	0	19	0	13	0	9	0	0	0	0	0	54
Lip	13	0	20	0	37	4	55	2	36	1	15	1	4	0	180	8
Tongue	2	1	3	1	4	1	9	3	9	3	4	1	1	0	32	10
Other Oral	2	1	5	0	12	4	32	4	17	2	7	1	0	0	75	12
Air Sinuses	1	0	1	2	2	2	6	1	1	1	2	0	0	0	13	6
Larynx	0	2	2	0	3	0	5	0	4	1	1	0	0	0	15	3
Other Air Passages	2	3	1	2	2	1	2	2	4	1	2	0	0	0	13	9
Rectum and Anus	1	1	1	4	6	8	11	8	4	2	2	0	0	0	25	23
Skin	10	12	28	11	47	34	64	53	83	64	52	24	8	3	292	201
Ovary	0	9	0	15	0	9	0	9	0	2	0	0	0	1	0	45
Other Digestive Tract	2	1	2	4	13	8	5	3	3	2	2	1	0	0	27	19
Other Sites	78	43	34	20	54	32	51	35	25	19	9	6	6	2	257	157
Total Cancer Cases	111	159	98	267	181	303	240	254	188	159	96	39	19	15	933	1196
Per Cent. (by Sex)	11.9	13.3	10.5	22.3	19.4	25.3	25.7	21.2	20.2	13.3	10.3	3.3	2.0	1.3	100.0	100.0
Ratio of Males to Females	0.70		0.37		0.60		0.94		1.18		2.46		1.27		0.78	

The degree of professional interest in the cancer clinic service is reflected by the number of physicians referring cancer cases to the clinics as shown in Table 17. One or more patients were referred to the clinics for treatment by 1,151 different physicians. This represents approximately one-fourth of all physicians engaged in practice in the Province of Ontario.

TABLE 17

REFERRING PHYSICIANS — BY CENTRE

CALENDAR YEAR 1940

Centre	New Cases on Record	No. of Different Referring Physicians	Different Physicians per New Case
Hamilton	327	182	0.56
Kingston	176	87	0.49
London	171	98	0.57
Ottawa (C)	272	130	0.48
Ottawa (G)	113	44	0.39
Toronto	1,019	508	0.50
Windsor	220	102	0.46
Total	2,298	1,151	0.50

The geographical distribution of new cancer cases and case rates per 100,000 population for each county are shown in Table 18. Case rates as reflected by clinic service range from a high of 109 per 100,000 population in Frontenac to a low of 21 per 100,000 population in Durham. The case rate for the province as a whole was 54.6 per 100,000 population, showing a decrease from the rate of 58.8 reported in 1939.

TABLE 18

NEW CANCER CASES (TREATED)—BY AREA OF RESIDENCE—1940

County or District of Residence	Population†	Total Cases—All Sites		Accessible Sites Only	Public Cases All Sites
		Number	Rate*		
Addington	7,550	5	66	5	2
Algoma	50,990	22	43	19	13
Brant	58,920	15	25	12	5
Bruce	46,460	12	26	9	6
Carleton	187,340	193	103	141	72
Cochrane	63,830	19	30	14	13
Dufferin	16,240	9	55	8	3
Dundas	17,750	7	39	6	.....
Durham	28,330	6	21	3	4
Elgin	47,970	13	27	9	4
Essex	176,010	157	89	94	43
Frontenac	50,230	55	109	44	19
Glengarry	20,400	7	34	4	6
Grenville	18,130	11	61	11	2
Grey	63,450	29	46	25	12
Haldimand	23,420	25	107	19	4
Haliburton	6,420	1	16	1	.....
Halton	29,080	22	76	14	6
Hastings	64,960	40	62	30	22
Huron	49,860	21	42	16	9
Kenora‡	28,700	1	3	.....	1
Kent	69,120	43	62	29	8
Lambton	60,050	25	41	21	8
Lanark	36,260	26	72	19	5
Leeds	38,900	41	105	33	8
Lennox	13,220	11	83	10	.....
Lincoln	59,680	51	85	33	17
Manitoulin	11,710	2	17	2	1
Middlesex	130,310	67	51	43	27
Muskoka	23,040	6	26	6	4
Nipissing	45,320	11	24	5	5
Norfolk	34,370	13	38	12	7
Northumberland	34,750	17	49	14	8
Ontario	65,720	38	58	26	18
Oxford	52,500	21	40	16	5
Parry Sound	28,330	9	32	8	6
Peel	30,970	16	52	12	7
Perth	56,660	18	32	11	3
Peterborough	48,350	21	43	17	6
Prescott	27,190	8	29	6	5
Prince Edward	18,130	5	28	5	.....
Rainy River	19,260	.....	.....	.....	.....
Renfrew	57,410	33	57	21	9
Russell	20,400	12	59	9	6
Simcoe	92,160	52	56	42	25
Stormont	35,880	13	36	10	2
Sudbury	64,210	17	26	13	11
Thunder Bay	71,760	14	20	10	7
Temiskaming	40,790	21	51	12	11
Victoria	28,330	19	67	12	7
Waterloo	98,960	36	36	22	10
Welland	91,030	33	36	22	20
Wellington	63,830	22	34	18	9
Wentworth	209,240	217	104	152	62
York	943,120	455	48	313	241
Quebec	.....	42	.....	34	10
Other Provinces	.....	4	.....	2	1
U. S. A	.....	14	.....	9	.....
Not Stated	.....	6	.....	4	2
Grand Total	.....	2,129	.....	1,517	827
Ontario Total	3,777,000	2,063	54.6	1,468	814

†Estimated for 1940. *Per 100,000 population. ‡Includes District of Patricia.

That distance from the clinic is a factor in determining these rates is indicated by the fact that rates are highest in and about those counties in which a clinic is located and are lowest in those counties which are relatively remote from a Cancer Centre.

During 1940 a total of 2,109 non-cancerous cases were treated in the seven Cancer Centres. Of these 958 were patients with benign tumours and 1,115 were patients with various non-neoplastic conditions. A summary of these cases is provided in Table 19. The number of cases of benign tumour was 958 which represents an increase of 16 per cent. over the previous year. Similarly non-neoplastic conditions numbering 1,151 show an increase of 12 per cent. over the previous year. Pre-cancerous lesions such as keratosis and leukoplakia remain high, a total of 212 patients being treated for these conditions.

TABLE 19

NEW NON-CANCER CASES—1940

Non-Malignant Tumours		Non-Neoplastic Diseases	
Diagnosis	No. of Pts.	Diagnosis	No. of Pts.
Angiomata	162	Actinomycosis	12
Cysts (various)	32	Asthma	15
Fibromata	28	Cervicitis	17
Keloids	41	Diseases of Thyroid	24
Keratosis	135	Fibrosis Uteri	32
Leukoplakia	77	Infections, n.s.e.*	140
Moles, Naevi	52	Mastitis	38
Papillomata	110	Menorrhagia, etc.†	279
Polypi	11	Parotitis	29
Warts	242	Pruritus	29
Others	68	Skin Diseases (various)	318
		Thymic Enlargement	15
		Tuberculosis	4
		Others	199
Total	958	Total	1,151

*Adenitis, chronic inflammation, ulcers, etc.

†Including menorrhagia, metrorrhagia, menopausal bleeding.

DIVISION OF DENTAL SERVICES

H. J. Hodgins, D.D.S., *Director.*

A new service was inaugurated in the Division this year, to carry out the examination of British children who came to Canada as war guests. The service was not as extensive as originally planned. Preparations were made for the dental examination of several thousand children expected, but due to adverse circumstances the service was limited to several hundred. Dental examination was made by the dentists of the department, and defects charted. The charts were sent on to the Children's Aid Societies in the centres where the children found foster homes.

During the year an additional number of municipalities have established dental clinics with the assistance of the Government grant for school dental services. Regulations governing the grant require that in a municipality of 20,000 or over, equipment must be installed in the schools or in some central clinic. As this equipment is rather costly, provision is made in the grant for a rebate on the cost of the equipment. The grant also provides 20 or 30 per cent. according to population, of the operating cost, which includes salary to dentist and dental supplies. Smaller communities may make arrangements to have the work done in the office of the local dentists.

Interest in school dental service has been encouraged and stimulated by lectures and advice given by the Canadian Dental Hygiene Council and the Ontario Public Dental Health Committee; and by the distribution of educational booklets and examination charts to dentists making a mouth health survey of the children of their community.

A very interesting experiment in public dental health education was carried on, in conjunction with the Public Dental Health Committee. An interesting display was prepared and set up in the Department Booth at the International Ploughing Match, which was held this year, October 15-19, in Elgin County. The attendance at this event was 130,000. Dental health was of such interest that it should form a unit at the 1941 Match. This opinion was expressed at an informal conference held at the Booth on the closing day with members of the Elgin County Dental Society, and dentists from St. Thomas and Aylmer. We are much indebted to them for their assistance throughout the Match, in their faithful attendance and untiring efforts in giving information on dental health to the enquiring public.

The Dental clinic in each of the Ontario Hospitals has been regularly inspected. The standard clinic procedure provides for patients on admission being given a complete dental survey, which includes oral examination and dental radiographs. Treatment consists of fillings, extractions and prophylaxis. Where necessary, dentures are inserted for those who are capable of caring for them. Patients unable to attend the clinic are visited in the wards.

All denture work is carried out at the Central Laboratory, located at the Ontario Hospital, Queen Street, Toronto. This arrangement has been very satisfactory. During the year 293 full dentures and 101 partial dentures have been made. Equipment for the making of Acrylic dentures has been installed recently.

For the first eight months of the year the dental car attended to the dental needs of the school children along the C. P. R. line. Due to a transfer of dentist, and repairs necessary to the car, it was laid up for some time. However, a new appointment has been made, and the car is now operating in the north-western section of the Province.

A limited plan of emergent dental treatment for relief recipients was inaugurated. This provides for the relief of pain, extraction of teeth and repair of dentures. The fees are as provided for in the Workmen's Compensation Act; the dental accounts are rendered monthly, and paid on a pro rata basis, after being audited and passed by the Dental Advisory Committee.

In addition to Dr. R. P. Markle and Dr. H. R. MacLaren who are overseas, the dental staff is represented on the C.A.D.C. by Dr. F. A. Kohli and Dr. L. R. Mitton.

Dental activities for the year have been assisted by the close co-operation of the members of the Ontario Public Dental Health Committee and the Canadian Public Dental Hygiene Council.

HEALTH EDUCATION

MARY POWER, B.A.

I. Health Education of the Public:

The general business of the office has followed the routine activities of former years. Letters to the number of 1,150 were received while the out-going communications totalled 1,009.

Literature:

Literature on health subjects was the chief medium through which education of the public in health was carried on.

"The Baby," the Department's booklet covering care of the child from prenatal period to six years of age, went into its fifth edition in August. Slight changes only were made, among them the inclusion of a chart to assist the mother in making clothes for the new baby. The demand for this book of instruction runs consistently in the neighbourhood of 3,000 copies as an average per month. Local health authorities use it as routine in their infant hygiene programmes; and practising physicians and hospital maternity services requisition large quantities each year. "The Baby" has been adopted as the municipal handbook on child care by all communities in Ontario, with the exception of the City of Toronto where the local Department of Public Health publishes "The Care of the Infant and Young Child," including in it a complete list of the health services available to resident mothers and their children.

Parents are showing an increasing interest in immunization. This has been demonstrated in the demand for leaflets on communicable disease—its prevention and control.

Tuberculosis is a subject about which the public is eager to learn. We are grateful to the Canadian Tuberculosis Association who have so generously supplied us with material on the disease for distribution to Ontario residents.

"Safe Milk" has been in great demand as the areas adopting pasteurization increase in number. The supply of the leaflet dealing with Resuscitation from drowning or electric shock, is exhausted, and we trust a new edition will be available at an early date.

Exhibit:

The booth of the Department at the International Ploughing Match held this year, October 14-19, in Elgin County, was the only display set up for health education. The Match drew an attendance of 130,000 people. Very real interest was shown by the large number of inquirers at the booth.

The display space was divided into three sections, the first being devoted to Tuberculosis; the second to Dental Health; and the third to Health Education Services to Teachers in the elementary and secondary schools. I wish to acknowledge with thanks the co-operation given by the Elgin County Dental Association; at least one of whose members manned the dental health section of the booth each afternoon of the Match. Our thanks are due also to the Ontario Dental Hygiene Council who supplied attractive display material for the exhibit.

From the many enquiries received at the booth, it was a matter of gratification to realize that the Department's publication, "The Baby" is well known and widely used. The parents, however, are very anxious to have instruction covering the care of the child from six to ten or eleven years. The largest number of requests, however, came from parents who were seeking help in the handling of the adolescent boy and girl. It is of interest to know that this experience at the Ploughing Match has been duplicated in our health education work with the Home and School Clubs throughout the Province. I should, therefore, like to recommend that a leaflet pertaining to adolescence be prepared for parents.

The following services were given upon request, and represent a total of 1395 budgets, or 31,842 leaflets, etc.

To Whom Sent	No. of Budgets	No. of Pieces of Material
Inspectors of Schools	8	288
High School Teachers	68	2156
Normal School	1	1717
Elementary School Teachers	247	5781
517 Teachers who attended the Summer Course in Health Education	1037	19871
Local Public Health Nurses	28	1879
Training Schools for Nurses	6	150
	1395	31842

Through the Library Loan Service, 137 books were loaned to Summer Course teachers; and 67 additional books were loaned upon request to inspectors, principals, etc.

In order to have up-to-date information with respect to free and inexpensive material available to teachers and nurses for use in school, a careful survey was made again this year, covering sources in both Canada and the United States.

To assist the public health nurse in her work with the teachers in the school, we follow the plan outlined in our Annual Report for 1939. For this purpose, we forwarded during the year 28 budgets, containing 1879 pieces of material, upon request to public health nurses who include school work in their programmes.

In co-operation with the Division of Nurse Registration, we sent an introductory budget of reference material to each training school for nurses towards the close of the year 1939. Supplementary budgets were sent upon request to six training schools this year, a total of 150 leaflets, etc.

Special Groups:

Women's Institutes and Home and School Clubs have made special efforts to give health a prominent place on their programmes. Special budgets of our material were assembled for their use; and for group instructors in home nursing classes.

II. School Health Education:

1940 was the first summer since 1933 during which the Course in Health Education was not offered to the teachers of Ontario. As a war measure, the Department of Education reduced the number of Summer Courses by approximately one half. However, we continued our work of visiting the teachers who had attended in former years, but who were teaching in those areas which had not been visited previously.

We continued to held "Open House" on Saturday morning in our office for teachers who wished to consult us on matters of health instruction in the classroom, and other aspects of health in the school. We also continued to give service by loaning references to those teachers who had attended the Summer Course.

Early in the school year we revised the mailing list and sent to each teacher, who co-operated by returning a mailing card, a budget of new material which we considered would be useful in school health activities.

III. Ontario Health Officers' Association:

The Annual Conference of the Ontario Health Officers' Association was held in the Royal York Hotel, Toronto, June 13-14, 1940.

The registration reached a total of 525. No dinner session was held this year, but two luncheon meetings were arranged. The luncheon session on the first day was addressed by the Honourary President, Honourable Harold J. Kirby, K.C., Minister of Health of Ontario. The luncheon on the second day was made the occasion of the business meeting of the Association, when reports were received from the various committees.

The Executive met previous to the first session. The President, Dr. C. A. Warren, presided. A message of regret was telephoned by Dr. H. B. Kenner, M.O.H., Stratford, who was unable to be present owing to military duties. With the exception of Dr. G. Murray Fraser, M.O.H., Peterborough, who is overseas on active service, the remaining members were all present, viz.: Dr. C. A. Harris, London; Dr. G. B. Stalker, Hanover; Dr. J. E. Davey, Hamilton; Dr. W. E. Brown, Orillia; Dr. C. H. Bird, Gananoque; Dr. J. W. Mackie, Lansdowne; Dr. H. M. Young, Iroquois Falls; Dr. J. C. Gillie, Fort William.

At the Executive Meeting an acknowledgment was made covering the courses of instruction for Medical Officers of Health, namely, the three-day course and the five-week course. Details of these sessions are given on page 189.

An interesting feature of the meeting this year was the showing of films which might be of interest to the Medical Officer of Health. Several of the films are available to local health authorities for health education work in their own community. Of the latter group, the Ontario Milk Foundation presented their film, "The Milky Way" and the Metropolitan Life Insurance Company sent "A New Day," outlining modern treatment of pneumonia. In addition to the last named film, the Metropolitan Life forwarded for showing film strips which have been prepared for audiences of lay people and students of high school level. This series as prepared to date comprises film strips on the life and work of the following outstanding health heroes: Robert Koch; Louis Pasteur; Walter Reed; Edward L. Trudeau; Edward Jenner; Madame Curie; Florence Nightingale. The Audiphone Company of Canada co-operated in showing the film, "Life Begins Again," which illustrated the handicaps and possible helps for the child or adult suffering from hearing loss. A machine for the measurement of hearing loss was demonstrated to the members at the Friday morning session.

Dr. E. B. Potts, M.O.H., for St. Thomas City and Yarmouth Township, brought along to the meeting a film which had been made by some of the local medical men. The film illustrated the spread of infection, and life situations in their own community were utilized in the photography of the entire film by the physicians who made it.

An item of outstanding importance with respect to the meeting this year was the welcome to the newly formed "Section of Public Health Inspection Services." Provision had been made at the Annual Conference in 1939 for the organization of such section. In the interval, much effort had been expended in tentative organization of the group by Dr. C. A. Harris, who sponsored the motion, and by Dr. A. L. MacNabb, Director of Laboratories.

Following presentation of a paper at the annual meeting of the Ontario Veterinary Association by Dr. Harris on January 25th of this year, that Association appointed a committee to look into the possibility of organizing a veterinarian section which might act in close co-operation with the Ontario Health Officers' Association.

The programme, as prepared under the auspices of the Public Health Inspection Services group, included two sectional meetings; and, in addition, it provided four speakers for the programme of the General Sessions.

Advantage was taken of the attendance of so many members interested in health inspection work, and special meetings were held by the professional group of veterinarians and by the sanitary inspectors. Gratification is felt with regard to the progress of organization as evidenced by the following reports:

I. The veterinarians decided to continue as a section of the Ontario Health Officers' Association, choosing as their title, The Veterinary Public Health Services Section. The officers and executive committee chosen were as follows: President, Wm. Moynihan, Toronto; Secretary, Dr. Wilfred Rumney, Hamilton; Executive Committee: Dr. Herbert Davis, Aylmer; Dr. R. V. L. Walker, Ottawa; Dr. J. Norlund, Sarnia; Dr. Frank J. Cote, Guelph.

II. The group of sanitary inspectors revived interest in their particular field and decided to function as the Ontario Branch of the Canadian Institute of Sanitary Inspectors. As the constitution of the Institute provides that the president of the Provincial Branch, ex-officio, becomes councillor for that particular Province, Mr. D. S. McKee, C.S.I. (*C*) will act in the dual capacity. The secretary-treasurer is Melville Matthews, C.S.I. (*C*); the Provincial Councillors are—Gordon Miller, C.S.I. (*C*), Windsor; Ernest Picton, C.S.I. (*C*), Hamilton; Hugh McIntyre, C.S.I. (*C*), Kirkland Lake.

In order to function to the best advantage, the members felt it was advisable that the annual meeting should be held at the same time and place as the annual conference of the Ontario Health Officers' Association. In order to avoid duplication of effort, and to ensure close co-operation between the two associations, it was unanimously adopted that the programmes should be carefully studied and that the Ontario Branch of the Canadian Institute of Sanitary Inspectors would assume responsibility for a definite contribution to the programme of the Ontario Health Officers' Association in 1941. This responsibility was relegated to the Executive Committee for the current year.

Committee on Resolutions:

The Committee which consisted of Dr. D. V. Currey, Dr. T. B. Rutherford, with Dr. J. Edgar Davey, as chairman, brought in the following resolutions:

I. That the members of this Association express our sincere regret and our sense of deep loss in the death during the year of the following members, and extend to the bereaved families our deepest sympathy: Dr. Findlay Munroe, Paris; Dr. O. E. Carr, Owen Sound; Dr. A. D. Graham, Bothwell; Dr. F. H. Walker, Wheatley; Dr. C. H. Carruthers, Florence; Dr. H. E. Johnson, Mount Albert; Dr. D. C. McKenzie, Fort Frances; Dr. H.H. Casselman, Chesterville;

Dr. G. C. Ferrier, South Mountain; Dr. H. E. Ferguson, Forest Hill Village; Dr. H. Hay, Wiarton; Dr. E. W. McNeice, Aylmer; Dr. J. B. Stallwood, Beamsville; Dr. R. Johnson, Tamworth; Dr. James Roberts, Hamilton; Dr. C. E. McLean, East York Township; Dr. A. B. Hyndman, Carp; Dr. J. G. McKee, Elk Lake; Dr. John A. Amyot, Ottawa; Dr. Paul Joseph Maloney, Ottawa; Dr. James J. Fraser, Hamilton.

II. (1) That, following report made by a special committee appointed at the 1939 annual conference, of which Dr. T. D. Rutherford was chairman and Dr. C. H. Bird and Dr. F. A. Ladouceur were members, this Association recommends to the Department of Health that consideration be given to the inclusion in the regulations made under the Public Health Act of a comprehensive outline of the duties and obligations of the M.O. H., with respect to the local health programme.

(2) That the Association recommend to the Department of Health that consideration be given to an amendment of the Public Health Act, whereby the allowance to the Medical Officer of Health for attendance at the annual conference be defined.

(3) That the Association recommend to the Department of Health that consideration be given to an amendment to the Public Health Act, as follows:

(*a*) A clause whereby the period of tenure of office for the appointed member of the local Board of Health in a rural municipality, be increased from one year to the same period of tenure as the municipal council of that municipality.

(*b*) A clause whereby the number of members on the local board of health in a municipality of more than 4,000 population, to be increased from three to five members, of whom three shall be members appointed by council; these members to be appointed for varying periods of one, two and three years.

III. The Committee on Accident Prevention presented no formal report but the convener, Dr. L. A. Pequegnat, requested that the Committee remain in existence, signifying his willingness to continue his chairmanship. The meeting acquiesced and Dr. W. K. Fenton, Medical Officer of Health, Etobicoke Township, was appointed by the President to work with Dr. Pequegnat and present a report at the next conference.

Report of the Committee on Nominations:

The Committee on Nominations—Dr. G. B. Stalker, Dr. W. E. Brown, with Dr. C. H. Bird as Chairman, brought in the following report, which was passed unanimously:

Dr. F. A. Ladouceur, Casselman, President.
Dr. H. B. Kenner, Stratford, First Vice-President.
Dr. J. C. Gillie, Fort William, Second Vice-President.
Miss M. Power, Toronto, Secretary.

Executive Committee:

Dr. C. A. Harris, London.
Dr. J. Edgar Davey, Hamilton.
Dr. J. W. Mackie, Lansdowne.
Dr. G. B. Stalker, Hanover.
Dr. W. E. Brown, Orillia.
Dr. H. M. Young, Iroquois Falls.
Dr. G. S. Cronk, Belleville.
Dr. D. L. Dingwall, Dryden.
Dr. C. H. Bird, Gananoque.

The programme in detail is given below:

ANNUAL CONFERENCE

ONTARIO HEALTH OFFICERS ASSOCIATION

ROYAL YORK HOTEL, TORONTO

JUNE 13-14, 1940

PROGRAM

THURSDAY, JUNE 13th—MORNING SESSION

9.00 a.m.—Executive Meeting.

9.00 a.m.—Registration—Foyer Convention Floor.
Showing of Films.

10.00 a.m.—MEDICAL OFFICERS OF HEALTH SECTION—Crystal Ball Room. Chairman, C. A. Warren, M.D., D.P.H., President.
Legislation and Administrative Problems.

10.10 a.m.—General Statement and Outline of Recent Legislation in Ontario. B. T. McGhie, M.D., Deputy Minister of Health.

10.30 a.m.—Interpretation and Application of Legislation in Terms of Local Health Administration. John T. Phair, M.B., D.P.H., Chief Medical Officer of Health.
Specific Problems in Legislation and Administration, with particular reference to those presented within the last two years:

11.00 a.m.—Problems in the Field of Sanitary Engineering.
A. E. Berry, M.A.Sc., C.E., Ph.D.

11.10 a.m.—Problems in the Field of Laboratory Service.
A. L. MacNabb, V.S., D.V.Sc.

11.20 a.m.—Problems in the Field of Venereal Disease Control.
A. L. McKay, B.A., M.B., D.P.H.

11.30 a.m.—Problems in the Field of Tuberculosis Control.
G. C. Brink, M.B.

11.40 a.m.—Problems in the Field of Public Health Nursing.
Edna L. Moore, Reg.N.
Discussion will follow each of the reports listed above.

11.45 a.m.—Appointment of Standing Committees:
Committee on Nominations.
Committee on Resolutions.

THURSDAY, JUNE 13th—MORNING SESSION

PUBLIC HEALTH INSPECTION SERVICES SECTION

9.00 a.m.—Registration—Foyer Convention Floor.

9.00 a.m.—Showing of Films.

9.30 a.m.—Meeting called to order. Chairman, C. A. Harris, M.D., Medical Officer of Health, London.

9.30 a.m.—The Interest of the Veterinarian in Sanitary Measures. C. D. McGilvray, V.S., M.D.V., D.V.Sc., Principal, Ontario Veterinary College, Guelph.

10.00 a.m.—Dairy Plant Equipment. A. E. Berry, M.A.Sc., C.E., Ph.D., Director, Sanitary Engineering Division, Ontario Department of Health.

10.30 a.m.—Sterilization of Utensils. C. K. Johns, B.S.A., M.S., Associate Bacteriologist, Department of Agriculture, Ottawa.

11.00 a.m.—Dairy Farm Inspection. F. Cote, V.S., B.V.Sc., Food Inspector, Department of Public Health. Guelph.

11.30 a.m.—The Whence and Whither of Milk Sanitation. Robert Breed, Ph.D., New York State Agricultural Station, Geneva, N.Y.
Organization of Section and Election of Officers.

THURSDAY—LUNCHEON 12.15 NOON

Medical Officers of Health Section

Public Health Inspectors Services Section

(Combined Session)

The speaker will be the Honourable Harold J. Kirby, K.C., Minister, Department of Health of Ontario. On this occasion a welcome will be extended to those local Medical Officers of Health who have been appointed since the last conference; and also to the new section of the Association, viz. the Public Health Inspection Services Section, which has been organized during the past year, following the provision made at the 1939 meeting of the Conference.

THURSDAY, JUNE 13th—AFTERNOON SESSION

General Session—Both Sections

Chairman C. A. Warren, M.B., D.P.H., Medical Officer of Health, York Township

2.00 p.m.—Presidential Address. C. A. Warren, M.B., D.P.H.

2.15 p.m.—Tests for Milk Quality. C. K. Johns, B.S.A., M.S., Associate Bacteriologist, Department of Agriculture, Ottawa.

2.45 p.m.—Rabies Infection. A. E. Cameron, M.C., V.D, V.S., Veterinary Director General Department of Agriculture, Ottawa.

3.15 p.m.—Equine Encephalitis:

Isolation and Typing of the Virus. Frank Schofield, D.V.Sc., Professor of Pathology, Ontario Agricultural College, Guelph.

Immunization Studies. Charles A. Mitchell, V.S., D.V.M., Acting Chief, Animal Diseases Research Institute, Science Service, Department of Agriculture, Ottawa.

FRIDAY, JUNE 14th—MORNING SESSION

Medical Officers of Health Section

Chairman, C. A. Warren, M.D., D.P.H., Medical Officer of Health, York Township

9.30 a.m.—Administrative Control of Public Health Nuisances. A. E. Berry, M.A.Sc., C.E., Ph.D., Director, Sanitary Engineering Division, Ontario Department of Health.

10.00 a.m.—The Educator Views the Health Needs of the Elementary School. C. A. Brown, M.A., B.Paed., Department of Education of Ontario.

10.30 a.m.—The Responsibility of the Part-time Medical Officer of Health with regard to the Schools. C. D. Farquharson, M.D., Medical Officer of Health, Scarborough Township.

11.00 a.m.—Modern Methods of Immunization of the Preschool and School Age Child. Donald T. Fraser, B.A., M.B., D.P.H., Professor of Hygiene and Preventive Medicine, University of Toronto.

FRIDAY, JUNE 14th—MORNING SESSION

Public Health Inspection Services Section

Chairman to be Appointed

9.30 a.m.—Value of Food Inspection and Properly Trained Inspectors. A. J. Slack, Ph.C., M.D., D.P.H., Dean, Faculty of Public Health, University of Western Ontario, London.

9.45 a.m.—Parasitic Infestation of Fish. J. D. Detwiler, M.A. Ph.D., F.A.A.A.S., Professor of Applied Biology, University of Western Ontario, London.

10.00 a.m.—Inspection of Bakeshops and Marketplaces. A. R. Younie, V.S., B.V.Sc., Food Inspector, Department of Public Health, St. Catharines.

10.15 a.m.—Ropy Milk, Its Cause and Prevention. C. K. Mader, V.S., B.V.Sc., Department of Public Health, Kitchener.

10.30 a.m.—Staphylococcal Food Poisoning and Necessary Precautions to Prevent It. Robert J. Wilson, M.A., Department of Hygiene and Preventive Medicine University of Toronto.

10.45 a.m.—Inspection of Restaurants and the Advisability of Bacteriological Examinations of Material from Eating and Drinking Utensils. W. A. Gill, V.S., Food Inspector, Department of Public Health, London.

11.00 a.m.—Cause of Off-Flavours in Milk. J. Franklin Lavery, V.S., Veterinary Inspector of Dairy Farms, Division of Food Control, Department of Public Health. Toronto.

FRIDAY, JUNE 14th—LUNCHEON SESSION

Combined Sections

12.15 p.m.—Luncheon. Business Meeting of the Association.
Reception of Reports.
Election of Officers.

FRIDAY, JUNE 14th—AFTERNOON SESSION

Medical Officers of Health Section

2.00 p.m.—Methods of Syphilis Control. W. H. Avery, M.D., Medical Consultant, Department of Health of Ontario.

2.30 p.m.—Up-to-date Knowledge of Nutrition for the Medical Officer of Health. E. W. McHenry, Ph.D., Associate Professor of Physiological Hygiene, University of Toronto.

3.00 p.m.—Streptococcal Infection of Wounds and Its Treatment. Ronald Hare, M.D. (Lond.), Research Associate in the Connaught Laboratories, University of Toronto.

Public Health Inspection Section

2.00 p.m.—Arrangements have been made for a field trip for the members of the Section.

The papers given at the Conference have been published in the Canadian Public Health Journal throughout the year. The Journal continues to be used as the official organ of the Association as the Department continues its arrangement whereby the local Medical Officer of Health receives the Journal each month, and is enrolled as a member of the Association.

The library unit was again a feature of the Conference under the direction of Miss Fredrita Wright, Librarian of the Department. Special sections were set up where the latest references were displayed touching on the various aspects of public health work.

We acknowledge with thanks the generous co-operation of the publishers who kindly loaned books and periodicals for the period of the Convention; thus making the list of publications complete and up-to-date.

DIVISION OF NURSE REGISTRATION

ALEXANDRA M. MUNN, *Reg. N. Director.*

I have the honour to present the Report of the Division of Nurse Registration for 1940.

Visits of inspection were paid to fifty-six general and four mental hospital training schools for nurses during 1940. These visits covered from one to three days.

Special attention was paid to records of hours of duty, health and education.

Conferences were held with head nurses and supervisors where possible to discuss a ward-teaching topic.

A demonstration in some surgical procedure was observed on the hospital wards. By this method it was possible to check any weakness in hospital technique.

Where time could be arranged short talks were given to student nurses, so that they might become familiar with the aims of the Community Health Programme.

Hours of duty and the patient load, in its relation to days of illness of student nurses, are being studied and a special form has been added to the training school report for this purpose. This should give some valuable material for this study during 1941.

A cumulative health record form was prepared during the year and is now offered Superintendents. This will provide a more orderly means of recording details of the various health examinations than is now in use in a number of centres.

All Superintendents report a marked increase in applicants for training, and residence accommodation everywhere is taxed to capacity.

Building programmes have been affected by war and there are still housing problems in a number of centres. This condition has a rather serious effect on the expansion of affiliation at this time.

Three hospitals, namely, St. Joseph's Hospital, Guelph, General Hospital, Ottawa, and St. Joseph's Hospital, Sudbury, now provide an eight hour day for student nurses, and hours of duty for night nurses are gradually improving. Superintendents are fully alive to the need for better hours for both staff and students, but are too often powerless to change working conditions.

The Inspector of Training Schools gave assistance at the infirmaries which were opened up in the buildings of the University of Toronto for the reception of children from evacuated centres in the British Isles. This entailed close attendance and inspection activities were discontinued during this period.

The Board of Trustees of the General and Marine Hospital, Goderich, decided to discontinue the training school in December and requested the Department to transfer all pupil nurses to other schools for the completion of their

training. The Superintendents of Victoria Hospital, London, General Hospital, Woodstock, and the Memorial Hospital, St. Thomas, very generously co-operated in making the transfer possible and the students were placed by classes in the general hospitals by the end of December. The Goderich Hospital increased their graduate staff to commence duty on January 1st.

Council of Nurse Education:

Six regular meetings of the Council of Nurse Education were held. Routine business included arrangements for registration examinations in May and November.

Two special meetings of the Council and one with the Joint Committee were called to consider certain difficulties being met in an attempt to enforce the regulation calling for twelve Middle School papers as the minimum educational preparation for all student nurses on entry to training after October 1, 1940.

Since roughly fifty per cent. of the training schools had no prospect of filling classes with applicants holding twelve Middle School papers, a recommendation was made to the Minister of Health that the enforcement of regulations be delayed for a period of one year.

A request was received from the Secretary of the Ontario Dental Association asking that a place be given in the nurses' curriculum for a certain number of lectures in Dentistry. An outline of the proposed course was presented for the consideration of the Council and is now being studied with a view to adding this subject to the curriculum for schools of nursing.

At the request of the Council of Nurse Education the Minister of Health authorized the voluntary enrolment of all graduate and practical nurses who might be prepared to assist in the event of any emergency within the Province due to war conditions. At the request of the Minister of Health daily and weekly newspapers carried announcements and all hospitals were circularized and asked to be responsible for local publicity and the distribution of forms. The Women's Institutes of the Province of Ontario assisted generously through approximately 1,700 branches of their organization and the Ontario Medical Association Bulletin and the Canadian Public Health Journal also carried announcements. So that no nurse already enrolled for service through the Red Cross would be overlooked, circulars were sent to 1,450 nurses on the Red Cross List. Results have been gratifying—9,000 graduate and 1,762 practical nurses have forwarded forms.

Under the direction and assistance of the Departmental Statistician the information has been filed according to County, each County being sub-divided into municipality and the list of nurses arranged alphabetically. Bound lists are available for reference at any time.

Leave of Absence for Military Service:

On November 1st, Miss Edith Rainsford Dick, who has been attached to the Nurse Registration Branch as Inspector of Training Schools for the past five years was granted leave of absence for military service.

Miss Dick is a graduate of Johns Hopkins Hospital, Baltimore, and has had post-graduate training at the School for Nursing, University of Toronto. Previously, Miss Dick held positions as Superintendent of Nurses in the Psychiatric Hospital, Toronto, and at the Ontario Hospital, New Toronto.

It would be impossible to over estimate the value and extent of Miss Dick's contribution to the welfare of the nursing profession in Ontario. Those who have worked with her know how sincere her desire has been to assist in the improvement of nurse education. Miss Dick's friends throughout the Province, and they are many, join to wish her Godspeed in her new line of endeavour.

During Miss Dick's absence, the work of training school inspection will be continued by Miss Hilda Bennett, of the Provincial Service. Miss Bennett, a graduate of the University of Alberta Hospital School of Nursing, Edmonton, Alberta, with post graduate training at the School of Nursing, University of Toronto, has already demonstrated her ability in teaching and in hospital administration and may be depended upon to serve the nursing profession faithfully and well in her new position.

Statement of Enrolment in Training Schools in Ontario:

The following table will show that there has been a gradual increase in enrolment over a period of years throughout the Province:

1933	3,063	1937	3,305
1934	3,069	1938	3,555
1935	3,047	1939	3,935
1936	3,176	1940	4,375

Statement of Educational Qualifications:

Candidates holding Normal Entrance Standing or more advanced entrance certificates:

1927	14.7%	1938	59 %
1937	45 %	1939	74.7%

STATEMENT OF REGISTRANTS

Total number registered, 1940	1,203
Total number taking examination, 1940	1,360
Total number registered since 1923	25,178

STATEMENT OF REVENUE

Registration Fees	$ 6,280 00
Re-Registration Fees	15,199 00
Training School Records	59 21
Examination Fees	5,602 00
Miscellaneous	36 72
Suspense	12 00
	$ 27,188 93

DIVISION OF SANITARY ENGINEERING

A. E. Berry, M.A.Sc., C.E., Ph.D., *Director.*

Activities for the year 1940 must be examined in the light of conditions created by the war. This has influenced expenditures on municipal projects associated with public health. Water works and sewerage programmes have been curtailed to a minimum, but some work of a more urgent nature has been proceeding. Progress has been made in the operation of existing works, with a greater recognition of the importance to be attached to proper control of such plants. Advances have continued in milk pasteurization in the Province. No unusual weather, involving excessive heat or drought prevailed, but requests for assistance in sanitary problems, many of which are seasonal in nature, continued to be numerous.

Water Works:

Much of the effort of the Division is associated with the control of public water supplies, including works under construction, operation of plants and supervision of sources of supply. The expenditures approved during the year for new works and extensions amounted to $833,903.48 as compared with a total of $1,466,181.74 in the previous year. This amount is not much above the lowest in many years. This expenditure was included in 120 certificates of approval.

Some of the more important water works changes during the year include additional supply works at Beamsville, a water reservoir at Dunnville, a new system at Uxbridge, extension in Etobicoke Township, additions to the supply works at Scarborough Township, together with fairly large extensions of mains in several municipalities.

Water Treatment:

While there has been a lack of new water treatment plant installations during the year the existing systems have been operated effectively. Filtration and chlorination, combined with taste control as required, have safeguarded the consumers and provided palatable waters. There are now 60 filtration plants in operation in this Province for treatment of public water supplies. Continuous checking of these is essential for effective results.

Chlorination is still the most effective safeguard against water-borne diseases. The importance of careful operation must always be kept foremost. Equipment is available for the different conditions, and when this is operated efficiently and continuously safe results are achieved. There are now 202 chlorination installations in the Province for municipal water supplies. Regular inspections have been made on these, and assistance given to the operators.

The control of pollution in the raw water supplies becomes increasingly difficult as sewage and industrial wastes increase in volume. The construction of new industries, as well as the concentration of men in camps have brought about new problems in water protection. The maintenance of pollution within permissible limits is especially important where the same water must be used for drinking purposes. A number of new industrial plants have been erected during the year, many of these being built in locations remote from existing water systems. To ensure satisfactory supplies for these, more emphasis has been needed on pollution of natural waters.

Sewerage Programmes:

Some considerable progress has been made in sewage treatment in spite of world conditions. New plants have been in process of design and under construction, and a substantial amount of sewer extensions has been made.

The Department issued approval certificates during the year for the estimated expenditure of $6,754,558.28. The corresponding figure for the previous year was $1,316,381.29. The former amount includes a certificate of $5,600,000 for the City of Toronto as the first part of a new sewage treatment plant. 129 certificates were issued for this expenditure.

Main Sewerage Projects:

Some of the main sewerage projects involved in the year's activities include the following:—an outfall sewer and treatment plant at Barrie, consisting of sedimentation and chlorination; a new sewerage system at Hespeler, with treatment works of sedimentation and filtration; extensions of sewers to a new area at Port Arthur; a storm relief sewer extension at Hamilton; as well as a number of major additions to the sewer systems of several municipalities.

The largest single project in sewage disposal for the year was the treatment plant at Toronto. This project was advanced further. Early in the year the city authorized the preparation of plans for the first part of the treatment works. This includes sedimentation, chlorination, sludge digestion and incineration. Plans have been under preparation during the year. and it is expected that work will commence shortly.

Sewage Treatment:

Continued attention is being given to the operation of sewage treatment works in the Province. The municipalities are operating plants designed to give varying degrees of treatment. Many of these call for complete treatment of the sewage, with the requirements being more difficult during the summer months. These require careful supervision. The operators in charge of these are given an opportunity to become thoroughly familiar with the process. Periodic examination of these plants by the staff of the Division has assisted materially in producing good effluents and in maintaining sanitation in the streams. The number of treatment plants is now 77 for municipalities, with an additional number of industrial plants.

Stream Control:

Major projects for the correction of stream pollution have been delayed, owing to the war. The Welland Canal situation has remained the same. On the Grand River a conservation dam is nearing completion. On the Rainy River further advances have been made in regard to the investigation of pollution.

Military Camps:

The Division has co-operated with the authorities responsible for various airports and camps under construction in the Province. Advice has been given on water supply, sewerage systems and general sanitation. New factories have also been in a similar position. Every effort is made to assist in these measures, and this has required a considerable amount of work for the staff.

Milk Control:

The pasteurization programme for the Province has made further progress. Two more Orders-in-Council adding new territory to the legislation came into effect during the year. These are listed herewith. At the end of 1940 there were 813 pasteurization plants in operation, and it was computed from the data

available on sales that some 98% of all milk sold in the Province for consumption in fluid form was pasteurized. This does not include the additional quantities of canned milk consumed, which product is of course pasteurized. There has been a substantial increase in fluid milk consumption in recent months.

The programme of supervising milk plants has continued. The objective is to not only ensure a safe milk supply for all consumers, but also a supply which will be of the highest quality. Certificates of approval are issued to all plants as soon as full compliance is had with the provincial regulations. During the year some 2,000 examinations of pasteurizing plants were carried out. The close supervision of these dairies is important. No requirements have yet been put into force in regard to operators of these plants, but it is a step which has many advantages. At this time some difficulty is experienced by a number of dairies in securing operators. Changes take place more frequently than usual because of war conditions.

Recreational Sanitation:

An important step was taken during the year for the control of summer camps. These are what might be regarded as "fresh-air" camps. New regulations (see page 35) were adopted under the authority of legislation passed at the 1940 session. These regulations set up certain standards, and required that a license be obtained to operate each camp. In this, the first year of this procedure, 196 licenses were issued.

Efforts were made during the year to maintain general supervision over other recreational facilities in the Province. Inspections were made of the most important summer areas in an effort to supervise water supplies, waste disposal, foods and general sanitation. As in recent years the local health officers have continued to inspect tourist camps and highway services. These health officers reported to the Department on 315 tourist camps, 619 refreshment services, and 878 tourist homes.

Nuisances and Complaints:

An important activity of the Division has to do with the investigation of complaints of unsanitary conditions. These continue to be numerous, and they are received from health officers, local officials, and the public. Many of them are of seasonal nature, but some occur throughout the year. Over 185 such requests were dealt with in the year.

Personnel:

The work of the Division has been made more difficult this year due to losses in personnel. Military service has been responsible for part of this. Mr. L. A. Kay has taken a Commission in the Royal Canadian Engineers, and others are in training. Mr. W. R. Edmonds left the service during the year to join the Dominion Department of Pensions and National Health in sanitary engineering work.

Attached is a list of the water works and sewerage certificates issued during the year, as well as the additional area included for compulsory pasteurization. The new regulations on "Summer Camps" are also included.

CERTIFICATES ISSUED RE WATERMAIN EXTENSIONS, PURIFICATION, ETC., FOR THE YEAR 1940

Municipality	No. of Certificates	Watermains Extensions	Supply and Purification	New Systems
Ancaster Township	2	$ 4,502 15		
Anderdon Township	2	3,257 60		
Barton Township	2	3,784 05		
Beamsville	1	11,000 00		
Blenheim	1	21,000 00		
Burlington	1	730 00		
Chatham	3	2,641 50		
Clinton	1	1,400 00		
Cornwall	2	9,895 00		
Cornwall Township	1	385 00		
Crowland Township	1	1,945 85		
Dunville	1	11,000 00		
Etobicoke Township	1	24,538 00		
Fort Frances	2	4,290 00		
Fort William	4	21,771 61		
Goderich	1	2,000 00		
Grantham Township	1	2,500 00		
Grimsby	1	9,850 00		
Hamilton	3	6,028 00		
Hay Township	1	675 00		
Huntsville	1	3,000 00		
Kingston	1	30,000 00		
Kingston Township	1		(Industrial plant)	$ 35,000 00
Kitchener	1	700 00		
Leaside	3	19,007 50		
London Township	3	8,065 00		
Lucknow	1	1,050 00		
Malton	1		(Industrial plant)	86,000 00
North Bay	1	14,136 72		
Oakville	1	1,350 00		
Orillia	1	17,208 00		
Ottawa	9	24,850 00		
Peterborough	1	1,200 00		
Port Hope	2	3,459 69		
Preston	1	457 67		
Richmond Hill	1	1,600 00		
Rockcliffe Park	4	9,564 42		
Sarnia Township	1	9,960 80		
Scarborough Township	1	80,000 00		
Sombra Township	1			$ 12,600 00
Stamford Township	1	57,600 00		
Stratford	2	2,835 00		
Sudbury	1	8,010 00		
Teck Township	4	53,986 00		
Thorold Township	1	1,150 00		
Timmins	1	73,591 50		
Tisdale Township	1	10,911 39		
Toronto	3	2,059 00		
Toronto Township	3	20,900 00		
Uxbridge	1			30,000 00
Waterloo	1	528 00		
Watford	2	1,719 94		
Westminster Township	1	2,602 00		
York Township	9	14,612 00		
York Township East	18	32,884 89		
York Township North	3	18,110 20		
Total	120	$ 670,303 48		$ 163,600 00

CERTIFICATES ISSUED RE SEWERAGE FOR THE YEAR 1940

Municipality	No. of Certificates	Sewer Extensions	Disposal	New
Anderdon Township	1	$ 1,938 00	.....	.....
Arnprior	1	14,546 00	.....	.....
Barrie	1	64,315 04	$ 65,684 96	.....
Barton Township	3	14,786 90	.....	.....
Brockville	1	3,109 20	.....	.....
Burlington	1	2,010 00	.....	.....
Chatham	4	12,365 00	.....	.....
Cornwall	2	3,980 00	.....	.....
Crowland Township	3	55,840 25	.....	.....
Etobicoke Township	2	6,025 00	.....	.....
Fort Frances	2	1,889 00	.....	.....
Forest Hill Village	1	3,800 00	.....	.....
Fort William	4	37,862 87	.....	.....
Hamilton	8	158,115 00	.....	.....
Hespeler	3	3,850 00	14,000 00	$ 88,000 00
Kingston	3	2,023 65	.....	.....
Kitchener	3	57,569 00	.....	.....
Leaside	7	176,589 56	.....	.....
London	4	14,853 28	.....	.....
Mimico	1	1,375 00	.....	.....
Nipigon Township	1	1,839 43	.....	.....
Oakville	1	2,500 00	.....	.....
Ottawa	7	14,794 94	.....	.....
Owen Sound	1	771 40	.....	.....
Peterborough	1	1,958 50	.....	.....
Port Arthur	2	41,530 12	.....	.....
Preston	1	1,376 32	.....	.....
Rockcliffe Park	3	8,281 99	.....	.....
St. Catharines	2	13,174 50	.....	.....
St. Thomas	2	2,400 00	5,900 00	.....
Sarnia	3	18,965 86	.....	.....
Sault Ste. Marie	1	6,920 00	.....	.....
Scarborough Township	1	9,452 20	.....	.....
Simcoe	1	2,373 00	.....	.....
Sudbury	1	13,430 00	.....	.....
Swansea	2	1,460 00	.....	.....
Teck Township	3	36,969 00	2,500 00	.....
Thorold Township	1	843 20	.....	.....
Timmins	2	51,495 96	.....	.....
Tisdale Township	1	5,153 00	.....	.....
Toronto	7	11,985 00	5,600,000 00	.....
Westminster Township	3	1,615 83	.....	.....
Woodstock	2	4,293 00	.....	.....
York Township	3	6,794 00	.....	.....
York Township East	17	54,728 32	.....	.....
York Township North	5	19,725 00	7,000 00	.....
Total	129	$ 971,473 32	$5,697,084 96	$ 88,000 00

SUMMARY

Re Waterworks:	Estimated Cost
Extensions to existing systems	$ 670,303 48
Purification of Water supplies	
New Systems	163,600 00
Total	$ 833,903 48

Re Sewerage:	
Extensions to existing systems	$ 971,473 32
Treatment Works	5,695,084 96
New Sewerage systems	88,000 00
Total	$6,754,558 28

The total number of applications favorably reported upon re Waterworks and Sewerage for the year was 249 and involves an estimated expenditure of $7,588,461 76

Copy of an Order-in-Council approved by The Honourable the Lieutenant-Governor, dated the 28th day of December, A.D., 1939.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that Section 95a of *The Public Health Act* as enacted by Section 8 of *The Health Amendment Act, 1938*, be made applicable to the municipalities and areas designated in the attached schedule.

The Committee further advise that this Order shall come into force on the first day of March, 1940.

Certified,

C. F. Bulmer,
Clerk, Executive Council.

1. In The County of Essex:—The Townships of Maidstone, Rochester, Tilbury West, Tilbury North, Sandwich South, Colchester North, Gosfield North, that part of Gosfield South Twp. lying north of the line between Lots 3 and 4, and that part of Mersea Twp. lying north of the line between Concessions 6 and 7.
2. In The County of Kent:—The Townships of Camden, Howard, Orford, Tilbury East, Zone, Chatham, Dover, Harwich, Raleigh.
3. In The County of Lambton:—The Townships of Bosanquet, Brooke, Dawn, Enniskillen, Euphemia, Moore, Plympton, Sarnia, Sombra, and Warwick.
4. In The County of Middlesex:—The Townships of Adelaide, Caradoc, Delaware, Dorchester North, Ekfrid, Lobo, McGillivray, Metcalfe, Mosa, Williams East, Williams West, and that part of London Twp. north of the line between Concessions 4 and 5.
5. In The County of Oxford:—The Townships of Dereham, Norwich North, Norwich South, Oxford East, Oxford North, Oxford West, that part of Nissouri East Township south of the line between Lots 10 and 11, and that part of the Township of Zorra West, lying south of the line between Lots 20 and 21.
6. In The County of Huron:—The Township of Howick.
7. In The District of Cochrane:—The Townships of Hislop and Playfair.
8. In The District of Sudbury:—The Townships of Chapleau, Hallam, May, Salter and Foleyet.
9. In The District of Nipissing:—The Townships of Ferris East and Caldwell.
10. In The District of Parry Sound:—The Township of Himsworth South.
11. In The District of Timiskaming:—The Townships of Cairo and James.

12. In The County of Norfolk:—The Townships of Middleton, Walsingham North, Houghton, Walsingham South, Charlotteville, Woodhouse, Windham, Townsend.

13. In The County of Brant:—The Township of Brantford.

14. In The County of Welland:—The Townships of Bertie, Crowland, Humberstone, Pelham, Stamford, Thorold, Willoughby.

15. In The County of Lincoln:—The Townships of Clinton, Grantham, Grimsby North, Grimsby South, Louth, Niagara.

16. In The County of Wentworth:—The Townships of Ancaster, Barton, Flamboro East, Flamboro West, Saltfleet.

17. In The County of Peel:—The Townships of Albion, Toronto, Toronto Gore.

18. In The County of Waterloo:—That part of the Township of Waterloo south of the Speed River, and north of the road between Concessions 5 and 6.

19. In The County of Russell:—That part of the Township of Cambridge bounded on the north by the line between Concessions 5 and 6; on the east by the line between Lots 5 and 6 of Concessions 6, 7 and 8; on the south by the line between Concessions 8 and 9; on the west by the line between Lots 12 and 13 of Concessions 6, 7 and 8.

20. In The County of Glengarry:—That part of the Township of Charlottenburg lying south of the line between Concessions 2 and 3; and that part of the Township of Lancaster lying south of the line between Concessions 2 and 3; and that part of the Township of Kenyon west of the line between Lots 30 and 31, and south of the line between Concessions 7 and 8, and north of the line between Concessions 4 and 5.

21. In The County of Stormont:—That part of the Township of Roxborough east of the line between Lots 6 and 7, and south of the line between Concessions 7 and 8, and north of the line between Concessions 5 and 6.

22. In The County of Prescott:—The Townships of Hawkesbury West and Alfred.

23. In The District of Algoma:—The Township of Thessalon.

24. In The District of Thunder Bay:—The Townships of Nipigon and Summers.

25. In The District of Kenora:—The Townships of Drayton, Vermillion, Vermillion Additional, and Van Horne.

26. In The County of Halton:—The Townships of Nelson and Trafalgar.

27. In The County of Frontenac:—The areas within 1½ miles of each of the following post offices, viz. Sharbot Lake, Parham, Tichborne, Verona, Hartington, Harrowsmith, Sydenham.

28. In The County of Hastings:—That part of Tyendinaga Township lying south of the Canadian National Railway tracks and east of the line between Lots 20 and 21 extended.

29. In The County of Lennox and Addington:—That part of the Township of Richmond south of the Canadian National Railway tracks and west of Napanee.

30. The Villages of:—Ailsa Craig, Alvinston, Arkona, Athens, Ayr, Bancroft, Belle River, Blyth, Cannington, Casselman, Cayuga, Cobden, Coldwater, Courtright, Creemore, Deloro, Drayton, Embro, Erieau, Erie Beach, Erin, Fonthill, Frankford, Glencoe, Grand Valley, Hastings, Highgate, Killaloe Station, Lanark, Lancaster, L'Orignal, Lucan, Marmora, Maxville, Merrickville, Mildmay, Millbrook, Norwood, Oil Springs, Omemee, Paisley, Richmond, St. Clair Beach, Streetsville, Teeswater, Thedford, Tottenham, Wardsville, Waterdown, Wyoming.

31. The Areas occupied by the Following Police Villages:—Baden, Burford, Elmvale, Eden Mills, Holland Landing, King City, MacTier, Manotick, North Gower, Orono, Plantagenet, Queensville, Rockwood, Schomberg, St. George, Sharon, Sunderland, Thornhill, Waubaushene.

Copy of an Order-in-Council approved by The Honourable the Administrator of the Government of the Province of Ontario, dated the 1st day of November, A.D., 1940.

Upon the recommendation of the Honourable the Minister of Health, the Committee of Council advise that section 95a of *The Public Health Act* as enacted by section 8 of *The Public Health Amendment Act, 1938*, be made applicable to the municipalities and areas designated in the attached schedule.

The Committee further advise that this Order-In-Council shall come into force on December 2nd, 1940.

Certified,

C. F. BULMER,
Clerk, Executive Council

1. IN THE COUNTY OF BRANT:—That part of the Township of Dumfries South, bounded on the west by the line between Lots 12 and 13 and on the north by the line between Concessions 3 and 4 (including the Police Village of St. George.)

2. IN THE DISTRICT OF MANITOULIN:—That part of the Township of Carnavon bounded on the east by the twenty-fifth side line, on the west by the fifteenth side line, on the north by the 3rd Concession, and on the south by the 6th Concession. That part of the Township of Assiginack included in the Manitowaning Townsite.

3. IN THE DISTRICT OF PARRY SOUND:—The Township of Himsworth North.

4. The Village of Newbury.

Regulations for Summer Camps (1940) is included in the Report of Solicitor. See page 35, of this Report.

DIVISION OF LABORATORIES

A. L. MacNabb, B.V.Sc., *Director.*

During the past year, the Division of Laboratories examined 708,749 specimens, which is an increase of 107,209 specimens, or 18 per cent., over the previous year. To this increase, the Central Laboratory contributed 64,634 specimens and the Branch Laboratories 42,575. This increase in volume of work is partially accounted for by the fact that during the present calendar year the Division examined 51,500 specimens for the Army and Air Force. The Central Laboratory also prepared and distributed 48 litres of typhoid paratyphoid vaccine for the armed forces. The cost per specimen for examinations during the past year was 20 cents, which is eight cents lower than that of 1934, and one cent per specimen lower than that of 1939.

During the present calendar year, the Central Laboratory staff has been increased from 74 to 82 members. Of this present number, four are employed in overtime duties, eight are employed in the outfit room and fifteen in the stockroom and other outfit preparation divisions. We were unfortunate in losing the services of Miss Gladys Matthews, who so faithfully served as senior serological worker in the Venereal Disease Section of the Central Laboratory. Following Miss Matthews' departure, the Section was changed from being merely a serodiagnostic section to a venereal disease section, with Dr. Elmer Barton in immediate charge. We also regret the departure from the staff of Miss Myrtle Rankin, B.A., and Miss Jean Faulds, B.A.

Mr. Roy White has maintained cost records for the various sections of the laboratory. Details of this procedure follow. A new system of maintaining records of stock and shipments to Branch Laboratories has been instituted in our stockroom.

Branch Laboratories:

The Ottawa Branch Laboratory has given two of its members to the Country's service, namely, Mr. Norman Martin and Mr. Walter Douglas, both of whom have enlisted in the Royal Canadian Air Force. Miss Evelyn Tuft was transferred to the Fort William Laboratory staff. Due to the increase in work, it was necessary to transfer a portion of the work previously performed in the Richardson Laboratory, General Hospital, Kingston, under the Directorship of Professor James Miller, to the Department of Health Laboratory, Government Building, Barrie Street, Kingston, under the Directorship of Dr. E. P. Johns. Two additional staff members were added to this Laboratory, so that the laboratory tests for the diagnosis of Venereal Disease and Tuberculosis are performed in this latter Laboratory. This arrangement has worked out most satisfactorily and harmoniously. This change has enabled Professor Miller and his staff to carry on the other additional work for the armed forces.

Technical Changes:

Due to the increase in the number of blood examinations which are made, and also to our desire that positive results should be expressed quantitatively, it was decided to subject all specimens received to one supersensitive test method and to one of moderate sensitivity. The Presumptive Kahn and Standard Kahn tests were the tests selected to which all specimens received should be

subjected. Where the results with both tests are negative, a report is forwarded. Where the results with both tests are positive the Quantitative Kahn test is also performed and the results of the Standard and Quantitative tests are reported. In instances where the results of the Presumptive and Standard Kahn tests are not in agreement, a Kolmer Wassermann test is also performed and the results of the Standard Kahn and Kolmer Wassermann Tests are reported. The G. C. cultural test method was made a routine laboratory procedure for Special Treatment Clinics and other Institutions.

Two new outfits were prepared for distribution, namely, the haemolytic streptococcus outfit, and an outfit for the collection of material for microscopic examination for Enterobius vermicularis. The Central Laboratory has prepared streptococcal group serum and also type serum for the various types belonging to Group A. This is available for distribution to the Branch Laboratories. Certain technical changes were made in the Enteric Disease Section of the Laboratory, details of which will be outlined under the work of that particular Section.

Outfits: 363,866 outfits were prepared and distributed by the Division. Of this number 257,625 were prepared at the Central Laboratory and 106,241 at the Branch Laboratories. During the present calendar year, 148 litres of T.A.B. vaccine were prepared. The following table, Table I, indicates the number and the nature of the examinations performed in the Central Laboratory and in each of the Divisional Branch Laboratories.

TABLE I

DIVISION OF LABORATORIES — DEPARTMENT OF HEALTH, ONTARIO

January 1 to December 31st, 1940

ROUTINE PROCEDURES. NUMBER OF EXAMINATIONS.

TYPE OF SPECIMEN	Toronto	London	Ottawa	Fort William	Kingston	North Bay	Peterboro	Sault Ste. Marie	Total
BACTERIOLOGY:									
Diphtheria—Direct Smears	2361	1331	614	447	42	16	94	10	4915
Cultures	6771	1466	3038	664	546	407	124	1028	14044
Virulence Tests	154	5	.....	2	.....	8	2	.....	171
Kellogg Tests	96	.....	.....	.....	.....	.....	.....	.....	96
Further Tests	529	.....	.....	623	.....	389	.....	1028	2569
Tuberculosis—									
Microscopic Smears	29653	4220	2373	1704	1717	1171	431	335	41604
Guinea Pigs Inoculated	910	21	6	79	.....	98	13	.....	1127
Cultures	7449	579	877	1006	97	577	.....	1	10586
Complement Fixation	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gonorrhoea—									
Microscopic Smears	17468	3452	6379	4112	2603	4388	1024	1465	40891
Cultures	1121	5	200	134	86	40	.....	89	1675
Complement Fixation	417	109	.....	223	.....	.....	.....	.....	749
Pneumonia—									
Pneumococcus Typing	2385	192	14	412	44	303	7	51	3408
Meningitis—Spinal Fluids	736	1204	67	121	125	148	43	18	2462
Swabs	520	.....	.....	.....	43	.....	.....	.....	563
Whooping Cough	209	.....	19	.....	.....	.....	.....	.....	228
Haemolytic Streptococcus Infections	1145	.....	.....	273	.....	.....	.....	.....	1418
Rabies	17	4	.....	.....	.....	.....	.....	.....	21
Agglutinations—									
Whole Bloods—									
Typhoid H. & O	2692	754	253	513	264	224	87	11	4798
Typhi VI	1665	.....	.....	.....	.....	.....	.....	.....	1665
Paratyphoid A	2692	728	247	262	264	224	87	11	4515
Paratyph. B (Type & Group)	2692	730	253	524	264	448	88	11	5010
Br. Abortus	2692	744	248	259	264	224	96	12	4539
Opsonic Index	1	.....	.....	.....	.....	.....	.....	.....	1
Cow's Blood	2475	428	.....	.....	.....	.....	.....	.....	2903
B. Tularense	2692	8	.....	248	.....	224	88	12	3272
Paradysentery Flexner	101	2	.....	.....	.....	.....	.....	.....	103
Dysentery Shiga	20	.....	.....	.....	.....	.....	.....	.....	20
Heterophile Antibody	49	.....	.....	.....	.....	.....	.....	.....	49
Dried Blood	19	.....	.....	.....	.....	.....	21	.....	40
Faeces Examinations—									
Parasitic Ova	168	37	79	73	12	23	.....	4	396
Occult Blood	62	38	22	9	11	15	3	4	164
Cultures	3289	407	103	417	93	225	29	11	4574
Blood Cultures	4341	1151	80	392	258	224	113	25	6584
Miscellaneous Bacteriological Examinations	11977	12403	432	2766	582	1506	595	1124	31385
TOTAL EXAMINATIONS FOR YR.	109566	30018	15304	15263	7315	10882	2945	5250	196545

ROUTINE PROCEDURES — TABLE I—Continued — NUMBER OF EXAMINATIONS

TYPE OF SPECIMEN	Toronto	London	Ottawa	Fort William	Kingston	North Bay	Peterboro	Sault Ste. Marie	Total
SANITARY ANALYSES:									
Milk—Standard Plate Counts	6317	5657	3971	3406	1135	1629	983	1586	24684
B. Coli Counts	6241	2626	3955	1137	339	1633	396	.....	16327
Phosphatase	3086	2627	3541	920	.....	1063	.....	652	11889
Chemical Tests	3773	3711	3909	1316	287	1536	1801	3302	19635
Mastitic Tests	.....	6	48	.....	.....	.....	.....	.....	54
Miscellaneous	572	.....	142	.....	.....	.....	.....	.....	714
Ice Cream—Plate Counts	.....	167	35	.....	.....	.....	.....	.....	202
B. Coli Counts	.....	167	35	.....	.....	.....	.....	.....	202
Phosphatase	.....	.....	33	.....	.....	.....	.....	.....	33
Water—									
Standard Plate Counts	1431	.....	.....	.....	.....	.....	.....	.....	1431
B. Coli	10109	3958	4746	3751	1060	2366	1468	4012	31470
Carbonated Beverages	.....	.....	5	.....	.....	.....	.....	.....	5
Food Examinations	44	.....	.....	.....	.....	.....	.....	.....	44
Restaurant and Beverage Room Utensils	.....	227	1358	.....	.....	.....	60	.....	1645
B. Coli	.....	.....	1260	.....	.....	.....	.....	.....	1260
Germicidal Tests	14	.....	.....	.....	.....	.....	.....	.....	14
TOTAL EXAMINATIONS	31587	19146	23038	10530	2821	8227	4708	9552	109609
SYPHILIS:									
Primary Lesion—									
Fontana Stain	.....	.....	3	.....	.....	.....	.....	.....	3
Dark Field	313	6	61	78	13	127	3	5	606
Blood Serum—									
Standard Kahn	77219	23961	21040	9619	10277	13108	.....	.....	155224
Presumptive Kahn	7213	1847	5	502	248	219	.....	.....	10034
Quantitative Kahn	387	.....	793	4	.....	10	.....	.....	1194
Hinton	69066	23837	20503	9527	10277	12879	.....	.....	146089
Kolmer Wassermann	1878	1349	1122	820	584	.....	.....	.....	5753
Diagnostic Kline	232	295	.....	.....	.....	.....	.....	.....	527
Spinal Fluid—									
Kolmer Wassermann	4472	1152	642	143	183	.....	.....	.....	6592
Standard Kahn	3609	979	562	263	.....	.....	.....	.....	5413
Colloidal Gold	4510	1234	638	265	160	171	.....	.....	6978
Colloidal Mastic	.....	.....	.....	72	160	.....	.....	.....	232
Total Protein	3363	217	.....	.....	160	69	.....	.....	3809
Globulin	.....	.....	639	318	160	.....	.....	.....	1117
Chlorides	.....	.....	.....	.....	160	.....	.....	.....	160
Cell Count	.....	.....	.....	.....	160	.....	.....	.....	160
TOTAL EXAMINATIONS	172262	54877	46008	21611	22542	26583	3	5	343891
PATHOLOGY—Biopsy	9971	2136	.....	.....	3546	.....	930	.....	16583
Autopsy	96	12	.....	.....	.....	.....	.....	.....	108
TOTAL EXAMINATIONS	10067	2148	.....	.....	3546	.....	930	.....	16691
CHEMISTRY:									
Blood Sugar	15981	3303	563	558	517	846	230	731	22729
N. P. N	7262	2051	.....	260	75	337	.....	2	9987
Water	169	31	2	.....	.....	.....	.....	439	641
Coal	193	.....	.....	.....	.....	.....	.....	.....	193
Miscellaneous	3702	519	195	158	.....	112	82	1061	5829
Liquors—Alcohol	1534	.....	.....	.....	.....	.....	.....	.....	1534
Beers	224	.....	.....	.....	.....	.....	.....	.....	224
Spirits	354	.....	.....	.....	.....	.....	.....	.....	354
Wines	522	.....	.....	.....	.....	.....	.....	.....	522
TOTAL EXAMINATIONS	29941	5904	760	976	592	1295	312	2233	42013
GRAND TOTAL FOR YEAR	353425	112093	85110	48380	36816	46987	8898	17040	708749

Table II indicates the preparations prepared and distributed at the Central Laboratory.

TABLE II

BIOLOGICAL AND CHEMICAL PRODUCTS PREPARED AND DISTRIBUTED FROM MAIN LABORATORY DURING YEAR 1940

T. A. B. Vaccine	12,864	Pkgs.
Rabies Vaccine	85	Pkgs.
Polio Serum	0	Pkgs.
Silver Nitrate	1,145	Ozs.
Bismuth Oxychloride	326,496	Grs.
Mercury Salicylate	8,148	Grs.
Sodium Hydroxide in the Treatment of V. D. S.	1,008	Ozs.
Distilled Water in the Treatment of V. D. S.	56,362	Ozs.

Bacteriology:

Diphtheria: 6,771 cultural tests were made for the presence of C. Diphtheriae. Of this number, 111 showed the presence of diphtheria-like organisms. Of the toxicity tests done during the year, the cultures from 51 proved to be true toxin-producing diphtheria organisms. Of this number, 15 were obtained from one outbreak.

Tuberculosis: The T. B. Cultural procedure during the past year was identical with that of the previous year. During the year 7,231 specimens were cultured for the presence of tubercle bacilli, of which 10.23 per cent. yielded growth of tubercle bacilli.

Miscellaneous: 11,977 examinations were performed at the Central Laboratory. Of this number, 2,468 examinations were made for pneumococcus organisms. Table III shows the results of the typing procedure.

TABLE III

PNEUMOCOCCUS TYPING

TYPES ISOLATED FROM VARIOUS TYPES OF SPECIMEN

January 1st—December 31st, 1940

Type	Sputum	Throat	Pleural	Ear	Spinal	Misc.	Total
1	82	2	8	....	....	....	92
2	90	1	1	....	....	....	92
3	128	4	2	6	....	....	140
4	51	....	....	....	....	....	51
5	28	2	2	1	1	....	34
6	40	....	....	....	....	....	40
7	49	....	....	....	1	1	51
8	68	2	1	....	....	....	71
9	32	....	....	....	1	....	33
10	10	....	....	....	1	....	11
11	27	....	1	....	....	....	28
12	12	....	....	1	....	....	13
13	36	2	....	....	....	1	39
14	14	....	....	....	1	....	15
15	11	....	....	....	....	1	12
16	49	....	....	....	....	....	49
17	22	....	....	....	....	....	22
18	44	....	3	....	....	....	47
19	44	....	....	3	1	....	48
20	22	....	....	....	....	....	22
21	11	....	....	....	....	....	11
22	24	1	....	....	....	....	25
23	17	1	....	1	....	....	19
24	10	....	....	....	....	....	10
25	10	....	....	....	....	1	11
27	5	....	....	....	....	....	5
28	10	1	....	....	....	....	11
29	14	....	1	....	....	....	15
31	9	....	....	....	1	....	10
32	14	....	....	....	....	....	14
33	4	....	....	....	....	....	4
Parmer	4	....	....	....	....	....	4
Horlisch	18	....	....	....	....	....	18
Garber	6	....	....	....	....	....	6
Ruskin	8	....	....	....	....	....	8
Allin	6	....	....	....	....	....	6
Undetermined	82	1	....	1	....	2	86
Multiple	89	1	....	....	....	....	90
Negative	1107	47	35	10	....	6	1205
Total	2307	65	54	23	7	12	2468

Enteric Disease: 2,627 specimens of whole blood were received at the Central Laboratory of which 443 specimens yielded positive results for either typhoid, paratyphoid, Brucella abortus or Pasteurella tularensis infection. 166 or 6.32 per cent. of the specimens received show a positive agglutination for S. typhi.

Blood Culture: As in previous years, the blood clot from each whole blood specimen is cultured. The following table, Table IV, indicates the results of the blood culture examination.

TABLE IV

ISOLATIONS FROM BLOOD CULTURES

Positive for S. Typhi	28	.74
Positive for S. paratyphi A	2	.05
Positive for S. paratyphi B	7	.18
Positive for non-hemolytic staphylococcus aureus	6	.16
Positive for hemolytic staphylococcus aureus	36	.95
Positive for mildly hemolytic streptococcus	19	.50
Positive for streptococcus viridans	12	.31
Positive for hemolytic streptococcus	15	.39
Positive for pneumococcus	4	.10
Positive for S. newport	1	.03

Total number of positive	130	
Total number of negative	3675	
Total number examined	3805	
Percent positive		3.42

Stool and Urine Specimens: The number of stool and urine specimens received was 3,831. Of this number, 2,410 were examined for the civilian population and 1,421 for the armed forces; these latter specimens submitted from food handlers. The following table, Table V, indicates the type of organism isolated.

TABLE V

ISOLATIONS FROM STOOL AND URINE SPECIMENS

Positive for S. typhi	123	5.10%
Positive for S. paratyphi B	53	2.19
Positive for S. morgani	45	1.88
Positive for Sh. paradysenteriae W	3	.12
Positive for Sh. paradysenteriae Newcastle	1	.04
Positive for Sh. paradysenteriae X	8	.33
Positive for Sh. paradysenteriae Z	12	.50
Positive for Sh. paradysenteriae Sonne	8	.33
Positive for S. typhi murium	15	.62
Positive for S. newport	1	.04

OTHER TESTS ON STOOL AND URINE SPECIMENS

	No. examined	Positive	%
Occult Blood	62	34	54.84
Ova	119	12	10.09
Amoebic Cysts	21	3	14.29
Pus	9	1	11.11
Special pin-worm outfits	18	2	11.11

In addition to the routine cultural examination, 21 specimens were submitted for examination for Entamoeba histolytica, three of which showed the presence of amoeba cysts. Of 119 specimens examined for the presence of parasitic ova, 12, or 10.09 per cent. showed the presence of ova of the Enterobius vermicularis. The Central Laboratory, during the past year, received 66 cultures for identification from other Laboratories. The following table, Table VI, gives the nature of the organism isolated from these cultures.

TABLE VI

IDENTIFICATION OF CULTURES SUBMITTED FROM OTHER LABORATORIES, ETC.

Number examined—66

S. Columbensis	2
Sh. alkalescens	8
Non-pathogenic Salmonella	5
S. paratyphi B	1
S. brandenburg	1
Escherichia Group	10
Alkaligenes faecalis	3
Proteus groups	1
S. typhi	4
Unidentified Salmonella	4
S. morgani	3
Sh. paradysenteriae Z	12
S. typhi-murium	2
B. pyocyaneus	1
Flavobacterium group	2
Sh. paradysenteriae X	1
S. newport	1
Eberthella Group	4
Sh. paradysenteriae Sonne	1

Typing, S. Typhi: During the year, 203 strains were tested for phage susceptibility to determine the type as proposed by Craigie. The following table, Table VII, shows the type of the typhi strains.

TABLE VII

Type	Number	Percent
A	19	9.36
B2	1	.49
B3	15	7.39
C	28	13.79
D1	3	1.47
D3	3	1.47
E1	69	34.00
F1	40	19.70
F2	1	.49
I.V.F.	17	8.37
W.F.	7	3.44
	203	

I.V.F—Imperfect V. Form. W.F.—W. Form.

By far the largest number of strains isolated were E., 34% of the total number.

F. came next with 19.7%—followed by C. with 13.79%.

In no case were two different types isolated from one patient, either from one stool specimen or from subsequent specimens.

It will be noted from the above table that Type "E" accounted for 34 per cent. of the total number. Type "F" was second with 19.7 per cent. and Type "C" third with 13.79 per cent. In co-operation with the Epidemiological Division, we desired to have all strains of typhi typed, so that the type of case strains may be compared with the serological type of carrier strains.

Spinal Fluids: During the year, 752 specimens of spinal fluid were subjected to microscopic and cultural examination. The following table, Table VIII, shows the microscopic and cultural results.

TABLE VIII

SPINAL FLUID EXAMINATIONS ON 752 SPECIMENS, 1940

Culture		White Cell Count	
Meningococcus	13	No increase	480
Meningococcus on smear Culture no growth	11	10-49 White Cells	72
Pneumococcus	15	50-99 White Cells	23
H. Influenza	8	100-499 White Cells	60
Haemolytic streptococcus	12	Over 500 White Cells	117
Streptococcus viridans	7		
Haemolytic staphylococcus aureus	3		
Staphylococcus aureus	11		
Contamination—spore bearing organisms	10		
Tubercle Bacilli	12		
No growth	277		
Culture not done	373		
	752		752

The pneumococcus isolations include the following types: 1, 2, 5, 6. 7, 9. 10, 11, 18, 19, 31.

Syphilis: The new serodiagnostic routine, as indicated above has been performed since November last. The routine has been changed at each of the Branch Laboratories as from January 1st, 1941, so that uniformity of tests will be maintained. The number of spinal fluid specimens received has shown a decided increase. The same routine as reported last year, namely, Kolmer Wassermann, Colloidal Gold and Total Protein determination is conducted on each fluid.

Dark Field Examination: The following table, Table IX, outlines the number of dark field specimens submitted to the Central Laboratory and the results obtained by dark field examination and by serological examination of the peripheral blood.

TABLE IX

DARK FIELD EXAMINATION, 1940

Positive specimen accompanied by blood			93
Positive specimen not accompanied by blood			56
Total Positive Specimens			149
Total Specimens accompanied by blood			220
Dark Field Positive	93	42.3%	
Blood Positive	56	25.5%—77	35.0%
Blood Doubtful	21	9.5%	

Gonorrhoea: 1,121 cultural examinations have been performed at the Central Laboratory and 417 complement fixation tests. The results of cultural examination are used by physicians in charge of clinics as an aid in determining

the effect of treatment. Cultural examination has been found to be approximately ten per cent. more sensitive than microscopic smear examination. It must, however, be borne in mind that it is necessary, for accurate results, that material for culture be collected not earlier than five days after discontinuing chemotherapy.

Meningitis: Five hundred and twenty swabs of pharyngeal exudate were examined for the presence of meningococcus organisms during the past year. In one survey 470 swabs were examined. A portable laboratory was established at a centre. The medium used was the heart infusion, proteose peptone agar, enriched with ten per cent. blood. Every precaution was exercised to ensure that the medium was maintained at blood heat. All suspicious colonies were fished at 24 and 48 hour intervals, plated and transferred to semi-solid ascitic fluid agar, containing the appropriate carbohydrate. From these swabs 28 strains of meningococci were isolated, 26 of which were in type 2 and two of which were in type 1. Eighty strains of Gram negative diplococci, which were not meningococci, were encountered.

Rabies: 17 cats' and dogs' heads were received at the Laboratory during the year. Rabies infection was not demonstrated in any of these.

Haemolytic Streptococci: 1,145 swab outfits were received from Institutions for the identification of haemolytic streptococci. Of 34 cultures subjected to serological tests, following are their groupings:

Group A	22	Group H	1
Group B	4	Group F	5
Group C	2		

A separate report from the Provincial Pathologist follows, also a report from each of the Branch Laboratories.

I wish to thank each and every Director for his hearty co-operation during the past year. I would like to stress the very excellent co-operation received from the two University Laboratories, namely, that of Professor James Miller, Queen's University, Kingston, and Dr. A. J. Slack, Institute of Public Health, Western University, London.

FORT WILLIAM BRANCH LABORATORY

A. E. Allin, B.A., M.D., D.P.H., *Director.*

I have the honour to submit herewith the Annual Report of this Branch Laboratory for the year 1940.

Routine examinations numbered 48,392, an increase of 7,346 examinations, or 18 per cent., more than the 41,046 tests done in 1939. This increase was general for all tests, showing an increasing appreciation of the value of bacteriology, not only in public health but in clinical medicine as well.

Approximately 5 per cent. of our work is being performed for the Army and Air Force at the present time.

Due to illness and resignations the staff was short-handed during most of the year. We were able to carry on the increased work only due to help received from the Central Laboratory and by one temporary appointment.

Apart from the regular routine, time was found to deliver some 50 lectures in Bacteriology and Immunity to the nurses of the three local hospitals. Many of these undergraduates took the opportunity of visiting the laboratory and observing the work carried on there. For the first time the Port Arthur General Hospital arranged that the Public Health studies of their graduating class should include a half-day with us studying Public Health Bacteriology. During October we were privileged to have as an observer Miss M. Norris, of the Children's Hospital, Winnipeg. Miss Norris is a biochemist, interested in acquiring some knowledge of general bacteriology.

I wish to express my thanks to Dr. A. L. MacNabb for his co-operation and assistance during this past year.

OTTAWA BRANCH LABORATORY

F. L. Letts, M.B., D.P.H., *Director.*

I have the honour to submit herewith a summary of the work of this Branch Laboratory during the year 1940.

In common with similar establishments throughout Canada, our Laboratory has had more than the usual number of changes in personnel, due to wartime conditions. Of the eight persons on duty here at the beginning of 1940, two have enlisted in the Active Canadian Army.

The number of specimens examined here in 1940 is 23.8 per cent. more than the number for 1939. Our work as a distributing centre has also increased. During 1940 we issued 7,795 vials of free insulin; 10,961 packages of therapeutic preparations other than insulin, and 44,867 diagnostic outfits.

During the year the wiring conducting electricity into this building has been thoroughly overhauled by the Ottawa Water Works Dept. and the Ottawa Hydro Electric Commission, so that we now have ample electric power for our requirements, without the danger of overloading which previously existed. Electrically operated equipment installed during the year includes two frigidaires, a large centrifuge, an incubator, and an electric autoclave.

We wish to thank Doctor MacNabb, Director of Laboratories for continued co-operation in the furnishing of equipment, supplies and personnel.

NORTH BAY BRANCH LABORATORY

A. D. McClure, B.A., *Director.*

I have the honour to submit herewith the annual report of the work carried out in this laboratory during the past year.

The increase in volume has not been as great as during the past few years: however a substantial increase of approximately six per cent. is shown. The number of examinations made was 46,987.

The phosphatase test which has now been a routine procedure on all milk from supplies required to be pasteurized has shown very few cases of underpasteurization during the past year. This would seem to indicate that this test is of great value to the health officials and dairymen of those municipalities which submit milk to the laboratory.

The findings shown by the colon counts on milk are not as satisfactory as one might hope for. One can only hope that in the near future the significance

of this test will be more fully realized, and health officials and dairymen will make greater use of it in improving the quality of the milk in their various municipalities.

I wish to express thanks on behalf of the staff and myself to Dr. MacNabb and his staff for help received at various times throughout the year.

SAULT STE. MARIE BRANCH LABORATORY

N. F. W. GRAHAM, B.A., M.D., *Director.*

The work of the Laboratory at Sault Ste. Marie, shows some variation in the numbers of the various specimens examined as is usually the case. The latter half of the year showed a falling off in the work on the Streptococcus. This was due to the fact that in 1939 when the local Regiment was in barracks this organism was found to be responsible for an outbreak of sore throats of more or less severity. This infection spread to the public outside, causing a continuous outbreak lasting until the winter of 1939-40 was over. This last year nothing of a similar nature has occurred.

The work generally would be greatly stimulated by even the addition of a stenographer, but preferably another well-trained person. There have been no epidemics during 1940 of a serious nature.

PETERBOROUGH BRANCH LABORATORY

C. B. WAITE, M.D., *Director.*

I have the honour to submit my report for the Branch Laboratory, Peterborough, for the year 1940, as follows:

There has been a general increase in the work at the Laboratory. The phosphatase tests have been done since May. Examination of throat swabs for diphtheria still continue to decrease, although a few are still received. Very few of them were positive.

There appears to be a marked increase this fall in the number of haemolytic streptococcus and staphylococcus aureus infections.

The examination of all kinds for diagnosis of the typhoid group have decreased, and also, very few positives were found as compared with other years.

A junior technician has been taken on the staff, owing to increase in the work in the last three years. This was found necessary. We are preparing to undertake the Kahn test in the near future.

I wish to thank the Director for his co-operation throughout the year.

All of which is respectfully submitted.

KINGSTON BRANCH LABORATORY

JAMES MILLER, M.D., F.R.C.P.E.& C., *Director.*

I beg to submit the statistics of the work done in the Kingston Branch Laboratory during the past year. Comparison of the figures with those of 1938 and 1939 shows a notable increase for 1940. This increase is mainly under the headings of blood serum tests for syphilis and smears and cultures for Neis-

serian Infection. There has also been an increase in the tissue examinations, although owing to the Belleville General Hospital now having their own pathologist, the figures are not as high as they would otherwise have been. There is some reduction in the milk examinations, owing to the fact that the various dairies are running their pasteurizing plants with greater knowledge and skill.

As in previous years for some time past the routine examinations of the water supplies of Kingston Municipality of the Penitentiary and of the Royal Military College Hospital have been carried out in the Department of Preventive Medicine under Professor Wyllie as have also the phosphatase tests. The co-operation between the two laboratories in these matters has been harmonious and entirely satisfactory.

I would again wish to express my gratitude to the Honourable the Minister of Health, the Deputy Minister and to Dr. MacNabb, for kindness and ready co-operation in all respects.

INSTITUTE OF PUBLIC HEALTH, LONDON

A. J. Slack, Ph.C., M.D., D.P.H., *Director.*

I have the honour to submit herewith the annual report of Laboratory examinations made during the year 1940 by the Branch Laboratory of the Department, located in the Institute of Public Health, London.

Laboratory examinations made during the year numbered 112,093 as compared with 103,957 examinations for the preceding year. This represents an increase of 8,136 examinations or 7.8 per cent. over the total for 1939. Analysis of these figures shows that the most marked increases occurred in specimens of blood and spinal fluid for serological examination, in blood chemistry, and in milk samples for chemical and bacteriological examination. During the year 52,432 outfits were reclaimed and prepared for redistribution and 55,394 outfits were distributed as compared with 43,650 outfits reclaimed and 47,732 outfits distributed during 1939.

Biologicals distributed from this centre, exclusive of insulin, numbered 15,852 packages. Free insulin distributed included 8,052 packages or 2,903,400 units of ordinary insulin and 2,706 packages or 1,100,000 units of Protamine Zinc insulin. Thus an increased amount of work is noted in every line of laboratory activity, and it is perhaps worthy of mention that this increased amount of work has been accomplished without increase in staff.

I wish to express my appreciation to the members of the Institute staff and to Dr. MacNabb and his staff for their hearty co-operation throughout the year.

PATHOLOGY

S. F. Penny, M.D., *Pathologist*

H. Doris Howell, M.A., M.B., *Assistant Pathologist.*

During the year 1940, the Section of Pathology of the Central Laboratories continued to provide tissue diagnostic service to hospitals and surgeons throughout the Province. This year shows a considerable increase in total specimens, reaching 10,860 compared with 8,679 in 1939, an increase of 25.1%.

During the year, Dr. J. Harold Shaw received training in surgical pathological diagnosis for a period of two months before leaving to join the R.C.A.M.C. Dr. James Bell has given part-time assistance in pathology in addition to his

work in bacteriology. Three students, and one junior technician were given instruction in pathological technique during the year. Miss Marjorie Brockway, after six years efficient work as secretary in the section, became stockkeeper of the Division of Laboratories. No changes were made in the technical staff.

Only minor changes were made in technical methods during the year, the paraffin and frozen section methods being continued.

Dr. James Miller, Dr. W. L. Robinson, and Dr. E. A. Linell, continued to give valuable consultant service to the section.

The following tables show in statistical form the work of the section of Pathology for 1940.

REPORT 1940

Number of Hospitals Served	207
Number of Physicians and Surgeons Served	3000
Number of Frozen Sections	3183
Number of paraffin Sections	7677
Number of Military Cases (4 autopsies)	149

ANALYSIS OF PATHOLOGICAL SPECIMENS 1930–1940

Year	Number of Surgicals	Number of Autopsies	Total Specimens	Total Malignant	% Malignant of Total Specimens
1930	599	9	609	132	21.1
1931	2625	46	2671	422	15.8
1932	3083	50	3113	440	14.1
1933	3652	23	3675	392	10.7
1934	4683	33	4716	563	11.9
1935	5553	44	5597	579	10.3
1936	5919	48	5967	595	9.8
1937	6917	87	7004	589	8.4
1938	8512	146	8658	768	8.8
1939	8554	125	8679	637	7.3
1940	10738	122	10860	756	6.9

AUTOPSIES 1940

Ontario Hospitals	4
Workmen's Compensation Board	10
Animal Tissue	13
From Hospitals and Doctors	95
Total for 1940	122

CLASSIFICATION OF TUMOUR SPECIMENS BY SITE AND SEX

Tissues	Malignant			Benign		
	Male	Female	Unstated	Male	Female	Unstated
Adrenal	....	....	....	1	....	....
Appendix	1	6	....	....	....	....
Blood	....	....	....	....	....	....
Brain and Nerves	3	....	....	1	....	....
Bladder, Urinary	6	5	....	3	....	....
Breast	1	132	....	....	64	....
Bone, Cartilage	3	2	....	19	15	....
Eye	1	1	....	....	1	....
Endometriosis	....	....	....	....	97	....
External Genitalia	2	5	....	....	....	....
Fluids	3	3	1	....	....	....
Glands, Primary	13	10	....	....	....	....
Secondary	15	61	1	....	....	....
Salivary	....	....	....	4	8	2
Intestine, Large	11	10	....	....	2	....
Small	2	....	....	1	1	....
Kidney, Ureter	3	1	....	....	....	....
Liver, Gall Bladder	....	3	....	....	....	....
Lungs	7	....	....	....	....	....
Mouth, Tongue, Lip	43	7	....	41	46	7
Nose, Throat	1	2	1	18	8	3
Ovary, Tube	....	21	....	....	80	....
Pancreas	1	1	....	....	....	....
Peritoneum	1	1	....	....	2	....
Prostate	13	....	....	1	....	....
Rectum, Anus	9	10	....	14	12	2
Skin	79	66	4	125	157	10
Subcutaneous Tiss., Tendon, Muscle	5	7	1	78	55	3
Stomach, Oesophagus	5	4	....	....	....	....
Testis, Epididymus	12	....	....	1	....	....
Thyroid	....	....	....	40	166	....
Urethra	2	1	....	1	19	....
Uterus, Body	....	29	....	....	341	....
Cervix	....	72	....	....	118	....
Vagina	....	5	....	....	9	....
Secondary	20	21	....	....	....	....
Totals	262	486	8	347	1201	27
	Malignant Total 756			Benign total 1,575		

Total Tumours	2331
Of all tumours, malignant	32.4%
Total Tissues	10860
Percentage of Tumours to total tissues	21.5%
Percentage of malignant tumours to total tissues	6.9%