

Outline: Legal to country
Business papers

140

SESSIONAL PAPERS

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SESSION 1915

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- No. 2 Estimates—Supplementary, for the service of the Province for the year ending 31st October, 1914-15. Presented to the Legislature, February 23rd and March 17th, 1915. *Printed.* Estimates for the year ending 31st October, 1916. Presented to the Legislature, 23rd March, 1915. *Printed.*

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- No. 21 Report of the Provincial Board of Health for the year 1914. Presented to the Legislature, March 15th, 1915. *Printed.*
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- No. 24 Report upon the Feeble-minded of the Province for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 25 Report upon the Hospitals and Charities of the Province for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 26 Report upon the Prisons and Reformatories of the Province for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 27 Report on the neglected and dependent Children in the Province for the year 1914. Presented to the Legislature, March 29th, 1915. *Printed.*
- No. 28 Report upon the operation of the Liquor License Acts in the Province during the year 1914. Presented to the Legislature, February 23rd, 1915. *Printed.*

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- No. 30 Report of the Agricultural College and Experimental Farm for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
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- No. 34 Report of the Ontario Vegetable Growers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

- No. 35 Report of the Bee-Keepers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 36 Report of the Entomological Society for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
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- No. 40 Report of the Farmers' Institutes for the year 1914. Presented to the Legislature, March 24th, 1915. *Printed.*
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- No. 43 Report of the Horticultural Societies for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 44 Report of the Fruit Growers' Association for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 45 Report of the Bureau of Industries for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 46 Report of the Inspectors of Factories for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*

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- No. 51 Report of the Provincial Archivist for the year 1914. Presented to the Legislature, April 2nd, 1915. *Printed.*
- No. 52 Report of the Librarian on the State of the Library. Presented to the Legislature, February 24th, 1915. *Not Printed.*
- No. 53 Provincial Auditor's Statements for the year 1913-14. Presented to the Legislature, February 25th, 1915. *Printed.*
- No. 54 Report of the Workmen's Compensation Board, Ontario, for the year ending 31st December, 1914. Presented to the Legislature, February 22nd, 1915. *Printed for distribution.*
- No. 55 Copies of Orders-in-Council under subsection 6 of section 78, Cap. 62, R.S.O. 1914, relating to Surrogate Courts. Presented to the Legislature, February 23rd, 1915. *Not Printed.*
- No. 56 Copies of Orders-in-Council and Regulations made under the authority of the Department of Education or of the Acts relating to Public, Separate or High Schools. Presented to the Legislature, February 23rd, 1915. *Printed for distribution.*
- No. 57 Rules and Regulations made under chap. 24, R.S.O. 1914 as amended by Cap. 10, 4 Geo. V., relating to Succession Duties. Presented to the Legislature, February 25th, 1915. *Printed for distribution.*
- No. 58 Whitson's Report of Northern Development Branch under 2 Geo. V., Cap. 2, for the year 1914. Presented to the Legislature, March 18th, 1915. *Printed.*
- No. 59 Return to an Order of the House of the 22nd February, 1915, for a Return showing:—If any part of the 32,000 acres now being cleared, or about to be cleared, by the Government in the vicinity of Sudbury is to be set apart or used to give work to the unemployed. How many acres are to be so set aside, and what are the terms and conditions upon which the unemployed can secure work. Presented to the Legislature, March 8th, 1915. Mr. Carter. *Not Printed.*

- No. 60 Report of the Honourable Mr. Justice Riddell, as representative of the Province of Ontario at the Ceremonies in the City of New Orleans held in Commemoration of the one hundredth anniversary of the Battle of New Orleans and of the one hundred years of peace which began with the end of that Battle. Presented to the Legislature, March 15th, 1915. *Printed.*
- No. 61 Report of the Commissioner appointed to enquire into the financial affairs of the Village of Weston. Presented to the Legislature, March 15th, 1915. *Not Printed.*
- No. 62 Return to an Order of the House of the 15th March, 1915, for a Return showing:—1. All correspondence between the Government or any officer or official thereof and Paul Morand, License Inspector for North Essex, in reference to the resignation or dismissal in the month of April, 1914, of the said Paul Morand as License Inspector for North Essex. 2. All correspondence and communications between the Government or any officer or official thereof and the said Paul Morand and any resident or residents of North Essex with reference to the re-appointment of the said Paul Morand as License Inspector in North Essex in the month of June, 1914, a few days before the election. Presented to the Legislature, March 15th, 1915. Mr. *Ducharme.* *Not Printed.*
- No. 63 Agreement and Contract with Litho-Print, Limited, in connection with the Binding, etc., for the several Departments of Government. Presented to the Legislature, March 23rd, 1915. *Printed.*
- No. 64 Return to an Order of the House of the 10th March, 1915, for a Return showing:—1. Copies of all petitions or requests received by the Government since the 1st day of January, 1914, from any Municipal Authority or Body in the Province in reference to the imposition of a tax upon automobiles, or as to the distribution of that tax or a portion thereof to the municipalities maintaining the roads. 2. Copies of all correspondence between the Government and any officer or official thereof and any Municipality of the Province, or any Automobile Association or Organization in reference to the said matter. Presented to the Legislature, March 17th, 1915. Mr. *Racine.* *Not Printed.*
- No. 65 Return to an Address to His Honour the Lieutenant-Governor of the 11th March, 1915, for a Return of:—1. Copies of all Orders-in-Council and correspondence between the Government and any officer or official thereof and the Timiskaming and Northern Ontario Railway Company and any officer or official thereof in reference to the retirement of Frederick Dane as one of the Commissioners of the said Railway. 2. Copies of all Orders-in-Council and correspondence between the Government and

any officer or official thereof and the Timiskaming and Northern Ontario Railway Company with reference to the appointment of Mr. Lee as one of the Commissioners of the said Railway. Presented to the Legislature, March 19th, 1915. Mr. Mageau. *Not Printed.*

- No. 66 Return to an Order of the House of the 15th March, 1915, for a Return showing:—1. What officers have been appointed by the Workmen's Compensation Board under section 59 of the Workmen's Compensation Act. 2. What are the names, dates of appointment, and salaries of each officer so appointed. Presented to the Legislature, March 18th, 1915. Mr. Carter. *Not Printed.*
- No. 67 Return to an Order of the House of 3rd March, 1915, for a Return showing:—1. All statements furnished by the Canada Copper Company, the International Nickel Company, the Mond Nickel Company and any other companies producing nickel, under section 8 of the Mining Tax Act respecting Taxation. 2. All reports from any Government mining assessor, made under the provisions of the Mining Taxation Act in respect of the mining operations of the Canada Copper Company, the International Nickel Company or the Mond Nickel Company, and particularly with reference to the royalties or taxes to be paid by the said Companies. 3. All correspondence between the Minister of Lands, Forests and Mines, or the Provincial Treasurer, or any officer or official of the Government and the Canada Copper Company, the International Nickel Company, the Mond Nickel Company and any other Companies producing nickel, with reference to the amount of royalties or taxes paid by the said Companies, or any of them, to the Provincial Treasury of the Province in respect of the ore mined or the mining operations carried on by them in the Province of Ontario. Presented to the Legislature, March 18th, 1915. Mr. Carter. *Not Printed.*
- No. 68 Proceedings of the Second Annual Convention of the Association of Cemetery Officials of Canada. Presented to the Legislature, March 26th, 1915. *Not Printed.*
- No. 69 Return to an Address of the 23rd day of March, 1915, praying for a Return shewing: 1. Copy of Order-in-Council dated 14th day of February, 1871, appropriating and transferring to the Government of the Province of Ontario the lands and property known as The Ontario Government House. 2. Copy of the Letters Patent dated the 15th day of January, 1908, declaring the said lands to have been transferred and appropriated for the use of the Provincial Legislature of the Province of Ontario within the meaning of the British North America Act, 1867. Presented to the Legislature 26th March, 1915. Mr. Bowman. *Not Printed.*

- No. 70 Return to an Order of the House of the 25th March, 1915, for a Return showing:—1. How many convictions for violation of the Liquor License Law have been made for the electoral district for North Essex since the re-appointment of Paul Morand as License Inspector at the end of May, 1914. 2. Have Provincial officers or detectives been sent into this district since the 1st of June, 1914, to assist in securing enforcement of the law. 3. How many prosecutions have been instituted by, or at the instance of Provincial officers or detectives, and the said Paul Morand, respectively. Presented to the Legislature, March 29th, 1915. Mr. *Richardson*. *Not Printed*.
- No. 71 Special Report on the Organization and Administration of the Hospitals for the Insane, Feeble-Minded and Epileptics and District Industrial Farms of the Province. Presented to the Legislature, March 29th, 1915. *Printed for distribution only*.
- No. 72 Return to an Order of the House of the 24th March, 1915, for a Return showing:—1. What is the total number of the herd for dairy purposes now maintained by the Government at the Guelph Prison Farm. 2. How many of these were purchased and how many raised on the farm, respectively. 3. What was the total amount paid by the Government for the portion of the herd purchased by them. Presented to the Legislature. 31st March, 1915. Mr. *Ham*. *Not Printed*.
- No. 73 Financial Statement of the Treasurer of Ontario. Presented to the Legislature, April 2nd, 1915. *Printed for distribution only*.
- No. 74 Return to an Order of the House of 31st March, 1915, for a Return showing:—1. The number of English-French schools which have complied in the year 1914 with Regulation 17 of the Department of Education passed in the year 1913. 2. The number of English-French schools which have not complied with said Regulation 17 in the year 1914. 3. What English-French schools have received grants in the year 1914 under the Public Schools Act, and the amount thereof. 4. Copy of joint reports, if any, made by any inspectors pursuant to Regulation 17 and dated on or about May 23rd, 1913. 5. Copy of letters exchanged between ex-Inspector Henri Saint Jacques and the Department of Education or any officer or officers thereof with reference to the resignation of the said Henri Saint Jacques which are dated on or about the 18th October, 1913, and the 23rd October, 1913. Presented to the Legislature, April 2nd, 1915. Mr. *Mageau*. *Not Printed*.
- No. 75 Return to an Order of the House of the 17th March, 1915, for a Return showing:—1. How many timber berths or locations have been sold since the 1st day of January, 1914. 2. Were all such berths or locations advertised for sale; if not, which ones were sold without advertisement. 3. If any were sold without

being advertised for sale, who were the purchasers, and what are the prices realized and the dates of the sales, respectively. 4. In what papers were the different timber berths or locations respectively advertised for sale, and what were the dates of such advertisements respectively. 5. What is the period for which they were so advertised in the said papers, respectively. Presented to the Legislature, April 2nd, 1915. Mr. *Munro*. *Not Printed*.

No. 76 Telephone Systems, specifications, etc., as *per* Report of Ontario Railway and Municipal Board. Presented to the Legislature, April 2nd, 1915. *Printed*.

No. 77 Return to an Order of the House of the 28th April, 1914, for a Return showing:—1. If the Government granted the right to cut Pine or any other timber to Messrs. Foley Bros., Contractors, or to the Northern Construction Company, Limited, or to any person, firm or company in connection with the construction of the Canadian Northern Railway Company in the vicinity of Duchesne Lake, situate about 90 miles from the Town of Sudbury. 2. If so, to what persons, firms or companies were such permits made, and the dates of each. 3. What consideration did the Government receive with respect to each of the said permits, if any. 4. What Pine or other timber has been cut to date by each of the persons, firms or companies with respect to such permits. 5. How long was the right to cut to last and over what extent of land; and what were the other terms or conditions upon which such permits were made, if any. 6. What was the date of the completion of the construction of the Canadian Northern Railway at this point. 7. What amount of timber has been cut by any person, firm or company to whom such permit, as mentioned, has been made. 8. Is any person, firm or company at the present time cutting timber pursuant to such permit. Presented to the Legislature, April 2nd, 1915. Mr. *Richardson*. *Not Printed*.

No. 78 Return to an Order of the House of the 27th March, 1914, for a Return of:—All correspondence with reference to the resignation of Mr. Harkness, Manager, Superintendent of the Jordan Experimental Station. 2. The reports of the Committee or Advisory Board of the said farm for the years 1911, 1912 and 1913. 3. Statements showing the total expenditure to date divided between cost of building, cost of land, improvements of land and cost of management. Presented to the Legislature, April 2nd, 1915. Mr. *Anderson (Bruce)*. *Not Printed*.

No. 79 Return to an Order of the House of the 7th April, 1914, for a Return showing:—1. If the Lieutenant-Governor in Council made any arrangements under section 9 of the Succession Duties Act, with any part of the British Dominions, or with any

foreign country; and if so, with what Provinces or countries. 2. If no such arrangement has been made with the Province of Quebec, does the Honourable the Provincial Treasurer make an allowance with respect to Succession Duties in Ontario with respect to shares of stock of a bank or other financial institution whose head office is in the Province of Quebec. 3. If it is true that a Succession Duty is payable with respect to such shares, both in Quebec and Ontario, will legislation be introduced to protect estates from payment of double duty. Presented to the Legislature, April 2nd, 1915. Mr. *Marshall*. *Not Printed*.

- No. 80 Return to an Order of the House of the 27th April, 1914, for a Return showing:—1. What consideration was paid by the licensee to the Government in respect of the issue of the original licenses respectively, of the territory included within the proposed agreement with the Pembroke Lumber Company. 2. How much was paid by the Pembroke Lumber Company for these licenses respectively at the date of the purchase thereof by them. 3. What amounts of pine, hemlock, cedar, spruce, hardwood and other timber respectively have been cut on the limits or areas covered by the proposed agreement and returned to the Department as so cut by the Pembroke Lumber Company in each of the years since the purchase thereof by them. Presented to the Legislature, April 2nd, 1915. Mr. *Bowman*. *Not Printed*.
- No. 81 Statement on the distribution of the Revised and Sessional Statutes, up to 31st December, 1914. Presented to the Legislature, April 2nd, 1915. *Not Printed*.

UNIVERSITY OF TORONTO
REPORT OF THE
BOARD OF GOVERNORS
FOR THE
YEAR ENDING 30th JUNE
1914

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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UNIVERSITY OF TORONTO

REPORT OF THE

BOARD OF GOVERNORS

FOR THE YEAR ENDING 30th JUNE, 1914

To His Honour the Lieutenant-Governor-in-Council:—

The Governors of the University of Toronto have the honour to submit their eighth annual report. The report of the President upon the academic work of the University and its Colleges during the Session 1913-14 accompanies it together with the customary detailed statement of the receipts and expenditures of the Board for the fiscal year ended 30th June, 1914, duly audited as required by Statute.

During the year leases of certain of the lots on the east side of University Park were renewed for a further period of 21 years. The ground rentals secured by these leases have been thereby increased by the amount of \$2,128 per annum.

Owing to the diminished activity in the real estate market a sale of the remaining parcel of the old Upper Canada College block on King Street, referred to in the last report of the Board, was not effected. A portion of it, however, was sold for \$37,500, leaving a little over one hundred feet frontage yet to be disposed of.

The gross revenue for the year was \$856,727. The deduction of interest on special trust funds, \$8,418, and interest paid for bank accommodation, \$2,969, leaves the net revenue \$845,340, as against \$828,788 in 1912-13, being an increase of \$16,552. Of this increase \$12,597 is due to enhanced receipts under the University Act of 1906, which while exceeding to this extent the return in the immediately preceding year still fell \$12,658 below that of 1911-12, and \$23,836 below the revenue from this source in 1910-11.

The expenditure under the appropriations made by the Board for salaries and maintenance amounted to \$931,452, being an increase over that of 1912-13 of \$18,457. This increase is less than one-half of the sum (\$37,146) shown by the accounts of 1912-13 to be the excess expenditure of that year over 1911-12, and since the item of salaries (including retiring allowances) in the various Faculties and Departments is responsible for \$18,300, it is evident that the most rigid economy has been exercised with regard to appropriations for the different services. It may be pointed out, also, that the increase in the item of salaries, inclusive of the annual increment in the stipends of the academic staff, is \$5,500 below that of the previous year, and is in fact smaller than in any year since the Governors were appointed.

With regard to the maintenance accounts generally the expenditure is about the same, the increases shown in a few instances being balanced by reductions elsewhere. The Board are glad to be able to report still further saving in the cost of operating the Central Heat, Light and Power Plant, the gross expenditure for the year under review having been \$40,006, as against \$42,148 (exclusive of the \$5,000 paid to Griggs & Holbrook for supervision) in 1912-13. Arrangements have been completed for connecting the new buildings of Knox College to the Central Plant, and heat and light are now being supplied to them.

The deficit upon 1913-14 Revenue Account was \$86,112. The Board were obliged to add to this the sum of \$1,086, being the excess cost of construction and equipment of the Pathological building over and above the \$180,000 available from Capital, making \$87,198, towards which they had in hand the balance of the Reserve Fund created from the surplus income of former years, \$36,804. The difference, \$50,394, has been met from the special grant of \$80,000 voted by the Legislative Assembly, leaving \$29,606 available towards the estimated deficit of 1914-15.

All of which is respectfully submitted.

B. E. WALKER,
Chairman.

TORONTO, 28th November, 1914.

PRESIDENT'S REPORT

1913-14

To the Governors of the University of Toronto:—

GENTLEMEN,—I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30th, 1914.

The total staff of the University and University College numbered 401, of whom 49 were professors, 59 associate-professors, 14 assistant-professors, 82 lecturers and associates (in Medicine), and 197 demonstrators, fellows and instructors with sessional appointments. They were distributed as follows:

	Professors.	Associate Professors.	Assistant Professors.	Associates.	Lecturers.	Other Sessional Appointments.
University (Faculty of Arts)....	17	16	6	.....	16	69
University College	7	11	2	.....	10 (1 in Univ.)	2
Faculty of Medicine.....	15	23	.....	15	2	81
Faculty of Applied Science....	8	5	5	.....	17	37
Faculty of Household Science....	.....	2	.....	.....	1	5
Faculty of Forestry.....	1	.....	(1 in Univ.)	.....	2 (1 in Univ.)	.....
			Chief Instructors.	Assistant Instructors.		
Faculty of Education	1	2	5	14	.....	3

In Victoria College there were:

Professors (one in University)	10
Associate Professors	6
Lecturers	6
Sessional Appointments	2

In Trinity College there were:

Professors	9
Lecturers	8
Reader	1
Sessional Appointment	1

In St. Michael's College there were:

Professors	9
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Though Dean Galbraith's death occurred shortly after the close of the academic year I cannot allow this report to be issued without a reference to the severe loss that the University has thereby sustained. Dr. Galbraith graduated in Arts in

1868, became Principal of the School of Practical Science in 1889, and Dean of the Faculty of Applied Science in 1906. That faculty bears the impress of his mind and character. To its creation and development he devoted energies that would have brought him large emoluments as an engineer, and he found the reward of his work not in a high salary or rich material returns, but in the faculty as it now stands, and the unique regard for himself cherished by its graduates. A broadly educated engineer, holding well the balance between theory and practice, Dr. John Galbraith built up a native school of engineering that is rooted deeply in the life of this province.

Dr. McCurdy asked leave to retire from the active duties of the headship of the Department of Orientals in University College, which he had held for twenty-six years. Dr. McCurdy stands among the foremost Semitic scholars on this continent, and besides being an excellent teacher and gathering round him a following of competent pupils, he has brought distinction to the University by the quality and number of his published works.

Dr. Reeve, who a few years ago retired from the Deanship of the Faculty, asked leave to resign the professorship of Ophthalmology, which he held for twenty-seven years. Few men in the history of the University have given a more ungrudging service than Dr. Reeve has rendered to his Alma Mater, and he was surpassed by none in his endeavours to raise the standards of a faculty with the development of which his name will always be associated.

Dr. McDonagh also asked to be allowed to resign his teaching position after eighteen years of valuable work for which his University owes him sincere thanks.

The following gentlemen also resigned their positions:

Dr. E. Jones, Associate Professor of Psychiatry; Dr. H. T. J. Coleman, Associate Professor of Education to become Dean of the Faculty of Education in Queen's University; and W. E. Macpherson, B.A., Lecturer in Methods in History in the Faculty of Education to become professor in the Faculty of Education in Queen's University.

Leave of absence for the year was granted to Dr. P. Toews on account of illness; for the spring term, 1914, to Professor G. M. Wrong; for the year to Mr. A. W. McConnell to study abroad; and was continued for the year to Professor A. Kirschmann.

Following the practice of many other Universities, which have found it a very useful grade, the position of Assistant-professor was created at the beginning of the year.

The following promotions and new appointments were made during the year:

In the Faculty of Arts, P. W. Mueller, B.A., was promoted from a Lectureship to an Associate-Professorship in German; C. D. Howe, M.A., Ph.D. (Chicago), was promoted from a Lectureship to an Assistant-Professorship in Botany and Forestry; G. T. Northup, B.A., Ph.D. (Chicago), was promoted from a Lectureship to an Assistant-Professorship in Italian and Spanish; A. L. Parsons, B.A. (New York), was promoted from a Lectureship to an Assistant-Professorship in Mineralogy; T. R. Robinson, Ph.D., was promoted from a Lectureship to an Assistant-Professorship in Philosophy; G. O. Smith, M.A. (Oxon), was promoted from a Lectureship to an Assistant-Professorship in Latin; W. G. Smith, B.A., was promoted from a Lectureship to an Assistant-Professorship in Psychology; P. Toews, M.A., Ph.D. (Heidelberg), was promoted from a Lectureship to an Assistant-Professorship in German; E. M. Walker, B.A., M.B., was promoted from a Lectureship to an Assistant-Professorship in Zoology; C. N. Cochrane, B.A. (Oxon), was

appointed Lecturer in Greek; F. C. A. Jeanneret, B.A., Lecturer in French; G. Kartzke, Ph.D. (Berlin), Lecturer in German; Miss C. MacLachan, M.A., Lecturer in English; G. R. Mines, M.A. (Cantab), Lecturer in Physiology; I. R. Pounder, B.A., Lecturer in Mathematics; B. Tapper, B.A. (Iowa State College), Lecturer in German; and W. R. Taylor, Ph.D., Lecturer in Oriental Languages.

In the Faculty of Medicine, G. Boyd, B.A., M.B., was promoted from an Associateship to an Associate-Professorship in Oto-Laryngology; F. W. Marlow, M.D., C.M., was promoted from an Associateship to an Associate-Professorship in Gynaecology; J. G. Fitzgerald, M.B., was appointed Associate-Professor of Hygiene. The following were promoted from Demonstratorships to Associateships in Surgery and Clinical Surgery; W. W. Jones, B.A., M.B.; W. J. O. Malloch, B.A., M.B.; E. S. Ryerson, M.D., C.M.; W. A. Scott, B.A., M.B., and G. Silverthorn, M.B.

In the Faculty of Applied Science, E. G. R. Ardagh, B.A.Sc., was promoted from a Lectureship to an Assistant-Professorship in Applied Chemistry; M. C. Boswell, M.A., Ph.D., was promoted from a Lectureship to an Assistant-Professorship in Organic Chemistry; J. R. Cockburn, B.A.Sc., was promoted from a Lectureship to an Assistant-Professorship in Descriptive Geometry; W. M. Treadgold, B.A., was promoted from a Lectureship to an Assistant-Professorship in Surveying; C. R. Young, B.A.Sc., was promoted from a Lectureship to an Assistant-Professorship in Applied Mechanics; F. C. Dyer, B.A.Sc., was promoted from a Demonstratorship to a Lectureship in Mining Engineering; R. H. Hopkins, B.A.Sc., and A. R. Zimmer, B.A.Sc., were promoted from Demonstratorships to Lectureships in Electrical Engineering.

In the Faculty of Education, P. Sandiford, M.Sc. (Manchester), Ph.D. (Columbia), was appointed Associate Professor of Education; H. G. Manning, B.A., Assistant Instructor in the University Schools; and J. B. Wallace, B.A., Assistant Instructor in the University Schools.

Under the Medical Research Fund, Dr. William Goldie was appointed Director of the Medical Clinic of the Out-patient Department of the Toronto General Hospital; and Dr. A. H. Caulfeild, Dr. N. C. Sharpe, and Dr. K. M. B. Simon were appointed Fellows.

The following members of the staff delivered courses at Trinity College:

- A. F. Coventry, B.A., Lecturer in Biology.
- N. Di Pietro, Litt.D., Instructor in Italian and Spanish.
- G. E. Jackson, B.A., Lecturer in Political Science.
- E. J. Kylie, B.A., Associate Professor of Modern History.
- G. I. H. Lloyd, M.A., Associate Professor of Political Science.
- M. A. Mackenzie, M.A., Associate Professor of Mathematics.
- Miss H. MacMurchie, B.A., Fellow in History.
- Vincent Massey, B.A., Special Lecturer on History.
- G. T. Northup, Ph.D., Assistant Professor in Italian.
- T. R. Robinson, Ph.D., Assistant Professor in Philosophy.
- George Smith, B.A., Lecturer in Modern History.
- W. S. Wallace, B.A., Special Lecturer in History.
- R. H. Williams, B.A., Lecturer in History.
- G. M. Wrong, M.A., Professor of Modern History.

The total number of students registered in the University in 1913-14 was 4,234, distributed as follows:—

Faculty of Arts	2,574
Faculty of Medicine	623
Faculty of Applied Science	627
Faculty of Household Science	91
Faculty of Education	320
Faculty of Forestry	51
Registered in two Faculties	52

The figures may be further analyzed as follows:

FACULTY OF ARTS.

University of Toronto.

Candidates for Ph.D.	28
Candidates for M.A.	96
Occasional Arts Students	18
Dental Students	88
In the Summer Session	338
Veterinary Students	189
	— 757

University College.

First Year Undergraduates	308
Second Year Undergraduates	230
Third Year Undergraduates	188
Fourth Year Undergraduates	202
Occasional Students	99
	— 1027

Victoria College.

First Year Undergraduates	179
Second Year Undergraduates	119
Third Year Undergraduates	95
Fourth Year Undergraduates	79
Occasional Students	60
	— 532

Trinity College.

First Year Undergraduates	48
Second Year Undergraduates	25
Third Year Undergraduates	34
Fourth Year Undergraduates	25
Occasional Students	12
	— 144

St. Michael's College.

First Year Undergraduates	49
Second Year Undergraduates	24
Third Year Undergraduates	31
Fourth Year Undergraduates	9
Occasional Student	1
	— 114

FACULTY OF MEDICINE.

First Year Undergraduates	135
Second Year Undergraduates	100
Third Year Undergraduates	118
Fourth Year Undergraduates	112
Fifth Year Undergraduates	89
Dental Students	59
Occasional Students	10
	— 623

FACULTY OF APPLIED SCIENCE.

First Year Undergraduates	144
Second Year Undergraduates	142
Third Year Undergraduates	179
Fourth Year Undergraduates	161
Occasional Student	1
	— 627

FACULTY OF HOUSEHOLD SCIENCE.

Occasional Students	78
Department of Education Students	13
	— 91

FACULTY OF EDUCATION.

Students registered	320
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FACULTY OF FORESTRY.

First Year Undergraduates	21
Second Year Undergraduates	11
Third Year Undergraduates	8
Fourth Year Undergraduates	7
Fifth Year Undergraduates	1
Sixth Year Undergraduates	1
Occasional Students	2
	— 51

Of the 4,234 students, 3,054 were men, and 1,180 were women. The women students were distributed as follows:

Candidates for Ph.D.	3
Candidates for M.A.	18
Occasional Students in the University of Toronto.....	8
Dental Student	1
Summer Session	231
University College	367
Victoria College	144
Trinity College	61
St. Michael's College	29
Faculty of Medicine	24
Faculty of Household Science	91
Faculty of Education	203
	—1180

The numbers examined in the different departments of the University were as follows:—

Ph.D.	2
M.A.	51

Arts:

Fourth Year	365
Third Year	466
Second Year	659
First Year	574
Senior Matriculation	260
	—2324

Medicine:

Fifth Year	86
Fourth Year	110
Third Year	118
Second Year	87
First Year	115
	— 516

Applied Science:

Professional Degrees	6
Fourth Year	159
Third Year	170
Second Year	135
First Year	141
	— 611

Education	291
Forestry	46
Household Science	14
Law	41

Degrees in Pedagogy	9
Pharmacy	37
Music	10
Dentistry	172
Agriculture	52
Local Examinations in Music	713
Veterinary Science	16

The degrees conferred were:

LL.D. (Honorary)	12
D.Sc. (Honorary)	2
Ph.D.	1
M.A.	43
LL.B.	9
M.D.	3
M.D., C.M.	1
D.P.H.	4
M.B.	86
B.A.	296
C.E.	4
E.E.	1
M.A.Sc.	1
B.A.Sc.	150
D.Pæd.	1
D.D.S.	47
B.S.A.	43
B.Sc.F.	7
Phm.B.	35
D.V.S.	1
B.V.S.	9
Mus. Bac.	2

— 762

Lectures were delivered by Sir Rickman Godlee, Bart., LL.D., F.R.S., on "The Work of Lord Lister"; by Mr. F. R. Benson, of the Stratford-on-Avon Players, on "Shakespeare—A World Force"; by Sir George Paish, editor of *The Statist*, on "Canada and the Financial Situation"; by Mr. Frederick Lessore, on "Portraiture and Sculpture"; by Hon. W. H. Taft, on "Popular Government"; by Professor E. von Dobschütz, of Halle, Germany, Exchange Professor at Harvard University, on "Hellenism and Christianity"; by Professor W. Max Müller, of the Department of Egyptology, University of Pennsylvania, on "Egypt of the Time of the Pyramids"; by Lt.-Col. Sir William Boog Leishman, F.R.S., Professor of Pathology in the Royal Army Medical College, London, England, on "Medical Research"; by Mr. Laurence Irving, on "The Drama as a Factor in Social Progress"; by Mr. Frank Alval Parsons, M.A., a Professor in New York University, on "The Influence of Historic Periods on Modern Home Life"; and by Dr. Gustav Monod, of Paris, France, on "Facilities for Post-graduate Work in Paris."

The course of Saturday lectures, arranged as in former years by Professor Mavor, was as follows:

- Professor Healey Willan,
 "Irish Folk-Song."
 Principal Hutton,
 "The Wit and Wisdom of Herodotus."
 C. C. James, C.M.G.,
 "The Romance of Agriculture."
 Professor R. Davidson,
 "Mohammed."
 Professor W. A. Parks,
 "The Building Stones of Eastern Canada."
 Professor I. Benzinger,
 "Life in Palestine, Past and Present."
 Professor T. Stannage Boyle,
 "Dean Swift."

The second successful series of Organ Recitals, under the direction of Mr. F. A. Mouré, was given fortnightly in the Michaelmas Term and weekly during the Easter Term. At the fifteen recitals of this series upwards of one hundred compositions have been played, no numbers being repeated. Sixty-six composers have been represented on the programmes. The following musicians took part in these recitals: Mr. F. A. Mouré, Bursar of the University of Toronto; Mr. E. C. Macmillan, Mus. Bac. (Oxon); Mr. G. H. Knight, Mus. Bac. (Manchester); Mr. Otto James; Mr. E. R. Bowles; Mr. T. J. Palmer, A.R.C.O.; Mr. Fritz Thiele, Toronto; Mr. J. E. P. Aldous, B.A. (Cantab); Mr. C. E. B. Price, A.R.C.O., Hamilton; Mr. F. C. Thomas, A.R.C.O., Brantford; Mr. J. A. Bernier, Quebec; Dr. H. Sanders, Ottawa; Mr. J. H. Shearer, A.R.C.O., Montreal; and Mr. C. E. Wheeler, F.C.G.O., London.

The revision of the General Course in Arts was completed during the past session, the main principles which were kept in view being a reduction in the number of subjects and a more intensive study of languages in the first two years of the curriculum. Two options in the four fundamental sciences are allowed in the second year, so that the students may be distributed over several laboratories thus effecting a relief on the pressure which has been constantly growing by reason of the large pass classes of the first and second years. In order to avoid difficulties in the time table, which has now become very complicated, the whole course goes into effect at once, at the beginning of the session 1914-15. It is hoped that this new General Course, which is being taken by large numbers of undergraduates, will be found to offer a better general education than that which has been hitherto provided.

In admitting undergraduates to Arts, greater strictness has been observed since it has been found by experience that it is, as a rule, the opposite of a kindness to allow a student to enter ill prepared upon University lectures. Only in the case of those who are too old to be sent back to school is discretion exercised in admitting to the first year with more than three papers wanting, and they are thereby given the chance of entering the second year through Senior Matriculation. Maturity may claim a privilege, as indeed it introduces a new element. The authorities of the constituent colleges also have been exercising a more exact supervision of their students. There has been a stiffening of standards, and the undergraduate is not allowed to carry failures of an earlier year beyond the session next following.

The Honour courses are to be revised during the session 1914-15, and after this revision is completed I hope there may be a rest from recasting the curriculum. It will be necessary at the same time to revise our agreement with the Education Department in respect of specialist certificates, a matter of great importance both to the University and to the Education Department, and of no little difficulty, inasmuch as the Education Department has in mind the requirements of the schools of the Province and the University considers the matter from the point of view of a thorough education in the honour subjects. However, it should be possible to harmonise these two points of view.

I wish to call attention to the first report of the Medical Research Fund, which is appended. It sets forth both the principles aimed at and a summary of the results so far attained, and is, I believe, a promising beginning of a most important development in the University. There have been four Fellows working in the Department of Chemical Pathology: Dr. C. G. Imrie, Dr. Fletcher McPhedran, Dr. N. C. Sharpe, and Dr. K. M. B. Simon. Already two creditable papers have been prepared for the press, reports of which were read at the meeting of the Association of American Pathologists and Bacteriologists, held in Toronto last spring. In Pathology, Dr. Caulfeild and Dr. R. G. Armour have conducted investigations, the former to demonstrate, if possible, under what biological conditions infection to tuberculosis takes place; the latter to acquire the necessary technical facility in the use of special methods of histological study of the central nervous system. Dr. Goldie has conducted investigations in the Out-patient Department of the Toronto General Hospital dealing with the interpretation of symptoms.

An interesting addition to the Medical Department was made by the equipment of a laboratory for the manufacture of Biological Products, Diphtheria Antitoxin, Rabies Vaccine (Pasteur treatment), Tetanus Antitoxin and Anti-meningitis Serum, under Dr. J. G. Fitzgerald, whose experience in Harvard and California fitted him well for commencing similar work in Toronto. The fundamental idea underlying the project was the production of all sera and vaccines of value in public health work and their distribution at cost. It was expected that the active co-operation of public health authorities in Canada would be obtained, and this has, in large measure, been realized. When the manufacture of these products has been got under way the Hygiene Laboratory in which the remedies are prepared will be used extensively for research purposes along similar lines.

In the Faculty of Applied Science the new course of Highway Engineering has been extended. "The laboratory equipment now is such that with comparatively few additions a student will be able to carry out a very thorough series of investigations into the properties of metals, bitumens, and other materials employed in highway construction."

Under Mr. Keele instruction was again given in Ceramics, and a beginning has been made in supplying trained men for one of the largest industries of the Dominion. In this direction we may look for extension in the future.

The work of the Extension Committee has been assuming large proportions by reason of the change that was referred to in my last report, in which I called attention to the fact that in conjunction with the Department of Education, classes are provided in the summer for those who are intending to enter the Normal Schools and the Faculty of Education. This has meant a complete change in the character of the work that has hitherto been attempted in the Summer Session, and it is conducted under the Faculty of Education. Meantime, no classes are being given in the Faculty of Arts. It would seem, however, that there should be some use made

of the laboratories and the library of the University in the summer by teachers and others who wish to take advanced courses. If it were possible for the teachers to turn these courses to financial advantage in their schools I believe that we should find applicants for what we might offer, but hitherto the University has not met with much response as far as what it offered in Arts was concerned.

For some time representations have been made by different social and philanthropic agencies to provide courses of instruction and training for persons who wished to undertake work of this character. The number of such persons is increasing, and the rapid growth of immigration into Canada is forcing new and varied problems upon our attention. Hitherto the only training provided has been in institutions of the United States. It is gratifying that those who are interested in these problems look to the University for help, recognizing that the best and most permanent results can only come from a discipline in which economics, ethics, psychology and hygiene, which lie at the basis of so many social problems, are studied with academic exactness. Other Universities, such as Leeds, Liverpool, Birmingham, Sheffield, and Glasgow in Britain, and Columbia, Harvard and Chicago, to mention a few of those in the United States, have recognized that a place should be found for such training either directly in the University or in an institution to which they give their sanction. To meet the demand and following the example of other Universities, the Board of Governors and Senate authorized the launching of similar courses in Toronto for the coming year, basing them on practical teaching in economics, ethics, psychology and hygiene by professors of the University, and for the field work and practical training accepting the services of social workers in the city. The courses include charity organization, probation, child welfare, recreation, hospital social service, and settlement work. Through the generosity of a Toronto lady, the salary for a director of these courses was provided, and they are to be inaugurated at the beginning of the session 1914-15.

After many years spent in accumulating material and in planning the construction of the building, the Royal Ontario Museum was formally opened by His Royal Highness the Duke of Connaught, in March, 1914. The building was erected and is maintained by the Province and the University on equal partnership, and the University has handed over to the joint Board of Trustees its chief collections in Geology, Palæontology, Mineralogy, Archæology and Canadian Natural History, which in these new quarters will be used by the advanced students and at the same time be displayed where they can be seen by the public. Smaller and special collections are retained in the laboratories for purely teaching purposes. These splendid collections are for the most part due to benefactions of citizens of Toronto, who have contributed at various times gifts amounting in value to nearly \$300,000. Experts who have visited the Museum since its opening have remarked upon the extent of the collections, the value of the contents, and the beauty of the exhibits. In the cities of the old world museums are among the important means of education, and the intelligence of a city may be in some degree measured by the variety and quality of such institutions. The opening of this wing is, therefore, important as indicating that the province and city are provided with a new source of intellectual and artistic development.

In August, 1913, the Twelfth International Geological Congress met in Toronto on the invitation of the Dominion and Provincial Governments and the Universities of Canada. The buildings of the University were placed at the disposal of the Congress, and the professors of the departments of Geology and Mineralogy took a prominent share in its conduct. The Congress itself was most successful, and by

means of the excursions that preceded and followed it the scientific progress and the mineral development of Canada have both been materially served. In recognition of the occasion the honorary degree of Doctor of Laws was conferred on these representative delegates:

- Aubrey Strahan, London, England.
- P. M. Termier, Paris, France.
- T. C. Chamberlain, University of Chicago.
- R. Beck, Freiberg, Germany.
- J. J. Sederholm, Finland.
- T. Tshernyschew, Russia.
- W. G. Miller, Provincial Geologist of Ontario.

I must again refer to the building situation in the University, which is becoming rapidly more acute. For several years I have drawn attention to these needs, but it is only the recurrent necessity for finding new space in the already overcrowded buildings and constant complaints from those who are called upon to work in altogether inadequate conditions that enable one to realize how urgent is the need for more accommodation.

The Principal of University College again refers to the need of more room. At the opening of each session it is difficult to get space for the large classes in a building which houses not only the eleven hundred students of University College, but the administrative offices of the whole University. There should be a University building for history, economics, philosophy and social science in order to relieve the pressure on the main building. Also University College should be provided with a residence for its own students in immediate proximity to the main building. This would add to its character, and not leave it at a serious disadvantage as compared with Victoria and Trinity Colleges, which, I am glad to say, have or will have excellent residential quarters for their men and enjoy a collegiate atmosphere which adds immensely to their educative power, but which University College cannot hope to possess until it is equally well equipped.

I will again quote from the Professor of Electrical Engineering: "In the main machine laboratory there is often a choice between preventing the students from getting access to fresh air by opening windows and injury to valuable machinery by sand blown from the road over a window sill scarcely above the ground. A passage which is partly a tunnel, economically made out of one side of an extinct coal hole and which is the approach mostly used to our principal machine laboratories, continues to admit mud and water during wet weather despite the efforts of the architect. To come to matters of more importance, the case of the study room for the fourth year may be mentioned. Last year, as mentioned in my report, students complained of the alternative between foul air and catching cold by drafts. At that time there were twenty-three, now there are thirty-six in the same room, which is only 24 x 48. The room is much too crowded, and the men themselves complain of the noise and its interference with their work. This is one of the conditions which made it impossible to arrange for this class work to be given as an option in Mechanical Engineering, as the Council proposed."

The Professor of Anatomy again reports that the work of the department is at all times greatly hampered by lack of space and of the facilities which the modern methods of teaching anatomy demand.

In Forestry the need of space was so urgent that it was resolved to secure tem-

porary relief by converting an old stable into a laboratory, but the financial stress has interfered even with this plan.

In the Faculty of Education and the University Schools the demand for a gymnasium for the boys and teachers-in-training is even more insistent than last year, and a residence for women students in the Faculty of Education should be provided.

If there is to be any development in Industrial Chemistry and Ceramics it will be necessary to put an upper floor in the large wing of the Chemistry and Mining Building, which was formerly occupied as a museum for Mineralogy and Geology. With the revival of industry that will be likely to follow on the close of the war it is altogether probable that there will be a demand throughout this manufacturing Province of Ontario for an extension of industrial training, so that Technology will have to be added to Engineering as in the great Universities of Leeds, Birmingham, and Manchester, but such an extension is out of the question unless a University building is provided.

I cannot close this report without again referring to the seriousness of the financial situation. As a result of the war, we shall, of course, be called upon to mark time, but at its close such new conditions will have emerged we hope that the University may also be expected to move forward. We cannot afford to lag behind the other State Universities of this continent nor to tell our students that they must cross the border in order to get the highest academic training.

One result of the war will be, as far as one can judge, that the American universities will be thrown on their own resources and will develop rapidly. It is altogether probable that for some years to come few of their students will go to Germany to study, that the influence of many of the leading American professors, who for some years have been complaining that they had been over Germanised, will have its effect, and that the Americans, having learned method from Germany, will develop more and more their own learning and science at home. I believe, therefore, that there will be greater inducements in the not distant future held out by American universities to many of our students, who formerly went to Europe, to take their postgraduate work in the United States. There is, of course, much to be said in favour of this, but whereas nearly all our graduates, who formerly went to Europe returned to Canada, a very large proportion of those who go to the United States find permanent employment across the border. Such emigration is very costly, as we know from experience. We must, therefore, provide graduate work for our Ontario and Canadian students in our own institutions. Only a portion of our graduates in any case are able to go abroad. The rest we educate at home, and Toronto especially should draw graduates from the other provinces of the Dominion. With the heightened national spirit that is bound to come with renewed material prosperity, Canada must be prepared, unless she is to lose her self-respect, to provide the most advanced kind of academic training for her own people. During the past decade we have been strengthening undergraduate work, and if we can get rid of the school standards of the first year General Course this undergraduate work will be fairly well provided for. We are nearly ready for a further step. If it does not come soon the University will lag behind her neighbors. In the United States the university is becoming a potent influence. Its extraordinary power in Germany, albeit towards a perverted ideal, is only too well known. We may expect, therefore, that in Canada also it will play a large part in the future. It will supply men who will speak with authority to a wide public not only on matters of medicine, engineering, and industrial science, but on historical, economic,

and social problems. There should be also a place for the scholar who will set standards of taste for the people. High as is the general average in our undergraduate and honour courses, we need the distinction of the few who tower above the ordinary range. The great scholar or scientist is rare, but the University must set about to discover among its students him who may become such and save him for his country. Such advanced work is costly, but without it we shall have the chagrin of watching our neighbors shoot past us, and we shall have to be content with obtaining from them such trained teachers as they can spare us.

All of which is respectfully submitted.

November 12th, 1914.

R. A. FALCONER,
President.

APPENDIX A.

- (1) Report of the Principal of University College.
- (2) Report of the Dean of the Faculty of Medicine.
- (3) Report of the Dean of the Faculty of Applied Science.
- (4) Report of the Dean of the Faculty of Forestry.
- (5) Report of the Dean of the Faculty of Education.
- (6) Report of the Librarian.
- (7) Report on University Extension Work.
- (8) Statement regarding the Biological Museum.
- (9) Statement regarding the Geological Museum.
- (10) Statement regarding the Palæontological Museum.
- (11) Statement regarding the Mineralogical Museum.
- (12) Report on Medical Research Fund.
- (13) Report of the Director of Laboratory for manufacture of Biological Products.
- (14) Reports from Biological Stations.
- (15) Report of the Physical Director.
- (16) Report of the Superintendent of the Dining Hall.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE. (PROFESSOR HUTTON.)

The session 1913-14 has been marked by normal progress: the temporary loss of Professor Toews, through sickness, has been met by the addition to the staff of Messrs. Kartzke and Tapper: Herr Kartzke comes to us from Berlin with the consent of the Prussian Ministry of Education, as an exchange Professor: Mr. Tapper is also of German origin, though coming to us immediately from Chicago. The work of each has been excellent and the simultaneous loss to the department of Professors Vander Smissen and Toews has been faced with a measure of success which could hardly have been anticipated beforehand.

The need for more lecture rooms in the College or main building and the intrusion into the special precincts of the College of the Registrar's and Bursar's departments has engaged continuously the attention of the College Council, no less than of the President of the University. The President has already under consideration an expansion on the south-west face of the College, which, however the details work out, should relieve both College and University: and at the same time furnish the College with a residence closely adjoining the historic residence, but without its drawbacks of insufficient space and accommodation.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE. (DR. C. K. CLARKE.)

This year has been, in many respects, an important one, as it saw the full development of a great teaching hospital where students received advantage in medical education, not usually obtainable. It has made possible the proper development of the fifth year, which should, of course, be, as far as possible, a period devoted to the practical side. The result has been that this year's class has gone out much better equipped in the way of practical knowledge than any of its predecessors.

There is still some criticism of the third year course, which seems to cause the student more worry and produce more failures than any other. It is difficult to explain this, although it seems as if the student, finding himself between the Scylla of primary work and the Charybdis of final study, comes to grief through an ill defined idea of the best course to steer. Possibly we have laid too much stress on the importance of the clinical subjects and have exacted too much. In view of these difficulties it has been decided to do away with all written examinations in Medicine and Surgery in the third year.

Several changes have taken place in the Faculty, the most notable one being caused by the resignation of Dr. R. A. Reeve, who has been identified with the School for forty-one years, and who was Dean from the development of the University of Toronto Medical Faculty until 1908, a period of more than twelve years. Dr. Reeve's success as a teacher is well known to the thousands of medical students whose regard for Dean Reeve is deep and sincere—indeed, no one in connection with the Faculty has merited and received such affection as the worthy ex-Dean. Dr. Reeve was devoted to the interests of the University, and through his untiring efforts the Faculty of Medicine rose to the eminence it now has. But his efforts were not confined to narrow lines, and it was very largely through his efforts that the present Convocation Hall came into existence.

On the whole the work of the year has been characterized by a steady advance.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE.

(DR. GALBRAITH.)

The following list gives the enrolment per session since 1906:

1906-7	621
1907-8	720
1908-9	754
1909-10	725
1910-11	770
1911-12	793
1912-13	681
1913-14	626

A reasonable estimate for 1914-15 would be 556.

The following statistics relating to graduates cover the period to and including 1913:

Total graduates	1,435
Deceased	52
	1,383
Of these there are in Canada	1,218—88.07%
“ “ United States	141—10.11%
“ “ other countries	24—1.82%
	1,383 100.00%

Arrangements should be completed and the plans drawn for the construction of a floor in the east end of the Chemistry and Mining Building and for the subdivision of the space into rooms with proper flues, drainage, etc. It is probably too late to have this work done during the present summer—it should be done at the latest during the summer of 1915, between May 1st and September 15th, so as not to interfere with the work of instruction.

Mr. Jos. Keele, of the Geological Survey, will probably be allowed to continue his work here for another session—advantage should be taken of his presence to obtain useful suggestions for the accommodation of the proposed Ceramic Laboratory. This is an additional reason why the above plans should be put under way without delay.

During the present summer the lighting of the drafting rooms should be improved. That of the second year drafting room behind Convocation Hall is particularly bad. As mentioned in the report of the department of drafting there are a great many cases of eye-strain among the students, due to this cause.

This is a favorable time to assemble the information which the architect will require for the preparation of the plans for the new building schemes indicated in various parts of this report. If delayed too long these drawings may have to be prepared in haste and without due consideration.

I would suggest as a means of initiating these plans, that the President call a special meeting of the members of the staff interested, and discuss the situation with them.

The maximum number of students to be provided for immediately and the provisions for extension of buildings in the future are among the questions to be discussed.

(4) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY. (DR. B. E. FERNOW.)

The registration for the year 1913-14 has been the largest since the establishment of the Faculty, the newly entering class numbering 23 and the total registration 51. This is a growth of nearly 100 per cent., since by graduation and other discontinuance the number at the end of the last session had been reduced to 28.

The demand for graduates for permanent positions, and for undergraduates for summer work, during the last season was almost as insistent as the previous year, deficiencies having to be made up by importations from the United States. The present year's graduates (seven in all) have found ready employment, and so have the members of the two lower classes and some of the first year men.

No changes in the curriculum nor in standards have taken place, except that the entrance requirements have been slightly changed to harmonize with those of the Faculty of Arts.

A few lectures by authorities from the practical field were given, namely, on logging, by Mr. Asa S. Williams, Manager of the Logging Department of the Allis-Chalmers-Bullock Company; on trail and telephone building, and other methods of protection against fire, by Mr. W. N. Millar, District Inspector of Dominion Forest Reserves; and on diseases of trees, by Dr. H. von Schrenk, Timber Expert.

The Foresters' Club has continued its useful career, having had speakers from outside at several of its meetings. It has also compiled and printed a useful booklet on the "Silvical Characteristics of Canadian Trees."

With the growth of the Faculty and the growing requirements of a more complete professional education, the need for increased quarters and increased appropriations for staff and apparatus becomes more urgent, and it is hoped that in another

year these requirements can be met. The leading forestry schools of the United States employ from four to seven instructors as against the equivalent of three in this Faculty. This small staff, taken together with the short session, increases the burden on the instructors to the breaking point.

The need of increased laboratory space and lecture rooms has naturally increased with the number of students, and will increase from now on. It should be provided for without delay. The permanent camp for practical instruction in the field also remains a wish.

(5) REPORT OF THE DEAN OF THE FACULTY OF EDUCATION. (DR. W. PAKENHAM.)

It is the opinion of the staff that the year just closed has been unusually successful. The chief explanation lies in the adoption of the semester plan of instruction. The expansion in the curricula of modern school systems has laid a great burden upon both students and instructors in training schools. It is still necessary to train all teachers in all subjects. By dividing the session into terms, limiting each term's work to one-half the subjects, and conducting final examinations at the end of each term the burden has been very much lightened.

The School has continued to prosper. It now has 4,300 subscribers, and has carried thirty-two pages of advertising matter throughout the year. For its success great credit is due the business manager, Mr. Dunlop, and the members of the staff who have given time and thought without stint to each monthly issue.

The question of a gymnasium and an assembly hall for the University Schools and the allied question of residences for women students of the Faculty of Education still press for consideration. The influence of accommodations and equipment upon attendance in the Schools is obvious. Just as obvious would be the severity of the blow if the attendance in the Schools should shrink. And while the University is providing residences for students, she cannot overlook the fact that no students need the residential life more than the prospective women teachers of Ontario.

With the end of the session, Dr. Embree, the Senior Principal of the Toronto High Schools, retired from office in the city schools and from his post as one of the supervisors of practice-teaching in this Faculty. Dr. Embree's services to secondary education in this city and province have been long and distinguished. His services to this Faculty in the difficult days of its youth have earned the gratitude of the University. Into his retirement he takes the respect and affection of all his former colleagues.

(6) REPORT OF THE LIBRARIAN. (H. H. LANGTON, ESQ., M.A.)

The number of bound volumes added to the Library during the year ending 30th June is 4,815, and the number of pamphlets 3,430, making the total contents of the Library 138,658 bound volumes and 46,648 pamphlets.

The statistics of the use of the books by students, as compared with the two previous years, are as follows:

—	1911-12	1912-13	1913-14
No. of day tickets	32,928	35,903	33,656
No. of books taken for the night	10,816	12,707	12,383
Average number of readers at any one time.....	85	84	91

During the year most of the remaining duplicates, resulting from the addition to the shelves of the Goldwin Smith Library, were distributed among the Departmental Libraries and lent to the Libraries of the affiliated Colleges, in accordance with the decision of the Library Committee. These duplicates remain the property of the University, and may be recalled to the main Library if needed there.

With the addition of the Goldwin Smith Library to the shelves, the available space for growth has greatly diminished. In two or three years the existing stack will be full. Fortunately there is still space in the stack room for erecting additional metal shelving to accommodate about 30,000 volumes.

The two chief necessities of the Library at present are an increased cataloguing staff and increased appropriation for books. The present cataloguing staff can hardly do more than keep up with the current additions of books, periodicals and pamphlets. Consequently, the subject catalogue of the whole Library, which is not much more than half-finished, proceeds slowly. The appropriation for books, periodicals and binding has remained at the same figure, \$14,000 for the last six years. During that period new departments of instruction have been added in all Faculties. Consequently there are more claims than before for a share in the total appropriation. At the same time the cost of current periodicals already taken and of binding has noticeably increased, so that the money available for books and new periodicals in each department is actually less than it used to be. It is obvious that without additions to the appropriation the Library will prove inadequate for the necessities of the teaching, and that the University must suffer in efficiency. Comparison of the sums available for the purchase of books and periodicals in other universities of the same class as the University of Toronto shows how necessary it is that a substantial addition to the appropriation for books should be made. A policy of steady addition to the appropriation for some years, say \$2,000 per annum, would probably meet the urgency of the situation without giving opportunity for any extravagance.

Statistics for other universities in comparison with the University of Toronto are appended.

University.	No. of Professors, etc.	No. of Students.	No. of Library Staff.	No. of Books.	Annual expenditure on Books (latest obtainable).
					\$
California	439	6,392	25	250,000	30,000
Michigan	410	5,582	24	305,000	30,000
Minnesota	440	4,057	24	160,000	32,000
Ohio	240	3,928	14	117,000	20,000
Wisconsin	581	5,748	18	192,000	24,000
Toronto	386	4,141	14	138,000	14,460

(7) REPORT ON UNIVERSITY EXTENSION WORK. (DR. A. H. ABBOTT.)

The number of lectures arranged for at local centres outside of the city of Toronto was seventy. For these the lecturers received in fees, from the organization arranging for such lectures \$345, and from the Board of Governors, as a supplement thereto, \$330. There were approximately fifty lectures arranged for in the city of Toronto for which, in round numbers, \$50 was received. Most of these lectures given in the city are for charitable organizations and are given without charge by the lecturers. A fairly conservative estimate of the number lectured to in these one hundred and twenty lectures would be probably 10,000.

It is difficult to estimate the influence of lectures such as are given at these various centres. We have repeatedly found instances of students attending the University whose interest has been turned in this direction by attending lectures of this kind. It is very obvious that when not more than one lecture is given by a lecturer in any given place, the educational value of the lecture cannot be anything like as great as would be a course given by one man. We, therefore, constantly endeavour to arrange such courses rather than a series of individual lectures, but although it cannot be said that it is easy to arrange lectures in courses, this attempt is meeting with a certain amount of encouragement.

In addition to the lectures above reported, a course of eight lectures, delivered in German, was given in the Physics Building. A small entrance fee was charged for these lectures to defray expenses, and the reception given the lectures was decidedly encouraging. We believe that if such courses were organized throughout the winter and were given by the University, as we believe they ought to be, free of charge to the public, we might soon have a very considerable interest in such lectures aroused within the city of Toronto.

A course of lectures was also delivered by Mr. L. Smith-Gordon of the Department of History on "Ireland and Irish Conditions." These were given at five o'clock in the afternoon, and were heartily received by the public.

The University has attempted to arrange courses for the teachers of the city of Toronto for many years, and yet, in spite of our best efforts, the interest in these courses has gradually been declining. It is not difficult to locate at least one of the causes of this decline. The Board of Education does not discriminate between those who hold a second class certificate and those who hold a first class certificate or graduation from the University. Until a premium be set upon higher scholastic attainments, it is recognized that this work among the teachers of the city is not likely to develop. Last year but one course was arranged, namely, in English, for which eleven registered.

With the co-operation of the Department of Education courses were arranged last summer preparatory to the examination for Entrance into the Normal Schools and into the Faculties of Education, in addition to work for special certificates in Household Science, Manual Training, Vocal Music and Elementary Science. The attendance at the summer session was as follows:—Entrance into the Faculties of Education, 85; Normal Schools, 28; Physical Culture, 98; Household Science, 37; Vocal Music, 32; Elementary Science, 15; Manual Training, 9; Commerce, 10. Total enrolment, 305. (Nine registered for more than one course.)

The response to the offer made by the Department of Education through the University Extension Department warrants us in believing that the teachers of the province are heartily in favour of such work being done. Moreover, the fact that with the appearance of these courses it was found impossible to arrange courses in the Faculty of Arts, suggests a condition which has long been suspected, namely, that the attendance in the Faculty of Arts in the past has been more because the teachers wished to write upon the Faculty Entrance examination than for the sake of the standing in Arts. Whether or not it will be found impossible to arrange courses in the Faculty of Arts in the future one cannot, of course say, but it may very well be assumed that the first year classes of the general course will not be taken by teachers, so long as they can get instruction in the work prescribed for Entrance into the Faculties of Education, since this examination is accepted by the University in lieu of the first year general course. During the Summer Session also, the University residences, Queen's Hall and the Dining Hall, were open from

the middle of June until the first of August, and all of these were well patronized by students and teachers.

The work of the University Extension is progressing, and we believe that the possibilities of doing much good work to-day are greater than they have ever been.

(8) STATEMENT REGARDING THE BIOLOGICAL MUSEUM. (PROFESSOR B. A. BENSLEY.)

During the past year provision has been made for a zoological section of the Royal Ontario Museum. A floor space of about 6,000 square feet, comprising the north portion of the upper gallery, was assigned for the purpose. The area will be used for a collection illustrating the Canadian fauna. A number of new cases, comprising twelve free-standing cases and six table cases, have been provided, and a beginning will be made by transferring the entire Canadian collection together with a portion of the cases from the present Biological Museum.

The Museum has received by gift:

1. Nest and eggs of Mangrove Cuckoo, Cat Bird and Song-Sparrow, and eggs of British birds, from Mr. Lewis B. Brown, Toronto.
2. A living Tarantula, from Mr. Walter Groves, Toronto.
3. An unusually fine skeleton and head of the African White Rhinoceros, prepared by Mr. A. Pride, from a specimen which died at Brantford; presented by the management of Barnum & Bailey.
4. There has been added to the Museum a portion of the valuable collection of the late Dr. Oronhyatekha, presented by the Independent Order of Foresters, and including eggs of Ostrich and Cassowary, a Hawksbill turtle, a Diamond-backed rattlesnake and various specimens of fishes, shells and corals.

The Museum has received by purchase:

1. A collection of Javan animals, comprising 40 birds, 4 lizards, and 200 insects, from Mr. C. I. Hodgins, Annapolis, N.S.
2. Four casts of fishes from Ward's Natural Science establishment, Rochester.

(9) STATEMENT REGARDING THE GEOLOGICAL MUSEUM. (PROFESSOR A. P. COLEMAN.)

Owing to the delay in finishing the gallery in the basement of the new building it was not, until last autumn, that the arrangement of material in the Geological Museum could be commenced. All the specimens at present in possession of the department have been temporarily placed in position, but time has not sufficed for the preparation of the explanatory labels with which it is intended to equip this gallery. A large amount of material, particularly decorative substances and cobalt-silver ores, has been sawn and polished for exhibit.

The more important acquisitions are as follows:—

By Donation:

Large specimen of rock with asbestos veins and a series of asbestos products.—

The Asbestos Corporation of Canada, Thetford Mines, Que.

Large specimen of graphite.—The Tonkin-Dupont Graphite Co., Wilberforce, Ont.

Fine specimen of native silver from the O'Brien Mine, Cobalt.—J. B. O'Brien, Esq., Toronto.

A pedestal of marble.—The Ontario Marble Co., Toronto.

By Purchase:

- Several series of specimens illustrating the formation of ore bodies.
- A copy of Wm. Smith's original geological map of England.
- A replica of the bust of Sir Wm. Logan, prepared for the Twelfth International Geological Congress, which met in Canada in 1913.

By Collection:

- Copper ores and geological specimens from Alaska.—Professor Coleman.
- Decorative stones from Québec.—Professor Parks.

(10) STATEMENT REGARDING THE PALEONTOLOGICAL MUSEUM. (PROFESSOR W. A. PARKS.)

During the past year the small collection which has been reserved for teaching purposes in the Chemistry and Mining Building has been revised and provided with new labels. The work of re-arranging the material in the Museum Building is proceeding in a satisfactory manner, as nearly all the systematic collection has been revised. The larger and more showy specimens are being separated from the systematic series and placed in special cases for the benefit of the general public: these specimens are being provided with printed explanatory labels, but scarcely more than a third of the work necessary in this connection has yet been done.

The death of Mr. Joseph Townsend, who for many years has acted as collector for the department, is much to be regretted.

The chief acquisitions during the year are as follows:

By Donation:

- Collection of Lockport fossils from Wisconsin.—Dr. Edgar Teller, Milwaukee, Wis.
- The large collection brought by Mr. J. B. Tyrrell from the District of Patricia, Ont.
- Collection of Colorado fossils.—Dr. George, Boulder, Col.

By Purchase:

- Devonian crinoids and Trilobites from Europe.
- An excellent skeleton of a Moa from New Zealand.

By Exchange:

- A collection of Normandy fossils.—Dr. A. Bigot, Caen, France.
- A collection of Italian fossils.—Dr. C. de Stefani, Firenze, Italy.

By Collection:

- A tusk of a mammoth from the Klondike gravels.—Professor Coleman.
- The head of a young groundhog from the Interglacial of the Don Valley.—Professor Coleman.
- Oriskany, Onondaga and Hamilton fossils.—Professor Parks.

(11) STATEMENT REGARDING THE MINERALOGICAL MUSEUM. (PROFESSOR T. L. WALKER.)

The collections of the University and of the Royal Ontario Museum of Mineralogy have been enlarged during the year by purchases, donations and exchanges. The following lists contain the names of our chief benefactors:

Exchanges.

U. S. National Museum	Washington, D.C.
Field Museum of Natural History	Chicago, Ill.
Mineralogiske og Geologiske Museum	Copenhagen, Denmark.
Geological Survey of Canada	Ottawa.
Lehigh University	South Bethlehem, Pa.
W. A. Roebling	Trenton, N. J.
W. T. Watkins Brown	Sydney, N.S.W.

Donations

American Museum of Natural History	New York City.
J. W. de Aguero	New York City.
F. R. Aufhammer	Renfrew, Ont.
F. J. Alcock	Yale University, New Haven, Conn.
A. G. Burrows	Bureau of Mines, Toronto.
Barber Asphalt Paving Co.	Philadelphia, Pa.
Canadian Sulphur Ore Co.	Queensboro, Ontario.
Canadian Copper Ore Co.	Copper Cliff, Ontario.
A. M. Campbell	Perth, Ontario.
Dr. James Douglas	New York City.
F. R. Emmerson	Port Arthur, Ontario.
W. F. Ferrier	Toronto.
Reginald E. Hore	Toronto.
Chas. Hays	Toronto.
Col. A. M. Hay	Toronto.
Paul Hahn	Toronto.
H. H. Hayden	Geol. Survey of India, Calcutta, India.
F. A. Jordan	Sellwood, Ontario.
H. G. Kennedy	Cobalt, Ontario.
Major R. W. Leonard	St. Catharines, Ontario.
Dr. W. G. Miller	Bureau of Mines, Toronto.
B. B. Neilly	Mgr. Penn-Canadian Mines, Cobalt.
E. V. Neelands	Mgr. Hargraves & Drummond Mines, Cobalt.
J. B. O'Brien	Cobalt, Ontario.
C. A. O'Connell	Kirkland Lake, Ontario.
Hon. C. J. Osman	Hillsborough, N.B.
J. Palmer	Mgr. Worthington Mine, Worthington, Ontario.
Professor A. L. Parsons	University of Toronto.
E. F. Pullen	Alexo Nickel Mine, Iroquois Falls, Ont.
Sir Henry Pellatt	Toronto.
Elias Rogers Coal Co.	Toronto.
P. A. Robbins	Hollinger Gold Mines, Timmins, Ont.
Edward Schoch	Warmbaths, Transvaal.
Hon. Geo. Smith	Thetford Mines, Que.
W. E. Segsworth	Toronto.
J. B. Stitt	University of Toronto.
Col. Stevenson	Pearl Lake Mining Co., Schumacher, Ont.
Nelson W. Sweetser	Phoenix, B. C.
C. S. Wright	Caius College, Cambridge, England.
S. A. Wookey	Sydenham, Ontario.
Rev. C. J. Young	Madoc, Ontario.

(12) MEDICAL RESEARCH FUND, UNIVERSITY OF TORONTO.

The Medical Research Fund of the University of Toronto was formed in 1913 by the generosity of some of the citizens of the Province of Ontario upon the representation of the need for it by the Professor of Medicine.

It is not enough that the Medical School of this city has more students than any school, except Edinburgh, in the British Empire, nor is it enough that the training given them comes, according to the Carnegie Report, up to the highest

standard of American medical education. It is not even sufficient in itself that the Toronto General Hospital is acknowledged by competent judges to be the best general hospital building that has yet been planned on this continent. A medical school that is to take its place among the great schools of the world must be working, as they work, for the future development of medical science. If the schools of Germany in Berlin or Heidelberg or Munich are regarded throughout the world as being in the front rank, they have this prestige not because they have more students, nor even because the course of instruction is better planned or carried out in finer buildings than elsewhere. It is because in these schools during the past generation much of the work has been done which makes the medicine taught to-day more helpful and more hopeful than that which was taught thirty years ago: and because in them much of the pioneer work, and the scouts' work, which is necessary for the continued advance of medicine in our time, is still being done to-day.

Every teacher of medicine or of any living science knows that, while in the first place he has to instil the principles that have been established by the work and experience of his predecessors and contemporaries, it is hardly less important to instil also the spirit of enquiry, and to train his pupils to test critically their own ideas and those proposed by others. The proper outlet for an enquiring mind is the critical training of systematic experimentation. No one can be expected to go far in medicine, nor in any science, who gets no ideas of his own from his studies, who has not the opportunity to put his ideas to the test, and who is not trained in the balancing of evidence obtained by scientific experiment. Medical Research is just this. The great achievements of medicine are made possible by the work of a host of investigators whose names may not be associated by the public with those achievements. The completion of the Panama Canal, it is generally recognized, was due to the skilful organization of medical service by Dr. Gorgas. But it was not the lack of skilful medical service that caused the failure of De Lesseps twenty-five years ago. The work that made the canal possible was begun by a French surgeon working over a microscope in Algiers at the very time when the French engineer was ruining himself and many of his countrymen by his schemes in central America. The discovery by Laveran of certain minute particles in the blood of those suffering from malaria seemed at that time just a curiosity of abstruse information with no interest for the generality of men. It has led, and is leading, to changes in the history and geography of the world.

A great medical school is a centre of scientific thought. The great schools of to-day are those that have stimulated, have given the opportunity and the training for pioneer work such as that of Laveran and of all those who following him have finally shown how malaria can be controlled or even stamped out. This is the service a school must render to prove itself worthy of a place in the front rank.

It is to enable the graduates of Toronto to qualify for such service that the Medical Research Fund was instituted. For medical investigations, though they may ultimately help to save lives, do not provide a living for the investigator. It is not possible for a young graduate to devote the first years after graduation to scientific work unless his immediate needs are met. It is not possible to retain the best men of their year for such service unless they are able to live as befits their standing; and if they acquire skill and experience they should not be left to compare the advancing prosperity of less gifted contemporaries, who have gone out into the world, with their own unrecognized, unrewarded labours.

The scheme, as it is at present proposed to work it, has led to the appointment of a physician in charge of the Out-Patient Department, who is to direct the distribution of cases that come for treatment to the care of those specially devoted to the

study of particular subjects in medicine: a physician engaged in the study of the pathology and treatment of tuberculosis, who is given special facilities for the study of out-patients suffering from this disease and a laboratory for carrying out the investigations on which this study is based. He is following out certain properties of the blood in tuberculosis which seem likely to be of service in forecasting the course of the disease, and also to throw light on the nature of immunity to it. In addition, a number of Research Fellows have been appointed. Two of these, senior Research Fellows, are physicians who have already had special training since graduation; one of them in the treatment and pathology of nervous diseases, now working upon the microscopic examination of the brain and spinal cord in certain diseases of the nervous system, in the laboratory of the Department of Pathology; and one in internal medicine, who is attached for laboratory work to the Department of Pathological Chemistry. He has published during the past year work on the causation of pernicious anæmia, and is at present engaged in the study of the blood in Bright's disease. In addition there are at present three junior Research Fellows. They, like those already mentioned, hold office in the Department of Medicine, and have to keep in touch with the opportunities for investigation presented by cases undergoing treatment in the wards of the Hospital, and are engaged in work in the laboratories of the Pathological Building for the rest of the day. Papers are in preparation on work done by these Fellows during the past year upon fatty disease of the heart, and upon the course of chemical changes in the body under the influence of the poisons of typhoid fever and tuberculosis.

As the scheme matures and suitable men present themselves, additional Fellows will be appointed who will not only have facilities for studying the clinical material of the Hospital, but will also spend the greater part of their time working in one or other of the laboratories connected with the Hospital and University on questions that present themselves for solution in connection with the cases in the wards. Indeed, in the case of all the appointments the duties involve the expenditure of most of the day on investigation in the laboratory and only the smaller part in the wards of the Hospital; for it is in the laboratory that the investigation of the nature, cause, and even treatment of disease must be carried out.

The Fellows working in the Department of Pathological Chemistry under the Medical Research Fund have been:

(1) Dr. F. McPhedran, who published a paper "On the Hemolytic Properties of Fatty Acids and their Relation to the Causation of Toxic Hæmolysis and Pernicious Anæmia" (*Jl. of Experimental Medicine*, Vol. XVIII), in the fall of last year. Since then his work has been on the reaction of the urine and the blood in diseases of the kidneys. He has met with technical difficulties which are, I think, now overcome, and results should be obtained that will be of interest and importance.

(2) Dr. C. G. Imrie has completed a valuable piece of work on fatty disease of the liver, heart and kidneys, now ready for the press and to appear in the *Journal of Pathology*.

(3) Dr. N. C. Sharpe, who has been assisted in part by Dr. K. M. B. Simon, has worked on the changes in metabolism involved in the reaction to toxins. His paper is also ready for publication, and will appear about the same time as Dr. Imrie's, or very soon after it. Dr. Sharpe's work has been laborious and conscientiously carried out: it was reported, as was also Dr. Imrie's, at the meeting of the American Association of Pathologists and Bacteriologists recently held in Toronto.

Dr. Simon has, in addition to his share in Dr. Sharpe's work, been engaged in the study of the action of the photo-sensitive substance hæmatoporphyrin, and is continuing his experiments partly in the Department of Pathology.

The Fellows working in the Department of Pathology have been:

(1) Dr. R. G. Armour, whose work was in acquiring the necessary technical facility in the use of special methods of histological study of the central nervous system; special study by serial sections of a case of Hemiplegia, which died in the wards of the General Hospital; study by serial sections of an obscure case of posterior degeneration of a cord, which died in the General Hospital. For comparison with these there was conducted a study of the cord of the cat, of which posterior roots of one side were cut and serial sections cut and stained by various histological methods; study of the brain in general paralysis of the insane and of the cords in tabes by the Levaditi method and modification of the same in an attempt to localize by spirochæte in definite areas; histological study of several brain tumors.

(2) Dr. Caulfeild's researches have been chiefly devoted to Tuberculosis; when other infections have been taken up, it has been for the purpose of helping to elucidate questions in the main work. As considerable equipment had to be installed, work was not begun until the end of March, 1913.

The end in view has been to demonstrate, if possible, under what biological conditions infection to tuberculosis takes place, and if possible those biological conditions that are essential to the patient's recovery. Provided these facts could be satisfactorily obtained, it was then proposed to attempt to reproduce these conditions experimentally in animals with the ultimate hope of using the sera (or cell emulsion) as a specific means of curing, or aiding the recovery in human subjects.

(13) REPORT OF THE DIRECTOR OF THE ANTITOXIN LABORATORY. (DR. J. G. FITZGERALD.)

On May 1st, 1914, there was established in the Department of Hygiene, a laboratory for the production of Biological Products; Diphtheria Antitoxin, Rabies Vaccine (Pasteur treatment), Tetanus Antitoxin and Anti-meningitis Serum were ready for distribution when the laboratory was opened.

The fundamental idea underlying the project was the production of all sera and vaccines of value in public health work and their distribution at cost. It was expected that the active co-operation of public health authorities in Canada would be obtained, and this has, in large measure, been realized. Arrangements were soon made to distribute Diphtheria Antitoxin in Ontario under the auspices of the Provincial Board of Health. The Chief Officer of Health of Ontario, Dr. John W. S. McCullough, has been an ardent supporter of the project, and he at once undertook to obtain all Pasteur treatments needed for patients in Ontario, from this laboratory. These treatments have also been supplied to the Provincial Boards of Health of Saskatchewan and of British Columbia.

Diphtheria Antitoxin is being sent to Nova Scotia, through an arrangement with the Provincial Board of Health of that province; the Secretary of the Board, Dr. W. S. Hattie, Halifax, warmly endorsing the work. Likewise Dr. M. M. Seymour, Commissioner of Health of Saskatchewan, has approved the idea, and Diphtheria Antitoxin is being sent to many points in that province. The laboratory has sent Typhoid Vaccine to the Province of British Columbia, the same being used there as a prophylactic against Typhoid Fever by the Provincial Board of Health, through its Secretary, Dr. W. Bapty. Diphtheria Antitoxin is being sent also to

Montreal, Quebec, and Calgary, Edmonton, Vancouver, and other cities have signified their intention of co-operating with the laboratory in the near future.

In the use of some of the products of the laboratory, signal success has been obtained, notably with Tetanus Antitoxin as a therapeutic agent. The result of this work has been reported in the current medical literature. The value of Anti-meningitis serum in cerebro-spiral meningitis is also worthy of mention, the mortality having been reduced from seventy-five to twenty-five per cent. where the serum is used.

It is proposed in connection with the work of the laboratory, that facilities be provided for research along the lines of Hygiene and Preventive medicine. Furthermore, the laboratory is available and is being used for Public Health teaching. The value of the laboratory is thus greatly enhanced, since the public service aspect is made to go hand in hand with teaching and research, a combination possible only when the work is being done in connection with the University.

It is the hope of those responsible for the laboratory that it may in this way be possible to gradually develop in Canada, laboratories analogous in scope to those of the Lister Institute in London and the Pasteur Institute in Paris, Brussels and elsewhere.

(14) REPORTS FROM THE BIOLOGICAL STATIONS. (PROFESSOR A. B. MACALLUM, Secretary-Treasurer of the Biological Board of Canada.)

The St. Andrew's Biological Station.

The season at this Station was a very successful one. A large number of workmen were in attendance for the greater part of the time the laboratory was open. Amongst those were Dr. A. G. Huntsman of this University, who acted as Curator; Professor A. P. Knight of Queen's University; Professor Cox of Fredericton; Professor Perry of Acadia; Professor E. E. Prince, Chairman of the Biological Board and Commissioner of Fisheries; Messrs. Cooper, Martin and Wallace from this University, and Messrs. Millar, Klugh and Detweiler of Queen's. The work carried on involved special researches in faunistic problems, in the life history of a number of forms, and also, on the economic side of investigations, a number of questions affecting the fisheries. The facilities for research have recently been greatly extended, largely due to the new gasoline motor boat, the *Prince*, which was planned and constructed for the Station. This is a sea-going vessel which can be and was used for long expeditions to remote points on the Bay of Fundy not hitherto accessible to members of the staff. Through these expeditions a large collection of material was obtained which is now under classification. From this collection, as well as from the collections of earlier years, a very interesting display was made at the St. Stephen Exhibition in September last.

It is expected that the facilities for biological work afforded by the Station will be more and more utilized as these become known to biological workers.

The Go-Home Biological Station.

The attendance at this Station was small, and included Dr. J. W. Mavor, who acted as Curator, Mr. A. B. Klugh and Miss Ryerson.

The reason for the small number of workers appears to have been the attractiveness of the other Biological Station for scientific workers. The problems studied covered faunistic questions and studies in the life history of several forms.

The Nanaimo Biological Station.

This Station was under the charge of Dr. C. McLean Fraser, the Curator. Amongst the workers were Professor A. T. Cameron of the University of Manitoba; Dr. E. M. Walker with Mr. T. B. Kurata of this University; and Mr. Dayton Stoner of the State University of Iowa. Dr. Fraser gave his attention to the Hydroids of the Pacific Coast, on which he has prepared a very extensive and valuable monograph now in the course of publication. He also began an investigation on the life history of the herring of the Pacific, which had not been previously studied. Its life history differs in some important aspects from the herring of the Atlantic, and as it is a valuable food fish, its possible extermination by the wholesale fishing by the Japanese makes it necessary to know much more concerning it in order to legislate effectively for its preservation. Dr. Fraser carried on an extensive series of observations on the coho salmon, spring salmon, steelhead, blue cod, etc. In all this work Mrs. Fraser assisted. Professor Cameron was engaged on the study of the iodine content in the tissues of marine forms generally. He gave special attention also to the iodine and potassium content of the sea weeds of the Pacific Coast of Canada, a subject to which he has been asked to give special attention for 1914, because of the possibly very great economic value of the sea weeds as a source of iodine and potassium. Dr. Walker and Mr. Stoner, while engaged specially in entomological studies, gave attention also to other problems, the former to collecting the Isopods and Decapods in the British Columbia waters, and the latter to a study of the Echinoderms of the same.

This Station also came into the possession by purchase of a new gasoline boat, the *Ordenez*, which is as large as the *Prince*, belonging to the St. Andrew's Station. A new motor launch has been added to the Station, and the accommodation of the laboratory and the mess house has been extended. The facilities for research at this Station are now as great as those of the Atlantic Station, while the material for the study of any particular class is much more extensive.

(15) REPORT OF THE PHYSICAL DIRECTOR. (DR. J. W. BARTON.)

The work of the physical department for the past year shows an increase in the outdoor athletics and a decrease in the indoor work.

The decrease in the indoor work can be accounted for largely by our inadequate facilities. Our boxing, wrestling and fencing students have been using a portion of the Chemistry and Mining Building, while our 1st and 2nd Basket-ball teams and our Gymnasium team have been using the gymnasium of the Central Y.M.C.A., on College Street. The Athletic Association helped to defray the cost of the tickets at the Y.M.C.A.

Of Inter-Collegiate championships we have not won as many as usual. McGill carried off the Rugby, Boxing and Wrestling, Swimming and Tennis championships; Queen's won the Hockey; while our teams won the Track, Soccer and Harrier championships. However, our Inter-Faculty competitions have brought out more teams and competitors than ever before. As we have reported on previous occasions, we have a greater variety of athletic competitions and more teams and students engaged therein than any University in America.

The Inter-Faculty competitions comprise Rugby, Hockey, Track, Harriers, Soccer, Basket-ball, Tennis, Boxing, Wrestling, Fencing, Swimming, Water Polo, Gymnastics. While Rugby is the most popular from the spectator's standpoint, Soccer has more students engaged, Rugby having fifteen teams playing and Soccer twenty-two.

The recent action of the Board of Governors in appointing Mr. T. A. Reed to the position of Secretary-Treasurer of the Athletic Association will be of great benefit to our work. It will enable the Physical Director to take better care of his own particular department, that is the physical examinations, supervision of the condition of the students on the various teams, and the supervision of all the teaching. Mr. Reed will be able to help the managers of the various clubs get the most possible value for the money expended, besides training them in business methods.

The growth of the Inter-Faculty and Inter-Collegiate competitions, the instruction of secretaries and managers, and various other details made necessary the appointment of a separate officer.

Some idea of the growth of the work since the appointment of the Physical Director seven years ago may be gathered from the fact that there was at that time Inter-Faculty competition in but six branches and Inter-Collegiate competition in but four, whereas we have now Inter-Faculty competition in fourteen branches and Inter-Collegiate competition in twelve.

There is a possibility of our portion of Hart House being ready for next session. It will mark the beginning of a more complete work—that is, physical exercise and athletics for every student.

The number of women students in attendance at Gymnasium classes was 124. The average attendance at each class was 14. The number of Gymnasium classes a week was 8. The total number of classes was 186.

There were sixty students attending the first year Physical Training class for the University certificate, and forty of these passed the practical examinations.

(16) REPORT FROM THE SUPERINTENDENT OF THE DINING HALL. (MISS V. M. RYLEY.)

In submitting my report for the academic year 1913-14, I am glad to state that the year has been a successful one in every respect.

The attendance has been large, with an average of about 1,000 meals per day, 275 for breakfast, 425 for luncheon and 300 for dinner, and a total (including Summer Session) of over 190,000 meals. This is slightly less than the number served last year, owing to increased accommodation for students in this district.

Each year it is becoming easier to operate the Dining Hall, and give satisfactory service, as more apparatus and labour-saving devices are added. The students receive ice cream for dessert once or twice a week, and this year a new electric ice cream freezer and ice crusher was installed to replace a small one that was entirely inadequate. I have now an electric ice cream freezer, ice crusher, vegetable parer, meat chopper and toaster, and these all save a great amount of labour.

During the last four years I have trained twelve pupil dietitians in institutional management, who have spent from four to eight months each as Assistant Superintendent in the Dining Hall, for the practical experience. These pupil dietitians have all been graduates in Household Science from the Department of Household Science. They take the detailed supervision of the help and inspection of their work. During meals, one pupil dietitian observes the service in each serving room and prevents any delay by directing each employee where he can be most usefully engaged.

Each year a greater number of Bible Study classes, discussion clubs and executives of one society or another ask if they may secure a separate dining hall, where they may have either luncheon or dinner, and then hold the discussion after. We

have no suitable room for such luncheons, but to accommodate them have given a large number of small luncheons in the help's dining-room.

During the summer of 1913, when the International Geological Congress was entertained at the University, the Dining Hall was opened to accommodate the guests in the men's residences. It was again opened for three days to the guests at the City Planning Congress, held in Convocation Hall this May. To these guests 2,000 meals were served at a cost of \$1,000, the service, flowers and menu being very much more elaborate than at regular times.

APPENDIX B.

- (1) Enrolment in the Colleges.
- (2) Enrolment in University Subjects.
- (3) Registration in Courses in the Faculty of Arts.
- (4) Registration of Women Students.

(1) ENROLMENT IN THE COLLEGES.

The students in University College were enrolled as follows :

—	Greek.	Latin.	Ancient History.	English.	German.	French.	Oriental.	Ethics.
First Year—								
Pass.....	22	267	121	205	122	186	69	.....
Honours.....	14	34	54	78	40	59	.....	.....
Second Year—								
Pass.....	11	126	68	184	112	158	46	.....
Honours.....	13	29	42	51	36	28	.....	.....
Third Year—								
Pass.....	11	17	28	133	55	70	41	7
Honours.....	10	16	16	35	19	19	.....	.....
Fourth Year—								
Pass.....	8	9	18	147	31	61	54	43
Honours.....	17	15	13	42	33	33	.....	.....
Totals—								
Pass.....	52	409	235	669	320	475	210	129
Honours.....	54	94	125	206	128	139	.....	.....

The students in Victoria College were enrolled as follows :

—	Greek.	Latin.	Ancient History.	*Eng-lish.	German.	French.	†Oriental.	Ethics.
First Year—								
Pass.....	16	112	48	100	60	82	38	.....
Honours.....	11	21	22	36	34	19	.....	.....
Second Year—								
Pass.....	16	66	.....	102	60	73	19	1
Honours.....	6	6	13	17	15	14	4	5
Third Year—								
Pass.....	4	9	15	72	23	22	14	48
Honours.....	6	3	4	14	10	10	1	7
Fourth Year—								
Pass.....	1	11	11	74	13	16	6	32
Honours.....	6	5	5	17	14	14	5	5
Totals—								
Pass.....	37	198	74	348	156	193	77	81
Honours.....	29	35	44	84	73	57	10	17

* 5 M.A. students in English. † 2 graduate students.

The students in Trinity College were enrolled as follows :

—	Greek.	Latin.	Ancient History.	English.	German.	French.	Oriental.	Ethics.
First Year—								
Pass.....	8	31	15	30	24	28	3	.....
Honours	4	11	11	14	11	10	.....	.....
Second Year—								
Pass.....	9	26	2	22	9	15	6	.....
Honours .....	.....	.....	.....	6	7	6	.....	.....
Third Year—								
Pass.....	3	12	9	25	13	18	4	11
Honours	1	1	1	7	5	5	.....	.....
Fourth Year—								
Pass.....	.....	3	5	12	6	9	.....	2
Honours	3	4	3	9	4	7	.....	.....
Totals—								
Pass.....	20	72	31	89	52	70	13	13
Honours	8	16	15	36	27	28	.....	.....

The students in St. Michael's College were enrolled as follows :

—	Greek.	Latin.	Ancient History.	English.	German.	French.	Philosophy.	Ethics.
First Year	13	46	3	48	34	47	.....	.....
Second Year.....	3	18	.....	24	17	22	20	.....
Third Year	3	5	1	30	8	12	21	29
Fourth Year.....	2	2	1	7	2	1	8	8

(2) ENROLMENT IN UNIVERSITY SUBJECTS.

The following tables exhibit the numbers attending lectures in University subjects, together with the numbers of those taking the practical work in the laboratories :

DEPARTMENT OF MATHEMATICS.

—	Pass.	Pass and Honours.	Honours.
Faculty of Arts—			
First Year.....	419	.....	56
Second Year .....	.....	.....	68
Third Year	10	.....	21
Fourth Year	10	.....	23
Faculty of Applied Science—			
First Year.....	.....	144	.....
Second Year .....	.....	.....	142
Total	439	144	310

DEPARTMENT OF PHYSICS.

—	Pass.	Pass and Honours.	Honours.	Laboratory
Faculty of Arts—				
First Year	165		116	269
Second Year			81	54
Third Year	3		21	31
Fourth Year	1		21	8
Graduate Students			4	4
Faculty of Medicine—				
First Year		121		121
Department of Dentistry	96			96
Faculty of Forestry—				
First Year	14			13
Total	279	121	243	596

DEPARTMENT OF BIOLOGY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year	390		70	409
Second Year			59	59
Third Year	4		21	25
Fourth Year			5	5
Graduate Students				9
Faculty of Medicine—				
First Year		123		123
Second Year		89		89
Faculty of Applied Science—				
First Year		5		5
Second Year				3
Third Year		17		
Fourth Year				15
Faculty of Forestry—				
First Year		17		17
Second Year		10		10
Third Year		8		8
Fourth Year		5		5
Ontario Veterinary College Students in Botany				195
Total	394	274	159	977

DEPARTMENT OF CHEMISTRY.

	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
First Year			120	120
Second Year	81		66	143
Third Year	10		7	7
Fourth Year	1		13	7
Occasional Students				5
Graduate Students				7
Faculty of Medicine—				
First Year		122		122
Faculty of Applied Science—				
Third Year		6		
Faculty of Forestry—				
First Year		16		16
Second Year		10		1
Third Year		1		
Ontario Veterinary College Students	98			98
Total	190	155	206	526

DEPARTMENT OF PHYSIOLOGY AND BIOCHEMISTRY.

	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—			
Second Year	23	23	23
Third Year	36	25	36
Fourth Year	33	21	33
Occasional Students (Food Chemistry)	24		2
Faculty of Medicine—			
Second Year	88		88
Third Year	118		118
Veterinary Students	89		89
Total	411	69	389

DEPARTMENT OF GEOLOGY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
Second Year.....	269	.....	19	247
Third Year.....	.....	.....	3	3
Fourth Year.....	7	.....	7	11
Faculty of Applied Science—				
Second Year.....	.....	11	.....	.....
Third Year.....	.....	109	.....	16
Fourth Year.....	.....	95	.....	.....
Faculty of Forestry—				
Second Year.....	11	.....	.....	11
Third Year.....	7	.....	.....	.....
Fourth Year.....	1	.....	.....	.....
Total	295	215	29	288

DEPARTMENT OF MINERALOGY.

—	Pass.	Pass and Honours.	Honours.	Laboratory.
Faculty of Arts—				
Second Year.....	220	.....	17	221
Third Year.....	.....	.....	9	9
Fourth Year.....	2	.....	11	11
Graduate Students.....	.....	.....	.....	4
Faculty of Applied Science—				
First Year.....	.....	4	.....	4
Second Year.....	.....	75	.....	75
Third Year.....	.....	25	.....	25
Fourth Year.....	.....	18	.....	18
Faculty of Forestry—				
Second Year.....	.....	14	.....	14
Third Year.....	.....	10	.....	10
Total	222	146	37	391

DEPARTMENT OF PHILOSOPHY.

	Introduction to Philosophy.	History of Philosophy and Metaphysics.		Psychology.	Logic.	Ethics.	
		Pass.	Hon- ours.			Honours.	Honours.	Pass.	Hon- ours.
Second Year.....	228	.....	17	16	.....	16	16
Third Year.....		101	19	19	20	75	11
Fourth Year.....		55	16	13	14	29	12
Graduate Students.....		.....	11	14	1	.....	8
Total.....	228	156	63	62	35	120	47

DEPARTMENT OF POLITICAL SCIENCE.

	Pass.	Honours.
Faculty of Arts—		
Second Year.....	37	32
Third Year.....	122	21
Fourth Year.....	77	26
Department of History.....		16
Department of Philosophy.....	35	.....
Department of Commerce and Finance:		
First Year.....		15
Second Year.....		13
Third Year.....		6
Fourth Year.....		2
Graduate Students.....		10
Occasionals.....		2
Department of Chemistry and Mineralogy.....	3	.....
Faculty of Forestry—		
Fourth Year.....	6	.....
Department of Household Science.....	4	.....
	284	143

DEPARTMENT OF HISTORY.

	Pass.	Honours.
First Year	19	10
Second Year	143	55
Third Year	160	53
Fourth Year	138	44
Total	460	162

DEPARTMENT OF ITALIAN AND SPANISH.

	Italian		Spanish.		Phonetics.
	Pass.	Honours.	Pass.	Honours.	Honours
First Year	75	50	48	4	.....
Second Year	15	16	17	6	.....
Third Year	8	9	1	3	23
Fourth Year	3	11	1	6	.....
Graduate Students .....	.....	1	.....	2	.....
Total	101	87	67	21	23

DEPARTMENT OF HOUSEHOLD SCIENCE.

	Pass.	Honours.	Total.
Arts Students proceeding to a degree	31	82	113
Arts Students—research .....	.....	1	1
Arts Students—occasional .....	.....	1	1
Faculty of Education Students .....	.....	.....	127
Household Science Students—occasional .....	.....	.....	77
Department of Education:			
April—June Course .....	.....	.....	13
Summer Session .....	.....	.....	37
	31	84	369

(3) REGISTRATION IN COURSES IN THE FACULTY OF ARTS, 1913-1914.

Courses.	First Year.				Second Year.				Third Year.				Fourth Year.				Total.	M.A.	Ph.D.
	U.C.	V.C.	T.C.	St.M.	U.C.	V.C.	T.C.	St.M.	U.C.	V.C.	T.C.	St.M.	U.C.	V.C.	T.C.	St.M.			
General Course.....	152	100	21	47	84	48	15	7	91	44	22	12	77	26	11	2	759	2	.....
Classics.....	7	9	3	1	8	3	1	.....	5	3	1	.....	7	5	3	.....	56	6	.....
Eng. and Hist. (Class.).....	11	6	4	.....	5	3	.....	6	.....	.....	.....	.....	8	.....	2	.....	49	.....	.....
Greek and Hebrew.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....
Oriental.....	.....	.....	.....	.....	1	4	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moderns.....	30	12	4	.....	27	11	4	3	12	8	4	.....	27	14	4	1	13	6	2
Eng. and Hist. (Mod.).....	15	5	6	1	19	2	1	1	8	2	1	.....	5	1	4	.....	161	17	.....
Modern History.....	4	4	.....	.....	1	1	.....	5	2	2	1	.....	1	2	1	.....	71	.....	.....
Political Science.....	23	8	1	.....	20	8	.....	.....	15	4	2	.....	16	10	.....	.....	23	17	.....
Commerce and Finance.....	8	9	1	.....	5	7	.....	.....	5	1	.....	.....	2	.....	.....	.....	107	7	2
Philosophy.....	.....	.....	.....	.....	8	5	3	14	10	8	1	19	10	3	.....	.....	38	.....	.....
Mathematics and Physics.....	24	14	1	.....	20	3	.....	9	8	8	.....	.....	19	4	1	.....	87	20	8
Natural and Physical Sciences.....	22	10	5	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	103	4	1
Physics.....	.....	.....	.....	.....	2	1	.....	.....	2	1	1	.....	.....	.....	.....	.....	37	.....	.....
Biology.....	.....	.....	.....	.....	2	2	.....	.....	2	1	.....	.....	.....	.....	.....	.....	9	1	.....
Geology and Mineralogy.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	9	1	.....
Chemistry and Mineralogy I.....	.....	.....	.....	.....	5	7	.....	.....	5	.....	1	.....	.....	.....	.....	.....	4	2	2
Chemistry and Mineralogy II.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Biol. and Phys. Sc.....	.....	.....	.....	.....	1	3	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Physiol. and Bioch. Sc.....	.....	.....	.....	.....	14	4	.....	.....	10	2	.....	.....	1	2	.....	.....	.....	.....	.....
Household Science.....	19	9	5	.....	15	9	.....	.....	4	5	.....	.....	6	4	.....	.....	39	3	3
Physiol. and Household Sc.....	.....	.....	.....	.....	.....	.....	.....	.....	3	3	.....	.....	2	.....	.....	.....	76	3	.....
Arts and Forestry.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chemistry.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Anatomy.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total of courses taken.....	317	186	51	49	237	122	25	25	194	97	34	31	204	81	27	.....	91,689	96	28
Total of students registered.....	308	179	48	49	250	119	25	24	188	95	34	31	202	79	25	.....	.....	.....	.....

(4) REGISTRATION OF WOMEN STUDENTS.

The women students registered in University College took the following courses:

Courses.	First Year.	Second Year.	Third Year.	Fourth Year.
General	40	28	32	20
Classics	3	2		4
English and History (Cl.)	4	1	2	4
Classics and English and History			1	
English and History (Mod.)	15	12	7	4
Moderns	18	21	9	25
Moderns and English and History	2	3		
Modern History	2			
Philosophy				2
Mathematics and Physics	3	5	2	5
Science	6			
Physics				1
Physiological and Biochemical Sciences		1		1
Biology				2
Household Science	19	14	4	6
Physiology and Household Science			3	2
Totals	112	87	60	76

The women students registered in Victoria College took the following courses:

Courses.	First Year.	Second Year.	Third Year.	Fourth Year.
General	22	15	14	7
Moderns and English and History	11	9	7	12
Classics and English and History		3	1	
Modern History		1		
Mathematics and Physics	1	1	2	1
Natural and Physical Sciences	2	1		
Household Science	9	9	8	4
	45	39	32	24
Total		140		
Occasional		4		
		144		

The women students registered in Trinity College took the following courses :

Courses.	First Year.	Second Year.	Third Year.	Fourth Year.
General	6	3	11	6
Modern Languages	2	3	4	4
English and History (Mod.)	5	.....	1	3
Modern History .....	.....	1	.....	1
Classics	1	.....	.....	1
Total	14	7	16	15

The women in the Faculty of Medicine were enrolled as follows :

First Year	9
Second Year	5
Third Year	4
Fourth Year	3
Fifth Year	3
	<u>24</u>

The women in the Faculty of Household Science took the following courses :

Department of Education	13
Occasionals	78
	<u>91</u>

The women in the Faculty of Education took the following courses :

Advanced Course	85
General Course	115
	<u>200</u>

APPENDIX C.

RESULTS OF EXAMINATIONS.

- (1) Faculty of Arts.
- (2) Faculty of Medicine.
- (3) Faculty of Applied Science.
- (4) Faculty of Forestry.
- (5) Faculty of Education.
- (6) Faculty of Household Science.

RESULTS OF EXAMINATIONS IN MAY, 1914.

(1) FACULTY OF ARTS.

Senior Matriculation.

Courses.	University.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
General	2	45	25	5	19	96	24	41	31				29
Supplementals		6	3			9	6	3					2
Classics					1	1		1				1	1
Eng. and Hist. (Cl.)		1				1	1			1			
Greek and Hebrew													
Moderns		2	2	3		8	2	5	1			2	4
English and History (Mod.)		2				2	1	1					1
Modern History	1	2				3	2	1		2			1
Political Science		5	1			6	2	3	1	3		1	2
Commerce and Finance		3	2	1		6		3	1	3			4
Math. and Phys.		4	1	1		6	2	3	1	3			2
Natural Science		1				1		1					
Household Science		3	2	1		6	5	1		2			1
Arts and Forestry													
Occasionals	18	1				19	17	2					
Totals	21	76	36	11	20	164	62	67	35	14		4	47

First Year.

Courses.	University.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
General		86	51	12	21	170	66	62	42				
Supplementals		35	14	3	3	55	38	17			1		
Classics		7	7	3		17	14	3					
Eng. and Hist. (Class.)		10	6	4		20	16	4		3			
Greek and Hebrew		1				1	1						
Moderns		27	10	1		38	26	11	1	5			
Eng. and Hist. (Mod.)		13	4	6	1	24	22	2		3			
Modern History		2	3			5	5						
Political Science		12	5	1		18	9	8	1	8			
Commerce and Finance		4	6			10	8	2		3			
Math. and Phys.		20	10			30	28	2		3			
Natural Science		21	9	3		33	28	5		2	1		
Household Science		16	7	4		27	18	7	2	5		2	2
Arts and Forestry		1				1		1					
Occasionals													
Totals		255	132	37	25	449	279	124	46	32	2	2	2

Second Year.

Courses.	University.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. Michael's College.	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
General		74	43	15	4	136	48	61	27	.....	2	.....	12
Supplementals		30	12	11	2	55	30	25	.....	.....	.....	.....	.....
Classics		8	3	.....	.....	11	4	6	1	.....	.....	2	2
Eng. and History (Classics)		5	3	.....	.....	8	2	6	.....	1	1	.....	.....
Oriental		1	4	.....	.....	5	4	1	.....	.....	.....	.....	1
Greek and Hebrew		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moderns		27	9	4	3	43	23	19	1	2	1	7	7
Eng. and History (Mod.)		15	2	1	1	19	11	7	1	4	.....	.....	.....
Modern History		1	1	1	.....	3	1	1	1	.....	.....	.....	.....
Political Science		20	8	.....	.....	28	19	9	.....	5	.....	3	3
Commerce and Finance		5	.....	.....	.....	12	4	5	3	1	.....	.....	.....
Philosophy		8	5	3	14	30	13	13	4	2	.....	3	3
Mathematics and Physics		20	3	.....	.....	23	15	5	3	.....	.....	3	3
Physics		2	1	.....	.....	3	2	1	.....	.....	.....	.....	.....
Biology		2	2	.....	.....	4	3	1	.....	.....	.....	.....	.....
Geology and Mineralogy		.....	1	.....	.....	1	1	.....	.....	.....	.....	.....	.....
Chem. and Mineralogy		5	.....	.....	.....	12	8	3	1	.....	.....	.....	.....
Bio. and Phys. Sciences		1	3	.....	.....	4	2	1	1	.....	.....	.....	.....
Phys. and Bioch. Sciences		13	4	.....	.....	17	15	.....	2	.....	.....	.....	.....
Household Science		14	8	.....	.....	22	13	7	2	.....	1	1	3
Phys. and Household Sc.		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arts and Forestry		1	.....	.....	.....	1	.....	1	.....	.....	.....	.....	1
Occasionals	20	7	.....	1	.....	28	6	2	.....	.....	.....	.....	.....
Totals	20	259	126	36	24	465	224	174	47	15	5	9	35

Third Year.

Courses.	University.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. Michael's College.	Totals.	Passed.	Starred.	Failed.	Transfer'd.	Aegrotat.	Deferred.	Debarred.
General		86	43	22	13	164	88	53	23	.....	1	.....	13
Supplementals		34	3	3	3	43	28	15	.....	.....	.....	.....	2
Classics		5	3	1	.....	9	8	1	.....	.....	2	.....	2
Eng. and History (Classics)		4	3	.....	.....	7	7	.....	.....	.....	.....	.....	.....
Oriental		.....	1	.....	.....	1	1	.....	.....	.....	.....	.....	.....
Greek and Hebrew		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Moderns		10	8	4	.....	22	15	6	1	.....	.....	1	2
Eng. and History (Mod.)		8	2	1	.....	11	10	.....	1	.....	2	.....	.....
Modern History		5	2	1	.....	8	8	.....	.....	.....	.....	.....	1
Political Science		15	4	2	.....	21	16	4	1	3	.....	.....	3
Commerce and Finance		5	1	.....	.....	6	3	2	1	.....	1	1	1
Philosophy		10	8	1	17	36	18	16	2	.....	2	5	9
Mathematics and Physics		9	8	.....	.....	17	14	1	2	.....	.....	.....	.....
Physics		1	1	1	.....	3	3	.....	.....	.....	.....	.....	.....
Biology		1	1	.....	.....	2	2	.....	.....	.....	.....	.....	.....
Geology and Mineralogy		1	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....
Chem. and Min. I.		5	.....	1	.....	6	4	2	.....	.....	.....	.....	.....
Chem. and Min. II.		2	.....	.....	.....	2	1	1	.....	.....	.....	.....	.....
Bio. and Phys. Sciences		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Phys. and Bioch. Sciences		10	2	.....	.....	12	8	4	.....	.....	1	2	2
Household Science		4	5	.....	.....	9	5	4	.....	.....	.....	.....	.....
Phys. and Household Science		2	3	.....	.....	5	3	1	1	.....	.....	1	1
Arts and Forestry		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Occasionals	7	.....	.....	.....	.....	7	4	3	.....	.....	.....	.....	.....
Totals	224	98	37	33	392	247	113	32	3	9	10	36	

Fourth Year.

Courses.	University.	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. Michael's College.	Totals.	Passed.	Starred.	Failed.	Transferred.	Agrotat.	Deferred.	Pass. Deg.
General		84	27	12	2	125	94	27	4		4		
Classics		7	5	3		15	15				1		
English and History (Class.)		8		2		10	9		1				
Greek and Hebrew			1			1	1						
Oriental		1	5			6	6						
Moderns		26	14	4	1	45	45						3
English and History (Mod.)		5	1	4		10	9	1					1
Modern History			2	1		3	3						
Political Science		16	10			26	24	2			3		
Commerce and Finance		2				2	2						
Philosophy		9	3		5	17	16	1			1		
Mathem. } Mathematics		16	2	1		19	17	2					2
and } Physics		1	1			2	2						
Physics } Astro. & Phys.		2	1			3	3						
Physics		2				2	2						
Biology		2	1			3	3						
Geology and Mineralogy		2				2	2						
Chem. and Mineralogy, I.		4	1	1		6	5	1					2
Chem. and Mineralogy, II.		2	1			3	3						
Bio. and Phys. Sciences		1	2			3	3						
Physio. and Biochem. Sc.		8	1			9	8	1					
Household Science		6	4			10	6	1	3			1	
Physio. and Household Sc.		2				2	2						
Arts and Forestry		3				3	3						
Occasionals		6	1			7	6		1				
Totals		215	83	28	8	334	289	56	9		9	1	7

(2) FACULTY OF MEDICINE.

	Passed with Honours.	Passed.	Starred.	Failed.
First Year	8	76	19	12
Second Year	3	68	12	4
Third Year	8	68	35	7
Fourth Year	6	79	25	
Fifth Year	6	68	12	

(3) FACULTY OF APPLIED SCIENCE.

	Passed with Honours.	Passed.	Starred.	Failed.
First Year :				
Civil Engineering.....	38	66	14	6
Mining Engineering.....	3	4	1	1
Mechanical Engineering.....	3	13	6	1
Architecture.....	3	7	4	.....
Analytical and Applied Chemistry.....	1	4	2	.....
Chemical Engineering.....	1	3	2	.....
Electrical Engineering.....	15	33	10	3
Second Year :				
Civil Engineering.....	14	54	26	4
Mining Engineering.....	1	4	2	3
Mechanical Engineering.....	6	13	5	.....
Architecture.....	3	12	6	.....
Analytical and Applied Chemistry.....	2	3	1	.....
Chemical Engineering.....	3	5	2	.....
Electrical Engineering.....	10	28	10	8
Metallurgical Engineering.....	1	1	.....	.....
Third Year :				
Civil Engineering.....	42	84	22	4
Mining Engineering.....	7	16	4	.....
Mechanical Engineering.....	7	13	3	1
Architecture.....	4	10	5	.....
Analytical and Applied Chemistry.....	2	4	1	.....
Chemical Engineering.....	1	2	.....	.....
Electrical Engineering.....	6	33	16	3
Fourth Year :				
Civil Engineering.....	42	76	11	.....
Mining Engineering.....	6	16	4	2
Mechanical Engineering.....	10	18	2	.....
Architecture.....	3	5	1	.....
Analytical and Applied Chemistry.....	4	5	.....	.....
Chemical Engineering.....	3	6	1	.....
Electrical Engineering.....	18	31	4	.....

(4) FACULTY OF FORESTRY.

	Passed with Honours.	Honours Deferred.	Failed.
First Year.....	2	13	2
Second Year.....	3	6	.....
Third Year.....	2	3	2
Fourth Year.....	6	2	.....
Special Student		1	.....
Forestry and Arts:			
First Year		1	.....
Second Year		1	.....
Fourth Year	1		.....
Fifth Year.....	1		.....
Sixth Year	1		.....

(5) FACULTY OF EDUCATION.

	Passed with Honours.	Passed.	Failed.
General Course	8	166	.....
Advanced Courses	14	93	.....
*Specialists		*46	.....
Inspectors' Course.....		1	.....
B. Pæd		1	.....
D. Pæd.....		1	.....
Number who failed in whole or part			19

* Many of these are included among those who passed in the General or Advanced Courses.

(6) FACULTY OF HOUSEHOLD SCIENCE.

	Passed.
Occasional Students	14

The students from the Province of Ontario are distributed as follows:

County.	Faculty of Arts.	Faculty of Medicine.	Faculty of Applied Science.	Faculty of Education.	Faculty of Forestry.	Faculty of Household Science.	Totals.
Algoma.....	9	8	4				21
Brant.....	31	7	8	4	2		52
Bruce.....	28	11	10	5	1		55
Carleton.....	53	1	6	3	3		66
Dufferin.....	19	5	3	2			29
Dundas.....	11	1		3	1		16
Durham.....	27	5	12	3	1		48
Elgin.....	30	8	4	8			50
Essex.....	30	13	9	6			58
Frontenac.....	5				1		6
Glengarry.....	1						1
Grenville.....	10	2			1		13
Grey.....	49	20	19	10	1		99
Haldimand.....	20	6	3	2	1		32
Haliburton.....							
Halton.....	29	12	6	3			50
Hastings.....	25	5	8	5			43
Huron.....	42	13	13	19	1	1	89
Kent.....	31	13	7	9		2	62
Lambton.....	41	16	7	6	1		71
Lanark.....	17	1	6	4	2	2	32
Leeds.....	18	4	2	1		1	26
Lennox and Addington.....	7		1	1		1	10
Lincoln.....	29	4	8	3	1	1	46
Manitoulin.....	6		1				7
Middlesex.....	56	9	24	12	2		103
Muskoka.....	8	2	4		1		15
Nipissing.....	19	5	10	2			36
Norfolk.....	11	4	3	3			21
Northumberland.....	22	3	4	7			36
Ontario.....	57	7	4	12		1	81
Oxford.....	42	7	13	13			75
Parry Sound.....	3	1				1	5
Peel.....	35	3	8	7			53
Perth.....	56	12	11	13		3	95
Peterborough.....	35	5	12	4	1	1	58
Prescott.....	8		1	2			11
Prince Edward.....	11	1		1			13
Rainy River.....	2		1		1		4
Renfrew.....	15	2	4	1			22
Russell.....	2		1				3
Simcoe.....	74	28	12	12		3	129
Stormont.....	1		1	2			4
Thunder Bay.....	14	4	2				20
Victoria.....	22	4	1	6		1	34
Waterloo.....	26	11	15	5		1	58
Welland.....	28	5	7	8			48
Wellington.....	53	4	10	18			85
Wentworth.....	85	23	23	14	1		146
York.....	52	13	9	13	1	2	90
Toronto.....	852	189	231	60	16	66	1,414
Totals.....	2,157	497	548	312	40	87	3,641

APPENDIX E.

PUBLICATIONS.

During the year 1913-14 the following volumes and papers were issued as University of Toronto Studies:

- Review of Historical Publications Relating to Canada." Vol. 18; edited by George M. Wrong, H. H. Langton and W. S. Wallace.
- Philological Series, No. 2: "George Ticknor's Travels in Spain," edited by G. T. Northup.
- Philological Series, Extra Volume: "Theban Ostraca," edited from the originals, with translations and plates, by Alan H. Gardiner, Sir Herbert Thompson and J. G. Milne.
- Geological Series, No. 8: "A Cervalces Antler from the Toronto Interglacial," by B. A. Bensley.
- Papers from the Chemical Laboratories, No. 99: "Hyperbasis," by Frank B. Kenrick.
- Papers from the Chemical Laboratories, No. 100: "Electro-deposition of Metals," by W. Lash Miller.
- Papers from the Chemical Laboratories, No. 101: "Determination of Free Cyanide in Cyanide Copper and Brass Baths," by J. T. Burt-Gerrans and W. Morison.
- Papers from the Chemical Laboratories, No. 102: "The Rate of Dissociation of Nitrogen Peroxide," by W. L. Argo.
- Papers from the Chemical Laboratories, No. 103: "Researches in Physical Chemistry," No. VII, by W. Lash Miller and F. B. Kenrick.
- Papers from the Chemical Laboratories, No. 104: "Friedel and Craft's Reaction," by C. R. Rubidge and N. C. Qua.

PUBLICATIONS BY MEMBERS OF THE STAFF.

Faculty of Arts.

- Allan, F. B.—"Friedel and Crafts' Reaction—The Preparation of Orthobenzoylbenzoic Acid and Benzophenone." In collaboration with C. R. Rubidge and N. C. Qua. (*Journal of the American Chemical Society*, 36, 732.)
- Baker, A.—"Some Experiments in Connection with the Doctrine of Probability." (Paper read at the Annual Meeting of the Royal Society of Canada, Montreal, May 26-28, 1914.)
- Brett, G. S.—"The Government of Man: An Introduction to Ethics and Politics." (Pp. XIV-318. Bell & Sons.)
- "The Problem of Freedom after Aristotle." (*Mind*, N. S., 87, July, 1913.)
- Chant, C. A.—"An Extraordinary Meteoric Display." (*Journal of the Royal Astronomical Society of Canada*, Vol. VII. pp. 145-215 and 438-447. 1913.)
- "The Motion of the Stars." (*Journal of the Royal Astronomical Society of Canada*, Vol. VIII. pp. 21-35, 1914.)
- Clawson, W. H.—"Percy's Reliques of Ancient English Poetry." (The Report of the Ontario Educational Association. 1913.)
- Coleman, A. P.—"Guide-book to Toronto and Vicinity." (Geol. Congress, No. 6.)
- "Geology of Toronto." (Canadian Institute Handbook.)
- "Guide to Sudbury Region." (Geol. Congress, No. 7.)

- “The Whiskey Lake Area, and the Massey Copper Mine Area.” (Bureau of Mines, Ont., Vol. XXII, Part 1.)
- Cooper, A. R.—“Contributions to the Life History of *Proteocephalus ambloplites*, Leidy.” (Contributions to Canadian Biology, by the Dominion Government.)
- Cudmore, S. A.—“Economics specially adapted to Canadian conditions”: A general treatment of the subject in twenty lessons. (350 to 400 pages.) (Shaw Correspondence School, Toronto.)
- Ellsworth, H. V.—“The crystal habit of Topaz from New Brunswick, Canada.”
 “A method of silvering crystal faces for giving improved reflections on the goniometer.” (Mineralogical Magazine, December, 1913.)
- Falconbridge, J. D.—“Fictitious or non-existing Payee of a Bill.” (18, Journal Canadian Bankers' Association, Jan'y, 1911.)
 “Blanks in Negotiable Instruments.” (31, Canadian Law Times, 113, Feb'y, 1911; 18, Journal Canadian Bankers' Association, 156, April, 1911.)
 “Prohibitions of Section 76 of the Bank Act.” (32, Canadian Law Times, 872, Nov., 1912; 20, Journal Canadian Bankers' Association, 131, January, 1913.)
 “The Law Merchant in Canada.” (49, Canada Law Journal, 637, Nov., 1913.)
 “Banking and Bills of Exchange.” (2nd ed., Canada Law Book Co., Toronto, 1913.)
- Fields, J. C.—“Proof of the Complementary Theorem.” (London Mathematical Society.)
 “Direct Derivation of the Complementary Theorem.” (British Association, Birmingham.)
 “To determine by rational operations whether an Algebraic curve is or is not reducible.” (Royal Society of Canada.)
- Fraser, W. H.—“French and Ontario Secondary Schools.” (University of Toronto Monthly, April, 1914.)
- Homer, Miss A.—“The Constitution of Kymuremi Acid.” (The American Journal of Biological Chemistry, May, 1914.)
- Hume, J. G.—“The Ethics of Speculation.” (The Westminster, July, 1913.)
 “Socialism.” Contribution to Symposium. (Edited by J. Silvín, Sacramento, 1913.)
- Huntsman, A. G.—“On the Origin of the Ascidian Mouth.” (Proc. Royal Society B., Vol. 86, p. 454.)
 “Protostigmata in Ascidiata.” (Proc. Royal Society B., Vol. 86, p. 440.)
 “Invertebrates other than Insects and Mollusks.” (Natural History of the Toronto Region, Toronto, 1913.)
- Kartzke, G.—“Jahresbericht für germanische Philologie: Englische Sprache.”
 “English Annotations zu W. Paszkowski, Lesebuch für Ausländer.”
- Kenrick, F. B.—“Hyperbasia.” (Trans. American Electrochem. Soc., Vol. 23, pp. 421-427.)
 “Rate of Dissociation of Nitrogen Peroxide.” In collaboration with W. L. Argo. (Journal Phys. Chem., Vol. 18, pp. 438-450.)
 “The Sulphates of Barium.” In collaboration with J. D. Barter. (Trans. Roy. Soc. Can. 111, 1913.)
 “The Sulphates of Calcium.” In collaboration with H. A. G. Willoughby. (Trans. Roy. Soc. Can., 111, 1913.)
 “The Thickness of Surface Films of Solutions of Surface-active Substances.” In collaboration with R. L. McGregor. (Trans. Roy. Soc. Can., 111, 1913.)

- "The Critical Angle of Reflection from Solutions of Surface-active Substances." In collaboration with R. T. Elworthy. (Trans. Roy. Soc. Can., 111, 1913.)
- "The Rate of Solution and Crystallization of Gypsum." In collaboration with W. J. Fawcett. (Trans. Roy. Soc. Can., 111, 1913.)
- "The Absence of Supersaturation of Liquids in Liquids." In collaboration with W. J. Fawcett. (Trans. Roy. Soc. Can., 111, 1913.)
- "The Tyndall Effect in Liquids." In collaboration with W. H. Martin. (Trans. Roy. Soc. Can., 111, 1913.)
- Lefroy, A. H. F.—"Canada's Federal System, being a Treatise on Canadian Constitutional Law under the British North America Act."
- "The Alberta and Great Waterways Railway Case." (Law Quarterly Review, Jan. 15th, 1913.)
- "Points of Special Interest in Canada's Federal Constitution." (The Canadian Law Times, Oct., 1913.)
- Lloyd, G. I. H.—"The Cutlery Trades." (Longmans, Green, & Co.)
- McLennan, J. C.—"On the Relative Intensities of the Earth's Penetrating Radiation on Land and Sea." (Phil. Mag., Oct., 1912, p. 520); (Trans. Roy. Soc. of Can., 1912.)
- "Measurements on the Earth's Penetrating Radiation with a Wulf Electrometer." In collaboration with A. R. McLeod. (Phil. Mag., Oct., 1913, p. 740.)
- "On the Electrical Conductivity Imparted to Liquid Air by Alpha Rays." In collaboration with D. S. Keys. (Proc. British Association, 1912; Phil. Mag., Nov., 1913, p. 876.)
- "On the Series Line in the Arc Spectrum of Mercury." (Proc. Roy. Soc., A, Vol. 87, 1912, p. 256.)
- "On the Constitution of the Mercury Green Line 5461 A U and on the Magnetic Resolution of its Satellites by an Echelon Grating." (Proc. Roy. Soc., A, Vol. 87, 1912, p. 269.)
- "On a Fluorescence Spectrum of Iodine Vapour." (Proc. Roy. Soc., A, Vol. 88, p. 289, 1913.)
- "On the Temperature of the Mercury Arc." (Proc. Roy. Soc. of Can., 1913.)
- "Residual Ionisation in Gases." (Nature, Dec. 11, 1913.)
- Mavor, James.—"Taxation in Ontario." (Canada and its Provinces, 1913-14.)
- "Applied Economics." (New York, 1914.)
- "Economic Survey of Canada." (Oxford Survey of the British Empire, Vol. IV, Oxford, 1914.)
- "An Economic History of Russia." (2 Vols., London, 1914.)
- Needler, G. H.—"German and Ontario Secondary Schools." (University Monthly, January, 1914.)
- Northup, G. T.—"Selections from Mesonero Romanos." (Holt & Co., New York, 1913 Text-book.)
- "The Spanish Prose Tristram Source Question." (Modern Philosophy, Vol. XI, No. 2, October, 1913.)
- Parks, W. A.—"Report on the Building and Ornamental Stones of Canada. Vol. 11, the Maritime Provinces." (Mines Branch, Department of Mines, Canada.)
- "Summary Report on the Building and Ornamental Stones of the Province of Quebec." (Summary Report, Mines Branch, Dept. Mines for 1912.)
- "Preliminary Report on the Fossils collected by Mr. J. B. Tyrrell in the District of Patricia." (Bureau of Mines, Ontario Report for 1913.)

- "The Palæontology of the Guelph, Onondaga and Hamilton Formations in Southwestern Ontario." (Guide Book to Excursion A 12, International Geological Congress.) In collaboration with C. R. Stauffer and M. Y. Williams.
- "The Silurian Section at the Forks of the Credit River." (Guide Book to Excursion B 4, International Geological Congress.)
- "The Ordovician Section on the Credit River near Streetsville, Ont." (Guide Book to Excursion B 7, International Geological Congress.)
- "Geology of Selected Areas on Lakes Erie and Huron in the Province of Ontario." In collaboration with C. R. Stauffer and A. F. Foerster, M. Y. Williams and T. L. Walker. (Guide Book to Excursion C 5, International Geological Congress.)
- "The Paleozoic Section at Hamilton, Ont." (Guide Book to Excursion B 3, International Geological Congress.)
- Parsons, A. L.—"The Lake of the Wood and other Areas." (Bureau of Mines, Ontario, 1913.)
- Piersol, W. H.—"Handbook of the Geology and Natural History of Toronto"—article "Amphibia." (Canadian Institute.)
- "The Egg-laying Habits of *Plethodon cinereus*." (Trans. Canadian Institute.)
- Robertson, A. D.—"Mollusca." (The Natural History of the Toronto Region.)
- Sissons, C. B.—"Illiteracy in the West." (The University Magazine, October, 1913.)
- Walker, E. M.—"Mutual Adaptation of the Sexes in *Argia mœsta*." (Canadian Entomologist, Vol. 45, pp. 277-279.)
- "A New Species of Orthoptera forming a New Genus and Family." (Can. Ent., Vol. 46, pp. 93-99.)
- "Review of Animal Communities in Temperate North America." (Can. Ent., Vol. 46, pp. 111-112.)
- "The Nymphs of the Canadian Species of *Lestes*." (Can. Ent., Vol. 46, No. 6.)
- Walker, T. L.—"Crystallography" (204 pages). (McGraw Hill Book Co., New York, May, 1914.)
- "Temiskamite, a New Nickel Arsenide." (American Journal of Science, February, 1914.)
- "Royal Ontario Museum of Mineralogy." (University Monthly, 1914.)

Faculty of Medicine.

- Campbell, G. A.—"Albuminuria Associated with Diseased Tonsils." (American Medicine, June, 1913.)
- "Results of Treatment with Salvarsan in Late Congenital Syphilis." American Journal of Diseases of Children, September, 1913.)
- "Report of a Case of Ectopia cordias."
- Clarkson, F. A.—"Venereal Disease as a Public Health Problem." (Canadian Practitioner and Review, October, 1913.)
- "Primary Endothelioma of the Pleura." (Canadian Medical Association Journal, March, 1914.)
- Fitzgerald, J. G.—"Action of Gentian Violet on *Mucosus capsulatus* Group." In collaboration with Miss G. Mackintosh. (Proc. Society of Experimental Biology Medicine, 1913, X, pp. 149-157.)

- "Recent Work on Anterior Poliomyelitis in America." (Ergebnisse der Bakteriologic Immunitatsforschung. Experimentellen Therapie und Hygiene, 1914.)
- "The Scientific Work of the Hygienic Laboratory, United States Public Health Service." (Ergebnisse der Bakteriologie. Immunitatsforschung, Experimentellen Therapie und Hygiene, 1914.)
- Gallie, Wm.—"Tendon Fixation." (American Journal of Orthopaedic Surgery, July, 1913.)
- "The Periosteum." (Canadian Medical Association Journal, January, 1914.)
- Harrison, F. C.—"On the Use of Pituitary Extract in Obstetrics." (Archives of Internal Medicine, September, 1913.)
- Henderson, V. E.—"On the Colon and Ileocolotomy." (Canadian Medical Association Journal, June, 1913.)
- "Acidosis." Canadian Medical Association Journal, IV, 1914.)
- "Action of Drugs on the Uterus." (U. of T. Med. Bull., II, 1914.)
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FINANCIAL STATEMENT

APPENDIX I.

BALANCE SHEET, 30TH JUNE, 1914.

Funds.

General Endowments Fund	Schedule 1	\$5,165,550	81	
Specific Endowment Funds	"	123,648	63	
Retirement Fund	"	35,570	45	
Trust Funds	"	34,404	49	
Equipment Funds	"	12,181	44	
Annuity debentures	"	898,208	51	
Contingent Funds	"	567	68	
				\$6,270,132 01

Assets.

Site Lands, Buildings and Contents	Schedule 6	\$5,132,399	55	
Unproductive Lands	"	59,732	21	
Leased Properties	"	571,647	24	
Investments and Cash	"	255,350	21	
Royal Ontario Museum	"	251,002	80	
				\$6,270,132 01

SCHEDULE 1.

General Endowments Fund.

Additions for 1913-14:			
Frontage license: Ellen Morgan		\$150	00
Library proper, value of additions as per accession catalogue	\$13,745 44		
Less 3% depreciation upon \$222,104.87	6,663 14		
			7,082 30
Convocation Hall Advance:			
Restoration from proceeds of Wild Lands sales, eighth instalment		1,975	92
Annuity Debentures:			
Portion of 1913-14 instalments reducing principal:			
Fifth instalment of issue, July, 1909..	\$6,155 04		
Third instalment of issue, January, 1911	1,478 00		
Third instalment of issue, January, 1911	3,411 00		
			11,044 04
Central Power Plant:			
Repayments during the year upon outlays of \$375,000.		18,945	00
Athletic Field Stadium and Equipment:			
Repayments upon principal during the year		3,281	32
Increased Equipment:			
Household Science Building:—			
Cost of construction and equipment		474,000	00
Pathological Building:—			
Cost of construction and equipment.....		181,085	68

General Endowments Fund.—Continued.

Increased capitalization of following Park

Leases:		
Lot 33 and part 32, upon renewal.....	\$20,600 00	
Lot 31 and part 32, upon renewal....	19,800 00	
Part Lot 42, upon assignment of lease	2,160 00	
		42,560 00

Royal Ontario Museum Investment:

Amount of University's investment in site and building:

Valuation of site 127, 507 sq. feet at 40c. per foot as per entry of 1912 ..	51,002 80	
University's contribution towards erection and equipment of building	200,000 00	
		251,002 80
		\$991,127 06

Contra.

Central Power Plant:

Additional appropriation authorized from Capital....	\$25,000 00	
Pathological Building:		
Additional appropriation authorized from Capital	5,000 00	
		\$30,000 00

	961,127 06
Fund as per return of 30 June, 1913	4,204,423 75
Return of 30 June, 1914	\$5,165,550 81

SCHEDULE 2.

Scholarship Trust Funds.

Blake, Matriculation	\$29,028 72	
Mackenzie Memorial Fund	18,709 60	
McCharles Bequest	11,122 59	
James H. Richardson Research Fellowship	10,000 00	
Starr Bequest	5,873 50	
Pearson Kirkman Marfleet Fellowship	5,700 00	
George Brown, Medical Science	5,391 72	
Blake, Science and Moderns	3,750 00	
Young Memorial Fund	3,619 12	
Fulton Bequest	3,351 30	
Mary Mulock, Classics	2,838 74	
George A. Peters Scholarship	2,700 00	
A. A. A. S. Scholarship, Physics	2,350 00	
Gibson, Matriculation	2,345 00	
John Macdonald, Philosophy	2,030 00	
Moss, Classics	2,000 00	
William Mulock, Classics and Mathematics	2,000 00	
Daniel Wilson, Natural Science	2,000 00	
All Souls Historical Essay Prize	1,950 00	
Bankers', Political Science	1,200 00	
George Brown, Modern Languages	1,128 34	
William Ramsay, Political Economy	1,009 42	
Julius Rossin, German	1,000 00	
Prince of Wales, General Proficiency	1,000 00	
Chappell Prize	466 80	
Lyle Medal	328 78	
Squair French Prose Prize	250 00	
Reeve Scholarship	250 00	
Boiler Inspection and Insurance Company Scholarship	130 00	
Board of Trade, Commercial	100 00	
Kirschmann Scholarship	25 00	
		\$123,648 63
Return of 30 June, 1913	\$122,192 02	
Interest written to endowments	5,296 68	

Scholarship Trust Funds.—Continued.

Income from bonds, Gibson Scholarship	140 00	
Income from farm, Starr Bequest	135 00	
Receipts:		
Kirschmann Scholarship	25 00	
Boiler Inspection and Insurance Company Scholarship	130 00	
Dale Scholarship	70 00	
McCharles Bequest	10 00	
		\$127,998 70
Scholarship expenditures	4,350 07	
Return of 30 June, 1914		<u>\$123,648 63</u>

SCHEDULE 3.

Retirement Fund, Beneficiaries, 30 June, 1914.

R. A. Falconer	\$8,274 72	
W. Lash Miller	5,543 45	
T. L. Walker	4,595 87	
John Galbraith	3,107 56	
A. P. Coleman	3,031 73	
W. H. Ellis	3,031 73	
J. C. Fields	1,912 94	
W. A. Parks	1,801 37	
J. W. Bain	1,376 66	
H. W. Price	986 67	
E. M. Walker	797 59	
E. G. R. Ardagh	786 74	
James Christie	323 42	
		<u>\$35,570 45</u>
Fund of 30 June, 1913	\$60,550 46	
Contributions, 1913-14	4,709 16	
Interest	2,598 88	
		<u>\$67,858 50</u>
Withdrawals:		
Maurice Hutton	\$13,451 22	
J. G. Hume	12,171 21	
W. S. Milner	5,342 00	
R. W. Angus	1,323 62	
		<u>32,288 05</u>
Return of 30 June, 1914		<u>\$35,570 45</u>

SCHEDULE 4a.

Trust Funds.

King Alfred Millenary Fund	\$10,204 76	
Phillips Stewart Bequest	1,478 62	
Mary A. Simpson Bequest	1,235 31	
Medical Research Fund	14,426 25	
University Studies	2,490 33	
Ontario Archaeology, Special Fund	485 00	
Men's Residence Deposits	1,240 00	
Women's Residence Deposits	475 00	
Summer Session Deposits	895 00	
John Langton Memorial	30 00	
Sir William Muleck	904 22	
Microscopes Fund, Pathological Department.....	540 00	
		<u>\$34,404 49</u>

Trust Funds.—Continued.

Return of 30 June, 1913	\$32,225 15	
Interest appropriations	522 33	
Receipts:		
Medical Research Fund	12,400 00	
University Studies	995 61	
Microscopes Fund, Pathological Department	540 00	
Dr. James Loudon Portrait Fund	79 49	
Men's Residence Deposits	1,010 00	
Women's Residence Deposits	235 00	
Summer Session Deposits	1,465 00	
		\$49,472 58
Expenditures:		
King Alfred Millenary Fund	\$950 60	
Phillips Stewart Bequest	28 54	
University Studies	704 85	
Medical Research Fund	9,380 03	
Botanic Garden Special Fund	86 85	
Dr. James Loudon Portrait Fund	1,222 22	
Men's Residence Deposits	1,200 00	
Women's Residence Deposits	425 00	
Summer Session Deposits	570 00	
Connell Anthracite Mining Co., Deposit	500 00	
		\$15,068 09
Return of 30 June, 1914		<u>\$34,404 49</u>

SCHEDULE 4b.

Equipment Funds.

Pathological Building:		
Outlays during 1913-14, as per Appendix VI.....	\$21,344 58	
Unexpended on 30 June, 1913.....	\$15,258 90	
Additional appropriation from Capital....	5,000 00	
Charge upon 1913-14 Revenue Account (Schedule 5a)	1,085 68	
		21,344 58
Central Power Plant:		
Unexpended on 30 June, 1913.....	\$54,675 14	
Additional appropriation from Capital.....	25,000 00	
		\$79,675 14
Contractors' deposits refunded	4,165 00	
		\$75,510 14
Outlays during 1913-14, as per Appendix VI.....	63,328 70	
		<u>\$12,181 44</u>
Museum Building:		
Expenditure to 30 June, 1913.....	\$355,563 56	
Applied thereto as per return of that year.....	350,000 00	
		\$5,563 56
Expended during 1913-14, as per Appendix VI.....	13,016 92	
		\$18,580 48
Payable by Provincial Government and carried temporarily in Schedule 5a	18,580 48	

SCHEDULE 4c.

Annuity Debentures

Issue of July, 1909, \$500,000, repayable in forty equal annual amounts of \$25,260 each.

Contingent Funds—Contra.—Continued.

University's share (one-half) charged to Revenue, 1913-14	14,918 53	
Government's share temporarily advanced by the University	14,918 52	
Museum Building: Amount due from the Government on expenditure to 30 June, 1914, as per Schedule 4b, on account of final instalment (\$50,000)	18,580 48	
		\$33,499 00
		\$567 68

SCHEDULE 5b.

*Revenue 1913-1914.**Receipts.*

	Estimate.	Actual.
Legislative Grant, University Act, 1906	\$435,000 00	\$435,667 21
Legislative Grant, 60 Vict., Cap. 59	7,000 00	7,000 00
Provincial Grant, on account of Faculty of Education	15,000 00	15,000 00
Fees, University and College, as detailed in Appendix II	275,000 00	274,938 17
Interest:		
On Purchase Moneys	3,300 00	2,391 36
On Loans	1,700 00	1,721 12
On Debentures	11,750 00	11,178 83
Rentals:		
University Park properties	13,700 00	15,077 40
City of Toronto payment	6,000 00	6,000 00
Sundry houses	3,250 00	2,642 40
Business properties	3,000 00	3,070 00
Sundry Earnings, Land	500 00	570 78
Men's Residence Dues	13,000 00	13,137 10
Women's Residence Dues	16,000 00	16,490 45
Dining Hall Receipts	32,250 00	32,451 94
Central Power Plant Receipts:		
Royal Ontario Museum	\$3,294 12	
Carried in Accounts Receivable, on ac- count of sums due by Wycliffe and Victoria Colleges, pending adjustment	14,753 44	
Sundry sales of electric power, etc.	941 82	
	10,000 00	18,989 38
Casual Revenue		400 81
	846,450 00	856,726 95
Expenditure in excess of receipts	118,510 00	86,112 21
	\$964,960 00	\$942,839 16

Expenditures.

	Estimate.	Actual.
1. Administration	\$147,150 00	\$142,673 63
2. Faculty of Arts	296,056 00	294,146 31
3. " " Medicine	91,942 00	85,833 52
4. " " Applied Science	152,542 00	148,971 56
5. " " Household Science	14,205 00	14,039 67
6. " " Education	59,850 00	58,982 48
7. " " Forestry	12,100 00	11,850 57
8. Residences and Dining Hall	53,685 00	53,595 01
9. Royal Ontario Museum	15,000 00	14,918 53
10. Central Power Plant	40,000 00	40,006 73
11. Contingencies	5,000 00	504 56
12. Capital Account Charges	65,930 00	65,930 00
Total as per Appendix III	\$953,460 00	\$931,452 57

Expenditures.—Continued.

Interest written to Trust Funds (Schedules 2, 3, and 4c)	8,500 00	8,417 89
Interest on overdraft at Canadian Bank of Commerce	3,000 00	2,968 70
	<u>\$964,960 00</u>	<u>\$942,839 16</u>

SCHEDULE 6.

Site Lands, Buildings and Contents, 30 June, 1914.

Site Lands:		
2,623,521 sq. feet at forty cents per foot	\$1,049,408 40	
160,083 sq. feet at cost price	141,548 00	
	<u>2,783,604 sq. feet</u>	<u>\$1,190,956 40</u>
Buildings:		
Household Science building	\$455,000 00	
Main building	450,000 00	
Chemistry and Mining, with adjacent building	384,736 89	
Physics building	363,945 85	
Library building	327,425 50	
Convocation Hall and Examination Wing	214,866 22	
Education building	184,383 47	
Pathological building	169,694 38	
Medical building	165,000 00	
Biological building	129,745 30	
Thermodynamics building	119,017 21	
Chemical building	77,469 88	
Engineering building	50,000 00	
Forestry building	30,101 65	
Geodetic Observatory building	12,000 27	
Men's Residences	183,521 18	
Women's Residences	60,982 59	
Y. M. C. A. building	1 00	
	<u>3,377,891 39</u>	
Library	\$215,441 73	
Museum Specimens	1 00	
Convocation Hall Organ	19,603 11	
	<u>235,045 84</u>	
Departmental Equipment:		
1. Faculty of Arts:		
Biological	\$6,131 25	
Mineralogical	10,145 00	
Geological	7,505 00	
Chemical	14,040 00	
Physical	29,250 00	
Astro-Physics	1,635 00	
Psychological	2,700 00	
Mathematical	500 00	
Mechanics	750 00	
Physiology	12,500 00	
Botany	5,500 00	
2. Faculty of Medicine:		
Anatomy	1,340 00	
Pathology	18,440 56	
Pharmacology	2,430 00	
Chemical Pathology	7,925 74	
3. Faculty of Applied Science:		
Electrical Engineering	30,923 00	
Thermodynamics and Hydraulics	10,000 00	
Applied Mechanics	10,075 00	
5 B.G.		

Site Lands, Buildings and Contents, 30 June, 1914.—Continued.

Applied Chemistry	10,114 00	
Mining	16,270 00	
Surveying	12,980 00	
Architecture and Drawing	10,830 00	
Physics and Photography	4,127 00	
4. Faculty of Household Science	19,000 00	
5. Faculty of Education	10,000 00	
		<u>\$255,111 55</u>
Furniture and Furnishings:		
Men's Residences	\$14,266 30	
Women's Residences	6,702 95	
General furniture, various buildings	11,825 00	
		<u>\$32,794 25</u>
Athletic Field Stadium and equipment		35,817 88
Gymnasium equipment		1,800 00
Dining Hall equipment		1 00
Printing Plant		2,981 24
		<u>\$5,132,399 55</u>
Return of 30 June, 1913		\$4,468,445 22
Additions thereto:		
Household Science building and equipment	\$474,000 00	
Pathological building and equipment	181,085 68	
Library proper, 1913-14 additions	\$13,745 44	
Less depreciation at 3 per cent. upon \$222,104.87	6,663 14	
		<u>7,082 30</u>
Women's Residence, No. 4 Queen's Park:		
Cost of alterations	\$4,908 82	
and furnishings	3,839 32	
		<u>\$8,748 14</u>
Less received from Government in lieu of repairs after occupation	800 00	
		<u>\$7,948 14</u>
Entered in 1912-13	2,498 50	
		<u>5,449 64</u>
		<u>667,617 62</u>
		<u>\$5,136,062 84</u>
<i>Contra.</i>		
Printing Plant:		
Written off by transfer from operating account	\$5,784 32	
Less additions to plant during 1913-14	3,501 83	
		<u>\$2,282 49</u>
Women's Residences Furnishings Account:		
Written off by application of amount received during the year from sales of Wild Lands set apart for Women's Residences	1,380 80	
		<u>3,663 29</u>
Return of 30 June, 1914		<u>\$5,132,399 55</u>

SCHEDULE 7.

Unproductive Lands.

Vacant land in Port Hope	\$8,445 00	
Vacant land in Belleville	1,283 00	
Endowment lands unsold in various townships	152 00	
U. C. C. Block on King Street	49,852 21	
		<u>\$59,732 21</u>

Transactions, 1913-14.

Upper Canada College Block:		
Sale during the year	\$37,500 00	
Less Commission	937 50	
	<u>\$36,562 50</u>	
Taxes paid for 1911, 1912 and 1913, re widening of Duncan Street	182 75	
		\$36,379 75
Port Hope Lots:		
Sales during the year		605 00
Belleville Lots:		
Received as compensation from G. T. R., for closing and diversion of streets		200 00
		<u>\$37,184 75</u>
Return of 30 June, 1913		96,916 96
		<u>\$59,732 21</u>

SCHEDULE 8.

Leased Lands, etc.

Victoria College Site	\$1 00	
Knox College Site	4,714 40	
Wycliffe College Site	22,000 00	
Land leased to City of Toronto	120,000 00	
Park Land Leased	300,208 00	
Toronto business properties	61,400 00	
Caradoc Farm	2,400 00	
		<u>\$510,723 40</u>
House and land, 47 St. George Street	\$10,172 95	
House and land, 69 St. George Street	20,000 00	
Building, No. 8 University Crescent	14,842 75	
Building, No. 719 Spadina Avenue	4,000 00	
Building, No. 721 Spadina Avenue	4,023 51	
		53,039 21
Rentals accrued but not due	\$8,816 54	
City of Toronto payment accrued	1,500 00	
Wycliffe College pavement	689 34	
	<u>\$11,005 88</u>	
Park rentals paid in advance	3,121 25	
		<u>7,884 63</u>
		<u>\$571,647 24</u>
Return of 30 June, 1913	\$529,391 47	
Decrease in outstanding rentals	304 23	
	<u>\$529,087 24</u>	

Leased Lands, etc.—Continued.

Addition to capitalized value consequent upon renewals of the following leases, University Park Lots:

Lot 33 and North half Lot 32	\$20,600 00	
Lot 31 and South half Lot 32	19,800 00	
Part Lot 42	2,160 00	
	<u>42,560 00</u>	
		<u>\$571,647 24</u>

SCHEDULE 9.

Investments, 30 June, 1914.

Debentures and Municipal Bonds	\$276,023 24	
Interest accrued but not due	5,383 65	
	<u>281,406 89</u>	
Loans secured by mortgages on real property	\$21,147 99	
Interest accrued but not due	251 55	
	<u>21,399 54</u>	
Unpaid purchase money upon land sales	\$62,100 00	
Interest accrued but not due	356 22	
	<u>62,456 22</u>	
Dominion Power and Transmission Co., shares		2,000 00
Accounts Receivable:		
University Press	\$5,230 74	
Department of Photography	99 70	
Antitoxin Laboratory	839 80	
Miscellaneous labor and material.....	568 87	
Sundries	30 00	
	<u>6,769 11</u>	
Central Power Plant:		
Amount outstanding in Accounts Receivable on 30 June, 1913	\$10,432 69	
Wycliffe College Account, year 1911-12:		
Share of operating expenses	\$4,295 98	
Annual payment for interest and sinking fund as per agreement	303 12	
Annual rental as per agreement	240 00	
Year 1912-13:		
Share of operating expenses	3,673 50	
Annual payments as above	543 12	
	<u>\$9,055 72</u>	
Received from Wycliffe on account:		
In 1911-12	\$900 00	
In 1912-13	3,000 00	
	<u>3,900 00</u>	
Received in 1913-14, being balance in full to 30 June, 1913	5,155 72	
	<u>\$5,276 97</u>	
Assumed on account of the portion due by Victoria and Wycliffe Colleges to 30 June, 1914 subject to adjustment	\$14,753 44	
		<u>\$20,030 41</u>
		<u>\$394,062 17</u>
Less Overdraft at Canadian Bank of Commerce		138,711 96
		<u>\$255,350 21</u>

Transactions 1913-14.

Inwards.

Debenture collections	\$16,060 33	
Mortgage loans repaid	11,887 21	
Purchase money collections	38,031 25	
Withdrawals from Canadian Bank of Commerce	1,151,540 68	
Decrease in accrued revenue	1,824 16	
	<hr/>	\$1,219,343 63

Outwards.

Debentures purchased	\$832 14	
Land sales	38,105 00	
Deposits in Canadian Bank of Commerce	1,108,271 21	
Increase in accounts outstanding	12,083 79	
	<hr/>	1,159,292 14
		<hr/>
		\$60,051 49
Return of 30 June, 1913		315,401 70
		<hr/>
Return of 30 June, 1914		\$255,350 21
		<hr/> <hr/>

APPENDIX II.

Fees, 1913-14.

Total of fees collected, 1913-14		\$287,511 59
Less:—		
Sundry refunds during year	\$1,978 00	
Paid to Education Department for their share of Matriculation fees	1,838 00	
Paid to Hospitals, fees collected from students in Medicine:		
Toronto General	\$4,650 00	
St. Michael's	1,335 00	
Sick Children's	1,015 00	
	7,000 00	
Paid to Hamilton Conservatory of Music, <i>re</i> local examination candidates from that centre	48 00	
	10,864 00	
		\$276,647 59
Carried to Revenue, 1913-14 (Schedule 5 <i>b</i>)		\$274,938 17
Carried to Convocation Hall Organ Fund (Schedule 5 <i>a</i>), being surplus fees derived from Local Examinations in Music after payment of expenses		1,709 42
		\$276,647 59

Details of Fees Received, 1913-14.

Subject.	1st year.	2nd year.	3rd year.	4th year	5th year.	Miscellaneous.	Total.
I. Faculty of Arts :	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Tuition	11,896 00	8,358 00	7,166 00	7,536 00	.....	1,388 00	36,344 00
Dispensations (University College) .....	.....	15 00	15 00	25 00	.....	.....	55 00
Dispensations (University) .....	.....	20 00	25 00	35 00	.....	.....	80 00
Post Graduate Registration .....	.....	.....	.....	.....	.....	70 00	70 00
Honor Certificates .....	.....	.....	.....	2 00	.....	81 00	83 00
Matriculation	67 00	.....	.....	.....	.....	1,335 00	1,402 00
Ad Eundem	10 00	40 00	30 00	30 00	.....	10 00	120 00
Examinations	5,304 00	5,664 00	5,767 00	4,899 00	.....	1,370 00	23,004 00
Degrees .....	.....	.....	.....	3,110 00	.....	410 00	3,520 00
Laboratory Supplies	420 00	631 00	595 00	631 00	.....	3 00	2,280 00
Library	1,080 00	760 00	692 00	616 00	.....	12 00	3,160 00
Gymnasium, Men's (including lockers)	108 00	144 00	72 00	80 00	.....	61 00	465 00
Gymnasium, Women's (including lockers)	216 00	184 00	116 00	116 00	.....	111 50	743 50
Penalties for late registration .....	.....	.....	.....	.....	.....	280 50	280 50
	19,101 00	15,816 00	14,478 00	17,080 00	.....	5,132 00	71,607 00
II. Faculty of Medicine :							
Tuition	16,030 50	11,643 00	13,325 00	11,614 00	9,903 00	1,681 00	64,196 50
Post Graduate Registration .....	.....	.....	.....	.....	.....	135 00	135 00
Honor Certificates .....	.....	.....	.....	.....	.....	10 00	10 00
Matriculation	20 00	.....	.....	.....	.....	5 00	25 00
Ad Eundem	10 00	.....	.....	.....	.....	.....	10 00
Examinations	1,190 00	1,126 00	1,311 00	1,607 00	1,021 00	180 00	6,435 00
Degrees .....	.....	.....	.....	.....	1,740 00	320 00	2,060 00
Laboratory Supplies	960 00	968 00	354 00	880 00	890 00	.....	4,052 00
Library	240 00	176 00	236 00	220 00	178 00	.....	1,050 00
Gymnasium, Men's (including lockers)	20 00	12 00	16 00	28 00	.....	33 00	109 00
Gymnasium, Women's (including lockers) .....	.....	4 00	4 00	.....	.....	.....	8 00
Microscopes Account .....	.....	.....	.....	.....	.....	180 00	180 00
	18,470 50	13,929 00	15,246 00	14,349 00	13,732 00	2,544 00	78,270 50

Details of Fees Received, 1913-14.—Continued.

Subject.	1st year.	2nd year.	3rd year.	4th year.	5th year.	Miscellaneous.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
III. Faculty of Applied Science:							
Tuition	12,373 00	12,250 50	18,489 00	17,367 00	.....	270 00	60,749 50
Post Graduate Registration						5 00	5 00
Matriculation	30 00	10 00	5 00			20 00	65 00
Examinations	1,462 00	1,883 00	2,540 00	2,371 00		170 00	8,426 00
Degrees				1,542 00		130 00	1,672 00
Ad Eundem			20 00				20 00
Library	288 00	284 00	352 00	318 00			1,242 00
Gymnasium, Men's	68 00	40 00	68 00	36 00			212 00
	14,221 00	14,467 50	21,474 00	21,634 00	.....	595 00	72,391 50
IV. Faculty of Household Science:							
Tuition and Class Material						2,327 00	2,327 00
Examinations						150 00	150 00
Gymnasium						120 00	120 00
						2,597 00	2,597 00
V. Faculty of Education:							
Tuition (Teachers in training)						6,557 00	6,557 00
Examinations						364 00	364 00
Honor Certificates						16 00	16 00
						6,937 00	6,937 00
University Schools:							
Tuition						23,564 00	23,564 00
						30,501 00	30,501 00
VI. Faculty of Forestry:							
Tuition	1,091 00	616 00	490 00	442 00		132 00	2,771 00
Examinations	200 00	123 00	80 00	81 00		41 00	525 00
Laboratory Supply	160 00	80 00	64 00	48 00		8 00	360 00
Library	40 00	20 00	16 00	12 00		4 00	92 00
Gymnasium	8 00	16 00					24 00
Degrees				60 00		10 00	70 00
	1,499 00	855 00	650 00	643 00	.....	195 00	3,842 00
VII. University Extension:							
Summer Session, 1913—							
Tuition						4,129 09	4,129 09
Correspondence Courses						1,190 50	1,190 50
						5,319 59	5,319 59
Teachers' Course—							
Tuition						45 00	45 00
Examinations						20 00	20 00
						5,384 59	5,384 59

VIII. Departmental Fees.	Law.	Dentistry.	Music.		Pharmacy.	Veterinary Science.	Agriculture.	Total.
			Mus. Bac.	Local.				
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Matriculation	190 00	240 00			180 00	120 00		730 00
Examinations	410 00	820 00	100 00	2,447 00	422 00	188 00	510 00	4,897 00
Degrees	330 00	675 00	30 00		360 00	135 00	410 00	1,940 00
Honor Certificates				498 00			5 00	503 00
Laboratory Instruction		760 00				3,200 00		3,960 00
Gymnasium		4 00						4 00
Ad Eundem		10 00	10 00					20 00
	930 00	2,509 00	140 00	2,945 00	962 00	3,643 00	925 00	12,054 00

Summary of Fees, 1913-14.

I. Faculty of Arts:		
First year	\$19,101 00	
Second year	15,816 00	
Third year	14,478 00	
Fourth year	17,080 00	
Miscellaneous	5,132 00	
		<u>\$71,607 00</u>
II. Faculty of Medicine:		
First year	\$18,470 50	
Second year	13,929 00	
Third year	15,246 00	
Fourth year	14,349 00	
Fifth year	13,732 00	
Miscellaneous	2,544 00	
		<u>78,270 50</u>
III. Faculty of Applied Science:		
First year	\$14,221 00	
Second year	14,467 50	
Third year	21,474 00	
Fourth year	21,634 00	
Miscellaneous	595 00	
		<u>72,391 50</u>
IV. Faculty of Household Science:		
Miscellaneous	\$2,597 00	
		<u>2,597 00</u>
V. Faculty of Education:		
Teachers in training	\$6,937 00	
University Schools	23,564 00	
		<u>30,501 00</u>
VI. Faculty of Forestry:		
First year	\$1,499 00	
Second year	855 00	
Third year	650 00	
Fourth year	643 00	
Miscellaneous	195 00	
		<u>3,842 00</u>

Summary of Fees, 1913-14.—Continued.

VII. University Extension:		
Miscellaneous	\$5,384 59	
		5,384 59
VIII. Departmental:		
Law	\$930 00	
Dentistry	2,509 00	
Music	3,085 00	
Pharmacy	962 00	
Veterinary Science	3,643 00	
Agriculture	925 00	
		12,054 00
		<u>\$276,647 59</u>

Classification of Services.

Tuition Fees:		
Arts, \$36,344.00; Post Graduate, \$70.00	\$36,414 00	
Medicine, \$64,196.50; Post Graduate, \$135.00	64,331 50	
Applied Science, \$60,749.50; Post Graduate, \$5.00	60,754 50	
Household Science	2,327 00	
Education, Teachers in Training	6,557 00	
Education, University Schools	23,564 00	
Forestry	2,771 00	
Dispensations	135 00	
Honor Certificates	612 00	
Matriculation	2,222 00	
Ad Eundem	170 00	
Examinations	43,821 00	
Degrees	9,262 00	
Laboratory Supplies	6,692 00	
Laboratory Instruction	3,960 00	
Library	5,544 00	
Gymnasium	1,685 50	
University Extension	5,364 59	
Penalties for late registration	280 50	
Microscopes	180 00	
		\$276,647 59

Recapitulation.

University Fees proper	\$74,579 00	
University College Fees proper	36,399 00	
Medicine	64,331 50	
Applied Science	60,754 50	
Household Science	2,327 00	
Education, including University Schools	30,121 00	
Forestry	2,771 00	
University Extension	5,364 59	
		<u>\$276,647 59</u>

APPENDIX III.

Revenue Expenditures, 1913-14.

	Appropriation.	Supplementary.	Unused.	Total.
I. Administration:				
1. Salaries	\$63,345 00		\$537 22	\$62,807 78
2. Pensions	5,500 00			5,500 00
3. President's Office	250 00		43 84	206 16
4. Bursar's Office	1,500 00		14 75	1,485 25
5. Registrar's Office	4,000 00		165 07	3,834 93
6. Superintendent's Office	650 00		0 04	649 96
7. Library	15,725 00		21 92	15,703 08
8. Museum				
9. Gymnasium and Students' Union	5,855 00		454 56	5,400 44
10. Convocation Hall	2,150 00		129 79	2,020 21
11. Grounds	11,800 00	1,476 00		13,276 00
12. Examinations	16,750 00		2,243 48	14,506 52
13. Convocation Expenses	1,000 00	136 15		1,136 15
14. Receptions	1,250 00		560 88	689 12
15. Telephones	2,775 00		32 17	2,742 83
16. Insurance	8,000 00		793 89	7,206 11
17. Advertising Expenses	1,000 00		66 72	933 28
18. Aid to Publications and Societies	600 00	250 00		850 00
19. University Studies	2,000 00			2,000 00
20. Law Costs	1,000 00		708 49	291 51
21. General Incidentals	2,000 00		694 45	1,305 55
22. Senate Elections		128 75		128 75
	\$147,150 00	\$1,990 90	\$6,467 27	\$142,673 63
II. Faculty of Arts:				
23. Salaries	\$244,041 00		\$1,461 26	\$242,579 74
24. Retiring Allowances	3,750 00			3,750 00
25. Main Building	8,225 00	\$311 62		8,536 62
26. Biological Building and Department	5,800 00	243 91		6,043 91
27. Sub-Department of Botany	4,025 00	1 52		4,026 52
28. Bio-Chemistry	1,500 00		107 35	1,392 65
29. Physiological Department	1,750 00	348 99		2,098 99
30. Chemical Building and Department	4,320 00		107 42	4,212 58
31. Sub-Department of Physical Chemistry	500 00		4 27	495 73
32. Physics Building and Department	7,875 00		452 57	7,422 43
33. Sub-Department of Astrophysics	1,050 00		9 32	1,040 68
34. Geological Department	550 00		17 85	532 15
35. Mineralogical Department	800 00		6 56	793 44
36. Psychological Department	700 00		115 03	584 97
37. Mathematical Department	30 00		19 20	10 80
38. Sub-Department of Mechanics	375 00		62 20	312 80
39. Political Science	150 00	1 24		151 24
40. History	75 00		46 81	28 19
41. Italian and Spanish	50 00		24 25	25 75
42. University College Departments	1,990 00		534 42	1,455 58
43. World History	50 00	16 89		66 89
44. Trinity College Service	750 00	44 36		794 36
45. University Extension	7,700 00		9 71	7,690 29
	\$296,056 00	\$968 53	\$2,978 22	\$294,046 31

Revenue Expenditures, 1913-14.—Continued.

	Appropriation.	Supplementary.	Unused.	Total.
III. Faculty of Medicine:				
46. Salaries	\$67,175 00		\$4,709 78	\$62,465 22
47. Retiring Allowances	2,800 00			2,800 00
48. Anatomy	2,750 00		182 59	2,567 41
49. Pathology and Bacteriology	1,850 00	\$61 99		1,911 99
50. Chemical Pathology	1,200 00	4 47		1,204 47
51. Pharmacy and Pharmacology	480 00	131 17		611 17
52. Medicine	1,000 00		362 95	637 05
53. Surgery	575 00		337 14	237 86
54. and 55. Obstetrics and Gynecology	850 00		87 22	762 78
56. Ophthalmology	100 00		59 00	41 00
57. Oto-Laryngology	587 00		189 60	397 40
58. Therapeutics	75 00		3 35	71 65
59. Hygiene	225 00	13 24		238 24
60. Medical Jurisprudence	50 00		50 00	.....
61. Medical Building	3,550 00		76 92	3,473 08
62. Pathological Building	6,225 00	295 12		6,520 12
63. General Expenses	2,450 00		455 92	1,994 08
	\$91,942 00	\$505 99	\$6,514 47	\$85,933 52
IV. Faculty of Applied Science:				
64. Salaries	\$115,300 00		\$1,822 97	\$113,477 03
65. C. & M. Building	5,275 00	\$4 21		5,279 21
66. Engineering Building	3,992 00		242 72	3,749 28
67. Thermodynamics Building	1,550 00	205 09		1,755 09
68. Geodetic Observatory Building	450 00		28 19	421 81
69. Electrical Engineering	4,100 00		22 83	4,077 17
70. Mechanical Engineering	2,900 00		247 69	2,652 31
71. Applied Mechanics	1,200 00	5 55		1,205 55
72. Mining Engineering	3,400 00		1 63	3,398 37
73. Metallurgical Engineering.. . . .	2,300 00		94 41	2,205 59
74. Ferro-Metallurgy	270 00		131 66	138 34
75. Surveying	1,110 00		189 10	920 90
76. Applied Chemistry	2,750 00		24 79	2,725 21
77. Electro-Chemistry	1,550 00		39 81	1,510 19
78. Architecture and Drawing	2,560 00		242 84	2,317 16
79. Engineering Physics and Photography	2,585 00		564 85	2,020 15
80. General Expenses	1,250 00		131 80	1,118 20
	\$152,542 00	\$214 85	\$3,785 29	\$148,971 56
V. Faculty of Household Science:				
81. Salaries	\$8,800 00	\$300 00		\$9,100 00
82. Household Science Building and Department	5,405 00		\$465 33	4,939 67
	\$14,205 00	\$300 00	\$465 33	\$14,039 67
VI. Faculty of Education:				
83. Salaries	\$45,600 00		\$33 68	\$45,566 32
84. Education Building and Department	14,250 00		833 84	13,416 16
	\$59,850 00	.....	\$867 52	\$58,982 48

Revenue Expenditures, 1913-14.—Continued.

	Appropriation.	Supplementary.	Unused.	Total.
VII. Faculty of Forestry:				
85. Salaries	\$8,750 00			\$8,750 00
86. Forestry Building and Department	3,350 00		\$249 43	3,100 57
	\$12,100 00	.....	249 43	\$11,850 57
VIII. Residences and Dining Hall:				
87. Men's Residences	\$6,305 00		\$436 80	\$5,868 20
88. Women's Residences	15,130 00	\$163 24		15,293 24
89. Dining Hall	32,250 00	183 57		32,433 57
	\$53,685 00	\$346 81	\$436 80	\$53,595 01
IX. 90. Royal Ontario Museum....	\$15,000 00		\$81 47	\$14,918 53
X. 91. Central Light, Heat and Power Plant	\$40,000 00	\$6 73		\$40,006 73
XI. 92. Contingencies	\$5,000 00		\$4,495 44	\$504 56
XII. 93. Capital Account Charges..	\$65,930 00			\$65,930 00

Recapitulation.

I. Administration	\$147,150 00	\$1,990 90	\$6,467 27	\$142,673 63
II. Faculty of Arts	296,056 00	968 53	2,978 22	294,046 31
III. Faculty of Medicine	91,942 00	505 99	6,514 47	85,933 52
IV. Faculty of Applied Science	152,542 00	214 85	3,785 29	148,971 56
V. Faculty of Household Science..	14,205 00	300 00	465 33	14,039 67
VI. Faculty of Education	59,850 00		867 52	58,982 48
VII. Faculty of Forestry	12,100 00		249 43	11,850 57
VIII. Residences and Dining Hall...	53,685 00	346 81	436 80	53,595 01
IX. Royal Ontario Museum	15,000 00		81 47	14,918 53
X. Central Light, Heat and Power Plant	40,000 00	6 73		40,006 73
XI. Contingencies	5,000 00		4,495 44	504 56
XII. Capital Account Charges	65,930 00			65,930 00
	\$953,460 00	\$4,333 81	\$26,341 24	\$931,452 57
			4,333 81	
			\$22,007 43	
	\$22,007 43			

Total Expenditure under appropriations \$931,452 57

I. ADMINISTRATION.

1. Salaries.

President's Office.

Dr. R. A. Falconer, President, 12 mos. to 30th June	\$8,000 00	
Miss A. W. Patterson, President's Secretary, 12 mos. to 30th June	1,200 00	
		\$9,200 00

1. *Salaries.*—Continued.

Bursar's Office.

F. A. Mouré, Bursar, 12 mos. to 30th June	\$3,500 00	
T. A. Reed, Accountant, 12 mos. to 30th June	1,700 00	
H. J. Bolitho, Fees Clerk, 12 mos. to 30th June	1,500 00	
W. R. Hamilton, Assistant Accountant, 12 mos. to 30th June..	900 00	
Miss A. M. Gall, Clerk and Stenographer, 12 mos. to 30th June.	900 00	
Miss K W. Huntington, Voucher Clerk, 12 mos. to 30th June..	800 00	
C. E. Higginbottom, Office Assistant, 12 mos. to 30th June....	650 00	
Miss E. B. Goodwin, Clerk and Stenographer, 12 mos. to 30th June	550 00	
		\$10,500 00

Registrar's Office.

J. Brebner, Registrar, 12 mos. to 30th June	\$3,000 00	
A. B. Fennell, Assistant Registrar, 12 mos. to 30th June, \$1,300; bonus voted for year, \$200	1,500 00	
Miss E. M. Dickson, Clerk, 12 mos. to 30th June	850 00	
Miss N. MacKenzie, Minute Clerk, 12 mos. to 30th June	650 00	
Stenographers, each 12 mos. to 30th June:		
Miss M. McMillan	650 00	
Miss A. S. Meen	650 00	
Miss E. M. Sharpe	550 00	
Miss J. R. White	550 00	
Miss H. Bartlet, Clerk of Records, 1st to 24th July, at \$525 per annum (resigned)	35 00	
Miss I. G. O'Neil, Clerk, 6th October to 30th June, at \$500 per annum	368 28	
		\$8,803 28

Superintendent's Office.

G. Campbell, Superintendent of Buildings and Grounds, 12 mos. to 30th June	\$2,900 00	
A. D. LePan, Assistant Superintendent, 12 mos. to 30th June ...	1,700 00	
Stenographers, each 12 mos. to 30th June:		
Miss Ada Kidd	675 00	
Miss G. Hagen	650 00	
Clerks:		
W. L. D. Carnie, 12 mos. to 30th June	675 00	
H. Dickson, 1st July to 30th November at \$7 per week, \$136; 1st December to 30th June at \$8 per week, \$261.33	397 33	
		\$6,997 33

Library.

H. H. Langton, Librarian, 12 mos. to 30th June	\$3,000 00	
Miss G. Buchan, First Assistant, 12 mos. to 30th June	1,000 00	
Assistants, each 12 mos. to 30th June:		
Miss E. Creighton	750 00	
Miss H. Fairbairn	750 00	
Miss G. Cayley	650 00	
Miss J. Forrest	650 00	
Mrs. A. C. Jones	650 00	
Miss H. G. B. Woolryche	650 00	
Miss A. H. Young, Cataloguer, 12 mos. to 30th June	1,000 00	
Assistant Cataloguers, each 12 mos. to 30th June:		
Miss E. V. Bethune	800 00	
Miss M. E. L. Thompson	650 00	
Miss E. Aldridge, Typewriting Assistant	550 00	
Miss L. M. Mason, Order and Accession Clerk, 12 mos. to 30th June	750 00	
Delivery Clerks, each 12 mos. to 30th June:		
Miss M. L. Newton	550 00	
Miss M. Lowe	550 00	
S. H. Fussell, Attendant (with rooms, heat and light as Care- taker of building), 12 mos. to 30th June.....	700 00	
		\$13,650 00

Salaries.—Continued.

Museum.

C. T. Currelly, Director of Archaeological Section, 12 mos. to 30th June	\$3,000 00	
		\$3,000 00

Gymnasium.

J. W. Barton, Physical Director and Secretary of Athletic Directorate, 12 mos. to 30th June	\$2,200 00	
A. Williams, Instructor, 12 mos. to 30th June	1,100 00	
		\$3,300 00

General Service.

R. Martin, Bedel, 12 mos. to 30th June	\$1,220 00	
W. H. Fox, Mechanician, 12 mos. to 30th June	1,150 00	
Constables:		
J. Christie, 12 mos. to 30th June, \$1,100; allowance towards pension fund, \$100	1,200 00	
D. Forbes, 12 mos. to 30th June	750 00	
Nightwatchmen:		
G. Hagan, 12 mos. to 30th June	750 00	
H. McIntosh, 12 mos. to 30th June	725 00	
D. Elack, 12 mos. to 30th June	700 00	
G. Watson, 1st July to 15th December at \$700 per annum	320 87	
W. Whittaker, 16th December to 15th March at \$700 per annum	177 02	
W. May, 16th March to 30th April at \$600 per annum, \$75; May-Jne, 1 19-30ths mos. at \$700 per annum, \$95.28	170 28	
Occasional service, relieving, etc.:		
J. Prattis, \$164; J. Dawson, \$15; F. J. Nicholson, \$10; J. Bradley, \$5	194 00	
		\$7,357 17
		\$62,807 78

2. *Pensions.*

James Loudon, LL.D., annual pension	\$5,500 00	
		\$5,500 00

3. *President's Office.*

Office supplies, postage, printing and incidentals (\$206.16):		
Annual Review Publishing Co., review 1912	\$3 50	
Wm. Briggs, printing report	94 40	
President R. A. Falconer, for sundry disbursements	24 61	
University Press, printing and stationery	83 65	
		\$206 16

4. *Bursar's Office.*

Office supplies, postage, printing and incidentals (\$985.25):		
Brown Bros., cash book	\$20 00	
Burroughes' Adding Machine Co., inspection and supplies	8 20	
The Bursar, petty disbursements, \$42.72; postage, \$125.00	167 72	
Five-in-One Letter Envelope Co., envelopes	14 75	
F. C. Flannery, envelope sealer	2 50	
Grand & Toy, blank books, stationery and supplies	149 85	
Lake Simcoe Ice Supply Co., ice	5 60	
C. W. Mack, rubber stamps	11 85	
Might Directories, Ltd., city directory	10 00	
Moir & Warren, stationery and supplies	33 85	
Office Specialty Mfg. Co., steel shelving and fying cabinets	188 45	
United Typewriter Co., supplies	3 25	
University Press, printing, stationery and supplies	364 63	
Superintendent's Department, labor, \$4.30; material, .30	4 60	
Auditor's Remuneration (\$500.00):		
W. H. Cross, auditor	500 00	
		\$1,485 25

5. Registrar's Office.

Office supplies and stationery (\$661.73):	
City Storage Co., cartage	\$2 20
F. C. Flannery, envelope sealer	2 50
F. W. Harbord, rubber stamps	3 75
Lake Simcoe Ice Supply Co., ice	5 71
Might Directories, Ltd., city directory	10 00
National Typewriter Co., repairs	24 75
Office Specialty Mfg. Co., card cabinet and supplies	68 77
Photography, Dept. of, slides	85
C. M. Seeber, pencil sharpener	6 90
Students' Book Dept., books	3 05
United Typewriter Co., typewriter, \$100; inspection, \$9....	109 00
University Press, stationery and supplies	421 80
Superintendent's Dept., labor, \$1.68; material, .77.....	2 45
Postage (\$1,000.00):	
The Bursar, postage supplied	1,000 00
Printing, other than Calendar (\$262.65):	
University Press, printing	262 65
Printing Calendar and Curricula (\$1,865.55):	
University Press	\$1,895 55
Less received for advertising in Curricula..	30 00
	<hr/>
	1,865 55
Clerical Assistance (\$45.00):	
Miss Helen Bartlet, 3 weeks	45 00
	<hr/>
	\$3,834 93

6. Superintendent's Office.

Office supplies, postage, printing and incidentals (\$649.96):	
The Bursar, postage supplied	80 00
Canada Stamp & Stencil Co., rubber stamp	2 82
Copeland-Chatterson Co., supplies	23 43
T. Eaton Co., overalls	2 50
Engineering Society, instruments	9 65
Grand & Toy, blank books	3 00
Lake Simcoe Ice Supply Co., ice	4 31
Macey Office Equipment Co., inkstand	4 72
Might Directories, Ltd., city directory	10 00
Office Specialty Mfg. Co., office furnishings and supplies..	30 26
Photography, Dept. of, slides	3 05
Remington Typewriter Co., typewriter, \$50; inspection, \$4.50	54 50
Students' Book Dept., books	19 80
United Typewriter Co., inspection	9 00
University Press, stationery and supplies	388 20
Freight charges	2 98
Petty items (5)	5 32
Superintendent's Dept., material	92
	<hr/>
	\$654 46
Less sundry credits	4 50
	<hr/>
	\$649 96

7. Library.

(a) Maintenance of Building:

Heat and Light (supplied from Central Power Plant :	
Gas (\$109.62):	
Consumers' Gas Co.	\$109 62
Water (\$36.47):	
City Treasurer	36 47
Caretaker's supplies (\$54.01):	
Superintendent's Dept., material	54 01
Cleaning (\$568.46):	
Allen Manufacturing Co., laundry	5 89

7. Library.—Continued.

Canadian Window Cleaning Co., cleaning windows	24 10	
Superintendent's Dept., labor	538 47	
Repairs and Renewals (\$902.65):		
Wm. Bartlett & Son, shades	6 99	
Wm. Card, exterminating rats	12 00	
City Treasurer, elevator license	5 00	
A. Matthews, Ltd., repairs to roof	138 98	
Routery Bros., plastering	15 00	
Superintendent's Dept., labor, \$438.23; material, \$286.45..	724 68	
		\$1,671 21
Less sundry credits	1 00	
		\$1,670 21

(b) General Library Appropriation:

Books and Periodicals, binding and office supplies (\$14,032.87):		
American Association of Labor Legislation	\$5 03	
American Historical Association	1 53	
American Historical Review	3 00	
American Institute of Electrical Engineering	2 03	
American Library Association	5 03	
American Railway Engineers' Association	12 12	
American Society of Mechanical Engineers	15 10	
American Society for Testing Materials	12 63	
Archaeological Institute of America	2 28	
Bibliotheque-Civique, Montreal	2 75	
Boston Book Co.	7 48	
Boston Society of Natural History	16 76	
Albert Britnell	40 40	
F. A. Brockhaus	5,215 53	
Wm. Bryce	9 01	
Burlington Fine Arts Club	16 10	
Canada Law Book Co.	18 00	
Miss W. M. Cartwright	24 00	
C. D. Cazenove & Son	1,727 63	
Honoré Campion	4 10	
The Century Co.	40 52	
Arthur H. Clark & Co.	4 03	
T. & T. Clark	5 60	
Wm. Dawson & Son	78 10	
H. J. Elwes	10 22	
Gustav Fock	27 29	
R. Friedlander & Sohn	16 43	
Gauthier-Villars	48 40	
Otto Harrassowitz	35 95	
A. Hermann & Fils	77 05	
J. C. Hinricks	18 29	
Johns Hopkins Press	2 53	
International Congress of Americanists	5 03	
International Electrical Congress	16 10	
International Magazine Co.	11 10	
T. O'Neill Lane	3 70	
Libreria Internazionale	213 45	
Leo Liepmannssohn	17 90	
Linnean Society of London	21 87	
B. Login & Son	32 30	
Luther Burbank Society	80 15	
McGill University Library	6 50	
Mississippi Valley Historical Association	13 13	
National Municipal League	5 03	
National Short Ballot Association	93	
Thos. Nelson & Sons	10 06	
Ontario Library Association	2 00	
Revue Economique Canadienne	80	
E. Garcia Rico	39 79	
The School	2 50	
J. Springer	5 50	

7. *Library.*—Continued.

G. E. Stechert & Co.	275 50	
Students' Book Department	1,299 75	
Superintendent of Documents, Washington	35 06	
J. Terquem	895 92	
M. Thordarson	5 11	
T. Fisher Unwin	1 88	
University of Chicago Press	38 99	
University of Pennsylvania Museum	5 28	
A. Vincent	251 65	
Geo. Wahr	2 53	
Wilson & Lafleur	7 75	
H. W. Wilson Co.	6 94	
Wistar Institute of Anatomy and Biology.....	37 18	
The Bursar, postage supplied	178 00	
The Librarian, disbursements: book deposits refunded, \$118.50; car tickets and sundries, \$12.91; to be ac- counted for in 1914-15, \$26.15	157 56	
Canada Furniture Manufacturers, chair	8 80	
Canada Stamp & Stencil Co., rubber stamp	3 00	
T. Eaton Co., furnishings	11 25	
Library Bureau of Canada, cards	6 00	
Might Directories, Ltd., city directory	10 00	
Office Specialty Mfg. Co., furniture, etc.	15 31	
Remington Typewriter Co., typewriter, \$101.97; inspection and supplies, \$26.75	128 72	
Miss H. G. Woolryche, preparation of joint catalogue.....	100 00	
United Typewriter Co., inspection	9 00	
University Press, binding, \$2,448.90; printing and station- ery, \$294.04	2,742 94	
Freight charges	137 43	
Superintendent's Dept., labor, \$230.28; material, \$90.65; shelving transferred from No. 4 Queen's Park, \$17.00.	337 93	
	<hr/>	\$14,702 24
Less balance in Librarian's hands from 1912-13, \$32.80; graduates' deposits, \$193.50; fines, \$180.90; replace- ment of books lost, \$114.37; Education Department's share of joint catalogue, \$100.00; subscriptions to and sales of books, etc., \$47.80	669 37	
	<hr/>	\$14,032 87
		\$15,703 08

9. *Gymnasium and Students' Union.*

(a) Maintenance of Building (temporary structure):

Fuel (\$734.92):		
Connell Anthracite Mining Co.	\$734 92	
Water (\$118.87):		
City Treasurer	118 87	
Caretaker's Supplies (\$12.66):		
Superintendent's Dept., material	12 66	
Cleaning (\$378.51):		
Superintendent's Dept., labor	378 51	
Repairs and Renewals (\$226.93):		
Superintendent's Dept., labor, \$149.98; material, \$76.95	226 93	
	<hr/>	\$1,471 89
Less sundry credits: cleaning, \$10.00; repairs, \$16.53.	26 53	
	<hr/>	\$1,445 36
Caretaker, Geo. Hare, 12 months to 30th June.....	800 00	
	<hr/>	\$2,245 36

9. *Gymnasium and Students' Union.*—Continued.

(b) Aid to Athletics:

Grant to Athletic Association (\$800.00):		
University Athletic Association	\$800	00
Gymnastic Appliances (\$157.16):		
Burrroughs, Wellcome & Co., surgical case	20	87
Wm. Cane, apparatus	10	70
G. H. Corsan, water wings	15	00
Ingram & Bell, surgical supplies	14	03
National Sporting Goods Co., apparatus	22	00
Harold A. Wilson Co., apparatus	74	56
Instruction in Swimming (including women students), (\$900.00):		
G. H. Corsan, services as instructor	900	00
Physical Instruction to Women Students (\$1,197.92):		
Miss Ivy G. Coventry, instructress	800	00
Dr. Helen MacMurchy, examiner	200	00
Bell Piano Co., piano rental for physical culture classes	41	50
Miss A. Roberts, pianist	64	00
University Women's Athletic Association, allowance for expenses <i>re</i> athletics	40	75
Victoria College Athletic Club, allowance for expenses <i>re</i> athletics (including \$10.00 overpaid, refunded in 1914-15)	47	22
Superintendent's Dept., labor, \$4.05; material, .40.....	4	45
Grant to Rifle Association (\$100.00):		
University Rifle Association	100	00
		<hr/>
		\$3,155 08
		<hr/>
		\$5,400 44

10. *Convocation Hall.*

Heat and Light (supplied from Central Power Plant):

Water (\$42.26):		
City Treasurer	\$42	26
Caretaker's supplies (\$139.48):		
Superintendent's Dept., material	139	48
Cleaning (\$558.22):		
Allen Manufacturing Co., laundry	3	24
Canadian Window Cleaning Co., cleaning windows.....	5	00
Superintendent's Dept., labor	549	98
Repairs and Renewals (\$867.73):		
Wm. Card, exterminating rats	12	00
Routery Bros., repairs to plastering	8	15
Robert Simpson Co., flags	10	00
Superintendent's Dept., labor, \$427.37; material, \$410.21...	837	58
		<hr/>
		\$1,607 69
Caretaker, S. J. Apted, 12 months to 30th June (with house, heat and light)	700	00
		<hr/>
		\$2,307 69
Less amounts received from societies, etc. (net).....	287	48
		<hr/>
		\$2,020 21

11. *Grounds.*Labor, gravel, roadways, granolithic walks, flowers and shrubs
(\$11,189.12):

Aikenhead Hardware, Ltd., tools	\$21	43
Asphaltic Pavement Co., pavements	2,036	32
Auburn Nurseries, Ltd., plants	31	46
Britnell & Co., cement	9	25
Brobst Forestry Co., tree surgery	212	32
Canadian Davey Tree Expert Co., tree surgery	267	35
Carter's Tested Seeds, seeds and fertilizer	178	13
Collett's Carriage Works, blacksmithing	14	00
Corporation of the City of Toronto, hydrant	45	29

11. *Grounds.*—Continued.

G. Duthie & Son, repairs to workshop	8 04	
F. J. Grootendorst & Son, seeds	52 20	
Rice, Lewis & Son, tools	4 19	
Massey-Harris Co., harrow	26 00	
J. H. McCabe, fodder	70 46	
Ontario Lime Co., cement	6 13	
Patterson, Wylde & Co., grass seed	59 38	
Planet Bicycle Co., repairs to messenger's bicycle	6 00	
Geo. L. Plumb, plants	54 00	
Norman Porter, hay	20 00	
R. Robertson & Sons:		
Concrete walks and pavement	\$389 26	
Culverts and drains	82 22	
Stone and gravel	176 25	
		647 73
Routery Bros., repairs to workshop	30 00	
J. Sercombe, sod	39 00	
Steele, Briggs Seed Co., implements and seeds	68 75	
W. H. Thomson, teaming	1,336 05	
Freight charges	27 47	
Petty items (6)	9 79	
Superintendent's Dept., labor, \$5,678.43; material, \$454.09.	6,132 52	
		\$11,413 26
Less received for cartage, \$31.20; snow removal, \$22.60; fence repairs, \$71.92; sale of material, \$55.90; City of Toronto, excavation, \$34.05; Toronto Police Associa- tion, <i>re</i> review, \$8.47		224 14
		\$11,189 12
Foreman Gardener, G. Trotter, 12 months to 30th June	\$800 00	
Protective Service (\$254.07), additional to constables on salary list:		
A. W. Linnington, summer constable, 4 months.....	116 68	
Wm. May, 11 days	21 39	
Wm. Whittaker, ½ month	25 00	
Malcolm McBain, uniforms	93 00	
Superintendent's Dept., flashlight	2 00	
		\$258 07
Less credit	4 00	
		\$254 07
Transfer of workshops (\$532.81):		
R. Robertson & Sons, alterations	163 18	
Superintendent's Dept., labor, \$259.57; material, \$110.06...	369 63	
Landscape Improvement (\$500.00):		
Townsend & Fleming, professional fee, \$250, plans (on account), \$250	500 00	
		\$13,276 00

12. Examinations.

NAME.	Remuneration as Examiner.	Expenses.	Presiding Examiner.	Attendant.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Abbott, A. H.	22 25		7 50		29 75
Adams, O. F.			7 50		7 50
Adams, W. M.	20 00				20 00
Aikins, H. W.	36 75				36 75
Aitken, W. E. M.				13 50	13 50
Aldous, J. E. P.	30 00	13 00			43 00
Alexander, W. J.	37 50				37 50
Allan, F. B.	17 50				17 50
Allan, R. J.			7 50		7 50
Amyot, J. A.	15 67				15 67
Anderson, G. R.	36 25				36 25
Angus, R. W.	21 25				21 25
Ardagh, E. G. R.	26 75				26 75
Arkley, L. M.	5 75				5 75
Atkinson, G. D.	57 60	28 55			86 15
Auger, C. E.	34 75		21 00		55 75
Badgley, L. A.			22 50		22 50
Bain, J. W.	18 50				18 50
Baines, Allan.	31 50				31 50
Baker, A.	15 25				15 25
Balbaud, P.	11 00				11 00
Ballard, W. H.		1 50	7 50		9 00
Barton, H.	40 50				40 50
Beatty, S.	65 00		30 00		95 00
Bell, A. J.	37 25				37 25
Bensley, B. A.	25 50				25 50
Benzinger I.	12 75				12 75
Best, C. H.				8 50	8 50
Bethune, C. J. S.	31 25				31 25
Bingham, G. A.	45 00				45 00
Bishop, W. S.			4 50		4 50
Bluthner, W. A.	20 00	6 70			26 70
Boddington, D. H.			22 50		22 50
Boswell, M. C.	9 25				9 25
Boyd, G.	50 50				50 50
Brebner, J. B.				14 00	14 00
Brett, G.				46 50	46 50
Brett, G. S.	10 25		19 50		29 75
Briscoe, C. A.	20 00				20 00
Broome, E.	10 00				10 00
Brown, C. P.	20 00				20 00
Brown, R. W.	33 00				33 00
Brownlee, H.			7 50		7 50
Bruce, H. A.	31 75				31 75
Buchanan, M. A.	32 00				32 00
Buchanan, W. B.			9 00		9 00
Bunting, T. G.	21 00				21 00
Burt, A. W.			5 00		5 00
Burt-Gerrans, J. T.			1 50		1 50
Caeser, L.	8 25				8 25
Cameron, I. H.	88 00				88 00
Cameron, J. H.	13 25				13 25
Cameron, M. H. V.	5 00	2 75	45 00		52 75
Campbell, J. A.	8 75				8 75
Campbell, T. F.	17 25				17 25
Carlisle, J. O.			10 50		10 50
Carr, H.	15 00				15 00

12. Examinations.—Continued.

NAME.	Remuneration as Examiner.		Expenses.		Presiding Examiner.		Attendant.		Total.	
	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.
King, J. T.					7	50			7	50
Kinnear, J. A.	72	00							72	00
Kirkwood, W. A.	23	75			45	00			68	75
Kittredge, R. E. L.					18	00			18	00
Kylie, E. J.	8	25							8	25
Laing, A. T.	10	00							10	00
Laird, Miss A. L.	1	67							1	67
Lancaster, H. M.	18	25							18	25
Langford, A. L.	36	25			15	00			51	25
Langstaff, J. M.	6	00							6	00
Lautz, H. J.	20	00							20	00
Leathes, J. B.	12	50							12	50
Le Drew, H. H.	17	50							17	50
Lewis, E. P.	3	00							3	00
Loudon, J. D.	45	00							45	00
Loudon, T. R.	10	50							10	50
Loudon, W. J.	18	67							18	67
Lund, T. H.	5	50							5	50
MacCallum, J. M.	50	50							50	50
MacDonald, W. L.	5	00							5	00
Machell, H. T.	10	50							10	50
MacKenzie, M. A.	27	00							27	00
Mackenzie, J. J.	1	66							1	66
Madill, H. H.					18	00			18	00
Magwood, S. J. N.					42	00			42	00
Marcellus, T. N.	31	00							31	00
Marlow, F. W.	76	75							76	75
Marshall, R. J.					7	50			7	50
Martin, T.	47	00	32	00					79	00
Martin, W. H.					10	50			10	50
Mavor, J.	31	75							31	75
McCoy, J.					5	00			5	00
McFarlane, Miss J.					1	50			1	50
McGillivray, D.	10	50							10	50
McGowan, J.	16	38							16	38
McIlwraith, K. C.	45	00							45	00
McKeown, W. H.	45	00							45	00
McKim, R. T.							23	50	23	50
McLaughlin, J. F.	20	25							20	25
McLennan, J. C.	4	16							4	16
McMurrich, J. P.	22	50							22	50
McPhedran, A.	84	25							84	25
McPhedran, J. H.	5	00			46	50			51	50
McRae, C. A.	15	50	2	48	21	50			39	48
McVicar, C. S.	50	00							50	00
Mickle, G. R.	15	00							15	00
Miller, W. L.	6	25							6	25
Milner, W. S.	13	25							13	25
Moir, A.	28	00							28	00
Moore, F. P.	17	00							17	00
Moore, J. C.					2	50			2	50
Moore, W. S.			10		2	50			2	60
Moorhead, A. S.	45	00			10	50			55	50
Morrow, E. M.							8	50	8	50
Morton, N.							1	00	1	00
Mueller, P. W.	22	00			40	50			62	50
Murdie, W. C.					9	00			9	00

12. *Examinations.*—Continued.

NAME.	Remuneration as Examiner.	Expenses.	Presiding Examiner.	Attendant.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Murray, J. G.				13 50	13 50
Northup, G. T.	7 25		22 50		29 75
Ockley, Miss L. L.	5 00				5 00
O'Connor, F. J.	20 00				20 00
Oille, J.	45 00				45 00
Oliver, G. W.				18 50	18 50
O'Reilly, B.	45 00				45 00
Owen, F.	11 25				11 25
Parkin, J. H.			7 50		7 50
Parkinson, H. H.				3 50	3 50
Parks, W. A.	16 63				16 63
Parsons, A. L.	25				25
Paul, Miss H. A.	7 30				7 30
Peckitt, T. L.				26 50	26 50
Perry, S. W.			6 00		6 00
Piersol, W. H.	29 75				29 75
Platt, H. E. B.				33 00	33 00
Ponton, W. N.		1 20	2 50		3 70
Potter, W. A.	5 00				5 00
Pounder, I. R.	5 25				5 25
Powell, N. A.	37 75				37 75
Price, H. W.	2 50				2 50
Primrose, A.	59 00				59 00
Pringle, J. N.	35 25				35 25
Pugsley, E. E.				5 50	5 50
Purcell, J. J.	5 25				5 25
Radcliffe, S. J.			7 50		7 50
Reeve, R. A.	45 00				45 00
Reynolds, J. B.	17 50				17 50
Richardson, T.				47 00	47 00
Richardson, W. L. C.			30 00		30 00
Ritchie, C. F.	74 00				74 00
Roberts, J. A.	45 00				45 00
Roberts, H. L.				9 00	9 00
Robertson, D. E.			1 50		1 50
Robertson, J. C.	15 00		10 50		25 50
Robertson, W. J.		25	5 00		5 25
Robinson, C. C.				21 00	21 00
Robinson, E. G.				17 00	17 00
Robinson, T. R.	19 25		18 00		37 25
Roche, N.	10 50				10 50
Rolph, F. W.	105 00		10 50		115 50
Rosebrugh, T. R.	45 00				45 00
Ross, G. W.	45 00				45 00
Ross, J. H.				5 00	5 00
Ross, R. A.	25 00				25 00
Rowland, R. H.	2 00				2 00
Rudolph, R. D.	42 25				42 25
Rutledge, L. T.			13 50		13 50
Ryerson, E. S.	45 00				45 00
Sale, C. E.	17 25				17 25
Salter, Miss L.			10 50		10 50
Sandiford, P.			25 50		25 50
Santo, A. E.	15 50				15 50
Satterly, J.	32 42				32 42
Saunders, C. G.	18 00				18 00
Saunders, D. W.	8 75				8 75

12. Examinations.—Continued.

NAME.	Remuneration as Examiner.	Expenses.	Presiding Examiner.	Attendant.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Scandrett, F. R.					9 00
Scarrow, A. N.			10 50		10 50
Schuch, E. W.	23 60	3 20			26 80
Scott, P. L.	42 25	4 60			46 85
Scott, W. A.	66 75				66 75
Shaver, F. D.	9 00				9 00
Shenstone, N. S.	50 00				50 00
Shuttleworth, C. B.	18 25				18 25
Sibbald, A. L.				6 00	6 00
Silverthorn, G.	8 00				8 00
Sissons, C. B.	23 50				23 50
Smith, D. K.	17 50				17 50
Smith, G. O.	6 50				6 50
Smith, W. G.			101 00		101 00
Smither, W. J.			54 00		54 00
Snell, J. F.	5 25				5 25
Spry, J. R.	27 50				27 50
Squire, G. E.			13 50		13 50
Squirrel, W. J.	13 75				13 75
Staley, A.	20 00				20 00
Stanley, C. W.			15 00		15 00
Steele, A. L.			10 50		10 50
Stevenson, G. S.	6 00				6 00
Stewart, J. W.				23 50	23 50
Stewart, L. B.	25 25				25 25
Stewart, T. H.				13 00	13 00
Strathy, G. S.	45 00				45 00
Tattersall, R.	25 70				25 70
Taylor, R.			30 00		30 00
Taylor, W. J.				1 00	1 00
Temple, C. A.	8 75				8 75
Thistle, W. B.	6 50				6 50
Thomson, D. J.			7 50		7 50
Thomson, R. B.	4 25				4 25
Tracy, F.	17 00				17 00
Trall, J. J.	13 75				13 75
Treadgold, W. M.	21 75				21 75
Tripp, J. D. A.	10 00	9 50			19 50
Vogt, A. S.	10 00				10 00
Wade, R. W.	40 50				40 50
Walker, A. C.	9 00				9 00
Walker, E. M.	12 50				12 50
Walker, P. A.		50	5 00		5 50
Walker, T. L.	21 63				21 63
Wallace, G. L.			9 00		9 00
Wallace, W. S.	30 00				30 00
Walt, C. F.	15 50				15 50
Warren, L. A. H.		25	5 00		5 25
Watson, B. P.	137 50				137 50
Watson, F. E.			15 00		15 00
Watson, G.				18 00	18 00
Wells, P.	14 50	6 05			20 55
Welsman, F. S.	35 00				35 00
Wheeldon, H. A.	47 35				47 35
White, J. H.			4 50		4 50
Whitelaw, W.				13 50	13 50
Will, J. S.	68 00		15 00		83 00

12. Examinations.—Continued.

NAME.	Remuneration as Examiner.	Expenses.	Presiding Examiner.	Attendant.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Willan, H.	31 65	.....	.....	.....	31 65
Williams, G. K. ....	.....	.....	13 50	.....	13 50
Williams, R. H.	35 25	.....	.....	.....	35 25
Willmott, W. E.	16 25	.....	.....	.....	16 25
Wilson, G. E.	45 00	.....	.....	.....	45 00
Wishart, J. G.	45 00	.....	.....	.....	45 00
Wodehouse, R. P. ....	.....	.....	.....	3 00	3 00
Workman, G. R. ....	.....	.....	34 50	.....	34 50
Young, A. ....	.....	.....	7 50	.....	7 50
Young, A. H.	5 25	.....	.....	.....	5 25
Young, C. R.	19 50	.....	.....	.....	19 50
Young, J. McG.	5 00	.....	.....	.....	5 00
Zavitz, C. A.	19 25	.....	.....	.....	19 25
Zimmer, A. R. ....	.....	.....	7 50	.....	7 50
	6,579 33	341 68	1,760 50	665 50	9,347 01
Less paid by Royal College of Dental Surgeons as share of attendance in Dentistry.....	.....	.....	.....	21 25	21 25
	.....	.....	.....	644 25	9,325 76

Apportionment.

	Remuneration as Examiner.	Expenses.	Presiding Examiner.	Attendant.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Arts	1,288 28	10	803 00	427 75	2,519 13
Medicine	2,627 50	2 75	192 00	63 75	2,886 00
Engineering and Applied Science.....	560 25	.....	421 50	.....	981 75
Education .....	.....	.....	112 50	75 00	187 50
Forestry .....	.....	.....	10 50	.....	10 50
Law	153 25	.....	.....	6 00	159 25
Dentistry	233 75	.....	18 00	21 25	273 00
Pharmacy	154 25	4 60	28 50	15 50	202 85
Music	742 55	334 23	71 00	6 00	1,153 78
Agriculture	603 50	.....	69 00	.....	672 50
Veterinary Science	216 00	.....	34 50	29 00	279 50
	6,579 33	341 68	1,760 50	644 25	9,325 76

12. *Examinations.—Concluded.*

Remuneration to Examiners (as detailed above)	\$6,579 33	
Presiding and attendance (as detailed above)	2,404 75	
Examination supplies and sundries, including incidental expenses of Examiners (\$2,419.97):		
Examiners' expenses (as detailed above)	341 68	
University Press, examination books, stationery and supplies	1,626 72	
Filling in diplomas:		
Edith E. Shaw, \$64.75; R. M. Williams, \$124.50	189 25	
Rent of rooms and pianos at various centres:		
Alexandra Club, Victoria, B.C.	\$7 50	
W. H. Ballard, Hamilton	2 00	
Miss E. Featherstone, Hagersville	5 00	
Gourlay, Winter & Leeming, Toronto	19 00	
Mrs. J. E. Hollingshead, Newmarket	3 00	
Mrs. A. S. Howard, Napanee	5 00	
J. C. Moore, Red Deer, Alta.	2 50	
J. D. Price, Aylmer	5 00	
W. J. Robertson, St. Catharines	5 00	
F. W. Scherer, Ridgetown	6 00	
		60 00
Columbian College, sundry expenses	22 70	
C. F. Heebner, chemicals and supplies	56 00	
Might Directories, Ltd., lists of music teachers, etc	14 80	
Victoria College, preparation of hall	8 00	
The Registrar, disbursed for sundry services.....	21 00	
Cartage of papers	15 85	
Superintendent's Department, labor	\$29 42	
Less received for damage to tables	1 25	
		28 17
Revising lists and determining awards <i>re</i> scholarship examinations:		
J. Brebner	\$6 50	
G. H. Campbell	11 75	
M. W. Wallace	17 55	
		35 80
Printing examination papers and class lists:		
University Press	3,102 47	
		\$14,506 52

13. *Convocation Expenses.*

Geo. Coles, Ltd.:		
Catering, evening reception, June	\$100 00	
Catering, garden party, June	505 00	
		\$605 00
Harcourt & Son, hoods and gowns.....	258 50	
Highlanders' Band, musical services	45 00	
University Press, printing	222 65	
Superintendent's Dept., labor	5 00	
		\$1,136 15

14. *Receptions to Societies and University Visitors.*

Expenses of entertainment (\$144.84):	
Geo. Coles, catering, Ontario Educational Association	\$57 50
Prof. H. J. Crawford, University Schools, reception to parents	30 66
Prof. A. T. DeLury, cab hire, Irving lecture	2 50
Townsend Livery, cab hire, Benson lecture	7 00
University Alumnae Association, room and board, Mr. and Mrs. Mansbridge ..	30 00
University Faculty Union, luncheon to recipients of honorary degrees ..	23 35

14. *Receptions to Societies and University Visitors.*—Continued.

Attendance:	
W. H. Fox, attending lantern	2 00
J. Wicksey, attendance at sundry lectures	8 00
Pay lists, laborer's wages	1 00
	\$162 01
Less sundry credits	17 17
	\$144 84
Honoraria to occasional visiting lecturers (\$180.30):	
Prof. Bellesort	60 00
Prof. Dale	25 00
Prof. von Dobschütz	50 00
Prof. Max Müller	15 00
Ex-President Taft	50 30
	\$200 30
Less received from Literary and Scientific Society <i>re</i> Taft lecture	20 00
	\$180 30
Expenses in connection with International Geological Congress Meeting (\$363.98):	
Geo. Coles, Ltd., catering at garden party	180 00
Twelfth Regiment Band, musical services	45 00
Superintendent's Dept., labor	1 50
Expenses of housing and maintenance of delegates in University buildings:	
Dining Hall, provisions and supplies, service, etc.	\$900 00
Men's Residences, attendance, labor, etc.	300 00
Women's Residences, provisions, service, etc.	507 18
Main Building, extra cleaning	21 88
	\$1,729 06
Received from W. S. Lecky, Secretary to the Congress	\$1,741 88
Refunded by the Board	150 30
	\$1,591 58
Difference borne by the University	137 48
	\$689 12

15. *Telephones.*

Bell Telephone Co., telephone service to 30th June, 1914	\$2,484 63
Less receipts from sub-services	\$486 50
And from slot machines	22 22
	508 72
	\$1,975 91
Switchboard operators:	
Miss E. Fox, 52 weeks 1 day at \$7.50 per week	391 25
Miss E. Benner, 52 weeks 1 day at \$7.00 per week	365 17
Miss L. Reddock, relieving, 1½ weeks	10 50
	\$2,742 83

16. *Insurance.*

Balance of premiums on general schedule as of 30th June, 1913	
	\$14,026 22
Carried forward to 1914-15, Schedule 5a.....	7,013 11
	\$21,039 33
Charged to Revenue, 1913-14	\$7,013 11
Additional premium charged for use of Kinematograph.....	193 00
	\$2,206 11

17. *Advertising Expenses.*

General Advertising (\$821.88):

Acta Riddleiana	\$10 00
Acta Victoriana	25 00
Applied Science	20 00
Association of Ontario Land Surveyors' Report	6 00
Canadian Almanac	15 00
Canadian Engineer	50 00
Canadian Forestry Journal	21 88
Canadian Medical Association Journal	50 00
Canadian Mining Journal	45 00
Medical Bulletin	50 00
Ontario Catholic Year Book	20 00
Royal Military College Year Book	25 00
<i>The School</i>	50 00
St. Andrew's College Review	20 00
St. Michael's College Year Book	20 00
Torontonensis	60 00
Trinity College School Record	9 00
Trinity University Review	25 00
University Magazine	72 00
University Monthly	200 00
University Y.M.C.A. Handbook	10 00
Upper Canada College Times	10 00
Vox Lycei	8 00
Sundry announcements inserted by the President (\$111.40):	
The Evening Telegram	16 30
The Globe	23 35
The Mail and Empire	22 75
The News	15 45
The Toronto Daily Star	14 80
The Toronto World	18 75

\$933 28

18. *Aid to Publications and Societies.*

Astronomical Journal	\$100 00
Archaeological School at Jerusalem	100 00
Universities Bureau of the British Empire	250 00
University Monthly	250 00
University of Toronto Engineering Society	150 00

\$850 00

19. *University Studies.*

H. H. Langton, remuneration as General Editor, 10½ months ..	\$175 00
Miss Laura Mason, remuneration as acting General Editor, 1½ months ..	25 00
Printing and binding (\$1,933.86):	
Copp, Clark Co.	16 51
University Press	1,891 10
Miss Helen Fairbairn, typewriting copy	26 25
Reprints (\$92.16):	
The Borden Press	8 31
Eschenbach Printing Co.	12 75
Forestry Quarterly	40 20
Journal of Physical Chemistry	11 80
Ware Bros. Co.	19 10
Royalties and payments to contributors (\$478 83):	
H. H. Langton, royalties on sales	22 30
G. M. Wrong, royalties on sales	21 31
W. S. Wallace, royalties on sales	114 72
Contributors:	
A. F. Chamberlain	21 00
J. M. Clark	3 00
Col. E. A. Cruikshank	13 50
S. A. Cudmore	2 50

19. *University Studies.*—Continued.

W. J. A. Donald	6 50
W. L. Grant	4 00
Louis Hamilton	4 00
Judge Howay	17 00
E. J. Kylie	19 00
H. H. Langton	33 50
Archibald MacMechan	4 50
Chester Martin	6 00
A. D. McArthur	2 50
W. B. Munro	2 00
E. H. Oliver	6 50
Ven. Archdeacon Raymond	2 50
O. D. Skelton	3 50
Col. Wm. Wood	5 00
W. S. Wallace, \$64.00, Editorial fee Volume XVIII, \$100.00..	164 00

 \$2,704 85

Less charged to Trust Funds Account 704 85

 \$2,000 00
20. *Law Costs.*

John A. Paterson, K.C., taxed costs as solicitor to the University	\$320 51
Less sundry credits	29 00

 \$291 51
21. *General Incidentals.*

Travelling expenses of the Board of Governors and the Senate (\$219.85):

Board of Governors:

Judge C. G. Snider \$65 00

Members of the Senate:

Wm. Burt 23 45

Jas. Chisholm 9 75

J. H. Coyne 12 20

G. C. Creelman 7 35

Wm. Dale 25 00

T. G. Raynor 77 10

 Travelling expenses of the President and Academic Staff
 (\$923.74):

President Falconer 185 10

F. B. Allan 20 00

E. G. R. Ardagh 20 00

J. W. Bain 20 00

I. Benzinger 20 00

E. F. Burton 15 00

A. P. Coleman 20 00

J. H. Faulk 26 45

J. C. Fields 75 00

L. Gilchrist 15 00

G. A. Guess 20 00

H. E. T. Haultain 19 00

V. E. Henderson 20 00

A. G. Huntsman 20 00

M. Hutton 20 00

C. Imrie 20 00

G. W. Johnston 20 00

A. T. Laing 20 00

W. R. Lang 25 00

J. B. Leathes 20 00

A. B. Macallum 43 70

Miss C. Maclachlan 28 60

Jas. Mavor 25 00

J. F. McCurdy 17 94

J. C. McLennan 55 75

J. P. McMurrich 20 00

A. McPhedran 24 00

W. S. Milner 28 20

21. *General Incidentals.*—Continued.

W. H. Piersol	20 00	
O. J. Stevenson	20 00	
T. L. Walker	20 00	
Sundry incidental expenses (\$161.96):		
A. H. Howard, engrossing resolution	15 00	
R. M. Williams engrossing resolutions	30 00	
Sir Edmund Walker, chairman's disbursements for postage	11 64	
Connell Anthracite Mining Co., fuel supplied to University		
Y.M.C.A.	94 88	
Mineral Springs, Ltd., spring water for Board meetings..	10 44	
		<u>\$1,305 55</u>

22. *Senate Elections.*

University Press, printing	\$128 75	
		<u>\$128 75</u>
		<u>\$142,673 63</u>

II.—FACULTY OF ARTS.

23. *Salaries.*

(1) Departments in University of Toronto (\$166,842.24):

Mathematics.

Professors, each 12 mos. to 30th June:		
A. Baker (also Dean of Faculty)	\$4,000 00	
A. T. DeLury	3,600 00	
Associate Professors, each 12 mos. to 30th June:		
M. A. Mackenzie	3,000 00	
J. C. Fields	3,000 00	
Lecturers (Sessional):		
S. Beatty	1,600 00	
I. R. Pounder	1,200 00	
Fellows (Sessional):		
J. H. Birkenshaw	500 00	
J. McQueen	500 00	
		<u>\$17,400 00</u>

Mechanics.

W. J. Loudon, Professor, 12 mos. to 30th June	\$3,600 00	
		<u>3,600 00</u>

Physics.

J. C. McLennan, Professor, 12 mos. to 30th June	\$3,600 00	
E. F. Burton, Associate Professor, 12 mos. to 30th June	2,300 00	
L. Gilchrist, Demonstrator, 12 mos. to 30th June	2,000 00	
J. Satterly, Lecturer (Sessional)	1,700 00	
W. Wilson, Demonstrator (Sessional)	1,100 00	
Assistant Demonstrators (Sessional):		
E. C. S. Dickson	500 00	
Miss R. M. Evans	500 00	
G. E. M. Jauncey	500 00	
R. H. Wilson	500 00	
Class Assistants (Sessional):		
Miss C. E. Clinkscale	250 00	
A. R. McLeod	200 00	
Miss R. M. Fleming	70 00	
Miss G. Martin	70 00	
R. C. Dearle	40 00	
C. G. Found	40 00	
W. S. McClenahan	40 00	
C. L. Treleaven	40 00	

23. Salaries.—Continued.

Miss A. T. Reed, Class Assistant (Sessional) and Stenographer, combined salary for 12 mos. to 30th June	750 00	
P. Blackman, Lecture and Laboratory Assistant (Sessional) ..	900 00	
T. S. Plaskett, Mechanician, 12 mos. to 30th June	1,200 00	
Assistant Mechanicians:		
G. Tarry, 1 Oct. to 30 Nov. at \$13.85 per week, \$119.35; 1 Dec. to 30 June at \$800 per annum, \$466.68	586 03	
W. A. Smelser, 562½ hrs. at 32c. per hr.	180 00	
Laboratory Attendant:		
G. Wild, 25 Sept. to 30 June at \$7 per week	278 74	
Occasional service at 30c. to 50c. per hour: G. Hawkins, \$118.35; W. A. Voce, \$57.40; D. A. Keys, \$9.90; W. B. Buchanan, \$5; R. Tudhope, \$3.04	193 69	
Glass-blowers, share of salaries detailed under Physiology	583 00	
J. Wicksey, Laboratory Carpenter, 12 mos. to 30th June (paid also \$550 as Caretaker of Physics building)	350 00	
S. Richardson, Attendant, July, 1913, \$25; November 15th to 30th June, \$186.74	211 74	
		\$18,683 20

Astro-Physics.

C. A. Chant, Associate Professor, 12 mos. to 30th June	\$2,700 00	
Assistants (Sessional):		
G. S. Easton	250 00	
E. A. Hodgson	250 00	
F. L. Blake	100 00	
G. S. Campbell	50 00	
A. E. Rosborough	50 00	
		\$3,400 00

Geology.

A. P. Coleman, Professor, 12 mos. to 30th June	\$4,000 00	
W. A. Parks, Associate Professor, 12 mos. to 30th June.....	2,900 00	
A. MacLean, Lecturer (Sessional)	1,500 00	
A. C. Hazen, Fellow (Sessional—half time)	250 00	
Laboratory Attendant:		
H. Graham, 1 month	29 16	
C. Moffatt, 15th September to 15th November at \$6.00 per week, \$54.00; 16th November to 15th June at \$350 per annum, \$204.18	258 18	
		\$8,937 34

Mineralogy.

T. L. Walker, Professor, 12 mos. to 30th June	\$3,600 00	
A. L. Parsons, Assistant Professor, 12 mos. to 30th June	2,100 00	
E. Thomson, Demonstrator (Sessional)	1,100 00	
H. V. Ellsworth, Fellow (Sessional—half time)	250 00	
W. Allingham, Laboratory Attendant, 7½ mos. at \$50 a month.	375 00	
		\$7,425 00

Chemistry.

Professors, each 12 mos. to 30th June:		
W. R. Lang	\$3,600 00	
W. L. Miller, Physical Chemistry	3,600 00	
Associate Professors, each 12 mos. to 30th June:		
F. B. Kenrick	2,700 00	
F. B. Allan, Organic Chemistry	2,700 00	
Assistants (Sessional) at \$600:		
R. T. Elworthy (paid also in Chemical Pathology)	600 00	
W. S. Funnell	600 00	
Assistants (Sessional) at \$500:		
H. R. Brandt	500 00	
K. E. Burgess	500 00	
N. C. Qua	500 00	
7 B.G.		

23. *Salaries.*—Continued.

Miss H. Bamford (resigned 15th February)	281 25
W. H. Martin (March and April)	75 00
P. J. Moloney (March and April)	75 00
Class Assistants (Sessional):	
J. G. Burns	60 00
S. J. Cook	60 00
A. D. Hone	60 00
C. B. Lindsay	60 00
G. O. Morrison	60 00
L. E. Westman	60 00
E. Repath, Laboratory Assistant (with rooms, heat and light as Caretaker of Chemical Building), 12 mos. to 30th June....	800 00
J. Smith, Laboratory Attendant, 12 mos. to 30th June	600 00
	\$17,491 25

Biology.

Associate Professors, each 12 mos. to 30th June:	
B. A. Bensley, Zoology	\$2,800 00
W. H. Piersol, Histology	2,400 00
E. M. Walker, Assistant Professor, Zoology, 12 mos, to 30th June	1,900 00
Lecturers (Sessional):	
A. G. Huntsman, Biology	1,700 00
A. F. Coventry, Vertebrate Embryology	1,300 00
Demonstrators (Sessional):	
A. R. Cooper	800 00
A. D. Robertson	800 00
Class Assistants (Sessional):	
R. P. Wodehouse (paid also in Botany)	300 00
L. O. C. Skeeles	180 00
H. de W. Ball	80 00
O. C. J. Withrow	80 00
W. H. T. Baillie	60 00
W. Hamilton	60 00
L. P. Menzie	60 00
H. C. Pugh (paid also in Botany)	60 00
Miss M. C. Tucker (paid also in Botany)	60 00
N. A. Wallace	60 00
G. A. Davis	40 00
J. A. Dickson	40 00
T. B. Kurata, Preparator, 12 mos. salary	800 00
A. Pride, Sub-Curator, Biological Museum, 12 mos. to 30th June	850 00
J. B. Williams, Museum Assistant and Cataloguer, 10 mos. salary (half time)	325 00
Miss E. Smith, Office Assistant, 1st July to 31st May at \$500 per annum (resigned)	458 32
Miss E. Mason, June	41 68
Laboratory Attendant:	
H. Sherman, 1st July to 30th Sept. at \$550 per annum (resigned)	137 50
F. W. Small, 20th October to 30th June at \$35 per month..	294 00
	\$15,686 50

Botany.

Associate Professors, each 12 mos. to 30th June:	
J. H. Faull	\$2,700 00
R. B. Thomson	2,200 00
C. D. Howe, Assistant Professor, 12 mos. to 30th June at \$2,100, of which \$1,050 charged to Forestry	1,050 00
J. H. White, Lecturer (Sessional), at \$1,700, of which \$1,350 charged to Forestry	350 00
Miss J. McFarlane, Fellow (Sessional)	500 00
G. H. Graham, Assistant (Sessional)	450 00
Class Assistants (Sessional):	
C. H. Morse	150 00
R. P. Wodehouse (paid also in Biology)	110 00
H. C. Pugh (paid also in Biology)	60 00

23. *Salaries.*—Continued.

H. C. Rutherford	60 00	
Miss S. L. Smith	60 00	
Miss M. C. Tucker (paid also in Biology)	60 00	
H. B. Sifton	50 00	
A. Simpson, Gardener, 12 mos. to 30th June	850 00	
A. Burnett, Laboratory Attendant, 12 mos. to 30th June	325 00	
		\$8,975 00

Bio-Chemistry.

A. B. Macallum, Professor, 12 mos. to 30th June	\$4,000 00	
Demonstrators (Sessional):		
R. E. Gaby (paid also in Clinical Surgery)	600 00	
Miss A. Homer (Easter Term)	600 00	
Miss R. K. Chesnut, Junior Assistant (Sessional)	400 00	
Fellows (Sessional):		
J. B. Collip	500 00	
J. H. Howell	500 00	
Laboratory Assistants, each 12 mos. to 30th June:		
A. E. Giddens	600 00	
J. Lowndes	600 00	
Glass-blowers, share of salaries detailed under Physiology ...	100 00	
Miss B. Rhodes, Stenographer, 31st January to 30th June at \$625 per annum	263 79	
Temporary assistance at \$12 to \$15 per week:		
Miss E. G. Powell, 3 weeks	45 00	
Miss M. Freer, 7 weeks	105 00	
Miss J. Stuart, 1½ weeks	18 00	
		\$8,331 79

Physiology.

T. G. Brodie, Professor, 12 mos. to 30th June	\$4,000 00	
G. R. Mines, Special Lecturer (Easter Term)	1,200 00	
Fellows (Sessional):		
W. W. Barraclough	500 00	
J. R. Smith	500 00	
Miss D. Sawyer, Assistant (Sessional)	780 00	
C. Stewart, Mechanician, 12 mos. salary	850 00	
F. L. Robinson, Laboratory Assistant, 12 mos. to 30th June ...	700 00	
E. C. Williams, Laboratory Attendant, 1st August to 30th June at \$500 per annum, of which half charged to Surgery.....	229 16	
Glass-blowers, each 12 mos. salary:		
F. D. Mezen	\$1,250 00	
Miss R. Ingram, Assistant	386 00	
	\$1,636 00	
Charged to the following departments:		
Physics	\$583 00	
Bio-Chemistry	100 00	
Pathology	50 00	
Chemical Pathology	50 00	
	783 00	
		853 00
		\$9,612 16

History and Ethnology.

G. M. Wrong, Professor, 12 mos. to 30th June (on leave of absence Easter Term)	\$4,000 00
E. J. Kylie, Associate Professor, 12 mos. to 30th June	2,500 00
Lecturers (Sessional):	
A. G. Brown, \$1,800, of which \$1,150 charged to Ancient History (absent on sick leave)	650 00
R. H. Williams	1,400 00
G. M. Smith	1,300 00

23. *Salaries.*—Continued.

Special Lecturers (Sessional):	
W. S. Wallace	500 00
V. Massey	500 00
Miss H. McMurchie, Instructor (Sessional)	750 00
	\$11,600 00

Comparative Philology.

A. J. Bell, Professor, 12 mos. to 30th June	\$600 00
	\$600 00

Italian and Spanish.

W. H. Fraser, Professor, 12 mos. to 30th June	\$3,600 00
M. A. Buchanan, Associate Professor, 12 mos. to 30th June....	2,400 00
G. T. Northup, Assistant Professor, 12 mos. to 30th June	2,100 00
N. di Pietro, Instructor (Sessional)	1,100 00
	\$9,200 00

Philosophy and Psychology.

J. G. Hume, Professor of History of Philosophy (paid as Professor of Ethics)	
A. Kirschmann, Professor at \$3,600 (absent on sick leave on part salary)	\$800 00
Associate Professors, each 12 mos. to 30th June:	
F. Tracy	2,900 00
A. H. Abbott	2,700 00
Assistant Professors, each 12 mos. to 30th June:	
W. G. Smith, Psychology	2,100 00
T. R. Robinson, Philosophy	2,100 00
G. S. Brett, Lecturer in Greek Philosophy (Sessional)	1,700 00
Demonstrators (Sessional):	
R. B. Liddy	700 00
E. J. Pratt	700 00
	\$13,700 00

Political Science.

J. Mavor, Professor, 12 mos. to 30th June	\$3,600 00
G. I. H. Lloyd, Associate Professor, 12 mos. to 30th June	2,900 00
Lecturers (Sessional):	
S. A. Cudmore	1,400 00
G. E. Jackson	1,400 00
J. McGregor Young, Professor of Constitutional and International Law, 12 mos. to 30th June	1,500 00
A. H. F. Lefroy, Professor of Roman Law, Jurisprudence and History of English Law, 12 mos. to 30th June	1,200 00
J. D. Falconbridge, for Lectures in Commercial Law	200 00
	\$12,200 00

(2) *Departments in University College* (\$75,737.50). -*Greek.*

M. Hutton, Professor, 12 mos. to 30th June (paid also as Principal, University College)	\$4,000 00
A. Carruthers, Associate Professor, 12 mos. to 30th June	3,000 00
C. N. Cochrane, Lecturer (Sessional)	1,200 00
	\$8,200 00

Latin.

J. Fletcher, Professor, 12 mos. to 30th June	\$4,000 00
G. W. Johnston, Associate Professor, 12 mos. to 30th June	2,700 00
G. O. Smith, Assistant Professor, 12 mos. to 30th June	2,100 00
E. Clifton, Lecturer (Sessional)	1,300 00
	\$10,100 00

23. Salaries.—Continued.

Ancient History.

W. S. Milner, Professor, 12 months, to 30th June	\$3,600 00	
Lecturers (Sessional):		
A. G. Brown, \$1,800, of which \$650 charged to Modern History (absent on sick leave)	1,150 00	
E. A. Dale	1,300 00	
		\$6,050 00

English.

W. J. Alexander, Professor, 12 months, to 30th June	\$4,000 00	
Associate Professors, each 12 months, to 30th June:		
D. R. Keys, Anglo-Saxon	3,000 00	
M. W. Wallace	2,500 00	
G. S. Stevenson	2,200 00	
Lecturers (Sessional):		
W. H. Clawson	1,600 00	
Miss C. Maclachlan	1,200 00	
		14,500 00

French.

J. Squair, Professor, 12 months, to 30th June	\$3,600 00	
Associate Professors, each 12 months, to 30th June:		
J. H. Cameron	3,000 00	
St. E. de Champ	2,400 00	
J. S. Will (including Registrarship of University College)	2,500 00	
F. C. A. Jeanneret, Lecturer (Sessional)	1,200 00	
Instructors (Sessional):		
P. Balbaud	800 00	
L. A. Bibet	500 00	
		14,000 00

German.

G. H. Needler, Associate Professor, 12 months, to 30th June	\$3,000 00	
P. W. Mueller, Associate Professor, 12 months, to 30th June	2,200 00	
P. Toews, Assistant Professor, 12 months, to 30th June (absent on sick leave)	2,100 00	
Lecturers (Sessional):		
G. Kartzke	1,200 00	
B. Tapper	1,200 00	
		9,700 00

Oriental Languages.

J. F. McCurdy, Professor, 12 months (retired 30th June)	\$4,000 00	
I. Benzinger, Associate Professor, 12 months, to 30th June	2,200 00	
W. R. Taylor, Lecturer (Sessional—less October)	1,312 50	
W. E. Aitken, substitute for October	175 00	
		7,687 50

Ethics.

J. G. Hume, Professor, 12 months, to 30th June (also Professor of History of Philosophy, University of Toronto)	\$3,600 00	
		3,600 00

University College, General.

M. Hutton, Principal, 12 months, to 30th June (paid also as Professor of Greek)	\$1,000 00	
J. S. Will, Registrar (salary included in Associate Professorship of French)		
Miss L. Salter, Lady Superintendent, 12 months, to 30th June	900 00	
		1,900 00

\$242,579 74

24. *Retiring Allowances.*

Professor R. Ramsay Wright, retiring allowance, 12 months, to 30th June	\$2,750 00	
Professor W. H. Vander Smissen, bonus on retirement	1,000 00	
		3,750 00

25. *Main Building.*

Heat and light (supplied from Central Power Plant):		
Gas, city current and occasional fuel (\$585.14):		
Consumers' Gas Co.	\$24 78	
Connell Anthracite Mining Co., fuel account of 1912.....	560 36	
Water (\$181.35):		
City Treasurer	181 35	
Caretaker's Supplies (\$299.13):		
Superintendent's Department, supplies	299 13	
Cleaning (\$1,800.46):		
Allen Mfg. Co., laundry	20 61	
Canadian Window Cleaning Co., cleaning windows	50 00	
Superintendent's Dept., labor	1,729 85	
Repairs and Renewals (\$4,156.64):		
Adams Furniture Co., chairs	85 10	
Wm. Bartlett & Sons, shades	11 37	
Canada Glass, Mantels & Tiles, Ltd., repairing tile floor..	63 10	
Wm. Card, exterminating rats	12 00	
Henry Hope & Sons, steel sash	290 00	
Johnston Temperature Regulating Co., regulators	60 95	
Macey Office Equipment Co., desks	60 75	
A. Matthews, Ltd., repairing roof	157 91	
Murray-Kay, Ltd., cork carpet	21 40	
R. Robertson & Sons, repairing masonry	51 12	
Routery Bros., plastering	12 45	
Superintendent's Dept., labor, \$1,881.32; material, \$1,449.17.	3,330 49	
		\$7,022 72
Less sundry credits:		
Cleaning \$113.25; repairs \$169.84	283 09	
		\$6,739 63
Janitor, C. E. Bradshaw, 12 months, 30 June	850 00	
Messenger Service:		
George Donkin, 12 months, to 30th June, \$450.00; overtime, \$1.24	451 24	
Boys at \$4.00 to 6.00 per week:		
James Inglis, 52 weeks	261 29	
George Breen, 21st July to 29th May.....	183 46	
John Brown, 1st June to 27th June	18 00	
Car fares of messengers	33 00	
		\$8,536 62

26. *Biological Building and Department.*

(a) Maintenance of Building:		
Heat and light (supplied from Central Power Plant):		
Gas, city current and occasional fuel (\$67.26):		
Consumers' Gas Co.	\$48 44	
Connell Anthracite Mining Co.	18 82	
Water (\$53.25):		
City Treasurer	53 25	
Caretaker's Supplies (\$180.20):		
Superintendent's Dept., supplies	180 20	
Cleaning (\$603.67):		
Allen Mfg. Co., laundry	20 38	
Canadian Window Cleaning Co., cleaning windows ..	30 00	
Superintendent's Dept., labor	553 29	

26. *Biological Building and Department.*—Continued.

Repairs and Renewals (\$1,202.92):

Wm. Bartlett & Sons, shades	9 23
Wm. Card, exterminating rats	12 00
City Treasurer, elevator license	5 00
Elevator Specialty Co., repairs to elevator.....	51 00
A. Matthews, Ltd., repairs to roof, etc.	188 20
R. Robertson & Sons, repairs to masonry	25 94
Routery Bros., plastering	45 20
Superintendent's Dept., labor, \$577.79; material, \$288.56	866 35

 \$2,107 30

 Less sundry credits: repairs
 5 35 |

 \$2,101 95

Caretaker, D. J. Clark (with rooms, heat and light), 12 months, to 30th June	700 00
Attendant, Anatomical Section, Thos. Richardson, 12 months, to 30th June	525 00

 \$3,326 95

(b) Maintenance of Department:

Laboratory and Lecture Room Supplies (410.78):

Aikenhead Hardware, Ltd., hardware	\$6 24
Allen Mfg. Co., laundry	9 33
American Microscopical Society, publications	10 06
Art Metropole, pens	2 45
Bausch & Lomb Optical Co., supplies	50 67
W. R. Brock, Co., cloth	5 76
Canadian General Electric Co., carbons	5 07
Dominion Glass Co., glassware	27 88
T. Eaton Co., supplies	8 76
Freyseng Cork Co., corks	8 52
Ingram & Bell, chemicals	7 65
E. Leitz, carbons	22 36
Miller Mfg. Co., coats	12 00
Miss M. Mitchell, charts	45 00
Ontario Rubber Co., tubing	5 31
R. Pickeman, book	6 00
J. G. Ramsay & Co., photographic supplies	5 54
Richards Glass Co., vials	27 22
Spencer Lens Co., chemicals	3 65
Wm. Staughton, fodder	4 07
Students' Book Dept., books	6 95
Superintendent of Documents (Washington) bulletins	2 43
Tisdall Grocery Co., fodder	15 70
United Photographic Stores, supplies	9 89
University Press, printing and stationery	31 20
Freight charges	41 39
Petty items (3)	4 88
Superintendent's Dept., labor, \$17.00; material, \$7.80..	24 80

Museum Specimens and supplies (\$322.89):

Concilio Bibliographico, specimens	48 05
A. B. Cutcliffe, work on rhinoceros	50 00
T. Eaton Co., tubs	9 50
W. Harris & Co., cartage	5 00
C. R. Hodgins, specimens	25 00
Lyman Bros. & Co., chemicals	1 25
Office Specialty Mfg. Co., cards	6 37
Oliver Spanner & Co., mounting	6 00
H. W. Spence, repairs to locks	24 00
Ward's Natural Science Establishment, models	42 05
P. Wytzman, publications	52 33
Freight charges	7 52
Superintendent's Dept., labor, \$39.38; material, \$6.44..	45 82

Marine and Lake Laboratories (\$161.46):

26. *Biological Building and Department.*—Continued.

Travelling and other expenses:	
A. R. Cooper	\$40 00
Dr. E. M. Walker	86 76
R. P. Wodehouse	40 00
	\$166 76
Less returned, unused of advances of 1912-13	5 30
	\$161 46
Students' Laboratory Supplies (\$1,002.66):	
Beaver Flint Glass Co., jars	\$6 00
W. R. Brock Co., cloth	17 79
F. W. Campion, rabbits	13 50
J. J. Dickson, frogs	90 00
Dominion Glass Co., glassware	8 25
W. A. Frost, rabbits	27 50
J. F. Hartz Co., slide boxes	32 50
Ingram & Bell, chemicals	39 25
Inland Revenue Department, methylated spirits	56 41
C. A. F. Kahlbaum, chemicals	44 75
J. Klönne & G. Müller, glassware and supplies	242 65
Marine Biological Laboratories, specimens	51 10
Prof. W. H. Piersol, rabbits	25 30
Richards Glass Co., glassware	15 60
W. Lloyd-Wood, chemicals	5 40
University Press, drawing books and supplies	188 50
Freight charges	134 91
Superintendent's Dept., material	3 25
Microscopes and Apparatus (\$298.65):	
J. M. Dolbey, repairs to microscopes	11 67
E. Leitz, microscopes	153 68
James Robertson & Co., porcelain tubs	29 40
A. F. Small, apparatus	56 25
James Stewart, aquarium boxes	14 40
A. R. Williams Machinery Co., drill.....	33 25
Furniture and Departmental Fittings (\$193.10):	
Adams Furniture Co., stools	18 00
Dunlop Tire and Rubber Goods Co., hose	1 31
Office Specialty Mfg. Co., furniture	76 13
University Press, fying cases	9 20
Superintendent's Dept., labor, \$41.58; material, \$46.88	88 46
Incidentals (\$105.42):	
Artists' Supply Co., paper	6 75
Art Metropole, tacks	3 74
Prof. B. A. Bensley, petty disbursements:	
Postage and car fare, \$14.52; laboratory supplies,	
\$9.69; photographic material, \$8.29; food for	
animals, \$5.28; hardware, \$4.52; express,	
\$2.30; sundries, \$5.15	\$49 75
Less charged in 1912-13.....	10 33
	39 42
C. W. Mack, rubber stamps	4 20
Remington Typewriter Co., inspection	12 75
United Typewriter Co., carbon paper	3 37
University Press, stationery and printing	29 85
Petty items (2)	2 89
Superintendent's Dept., labor, \$1.68; material, 77c. ..	2 45
Messenger Service (\$222.00):	
Leonard Phillips, 37 weeks, to 7th June	222 00
	\$2,716 96
	\$6,043 91

27. *Sub-Department of Botany.*

Apparatus and Equipment (\$1,253.86):	
Adams Furniture Co., stools	\$30 00
Bausch & Lomb Optical Co., apparatus	35 65
Elmer & Amend, apparatus	119 25
Gebrüder Borntraeger, apparatus	59 73
R. Jung, apparatus	100 61
Kny-Scheerer Co., charts	159 85
Ernst Leitz, microscopes and apparatus	196 00
Library Bureau of Canada, cases	4 80
Photography, Dept. of, slides	16 75
Quelle & Meyer, apparatus	58 67
Spencer Lens Co., apparatus	15 15
Topley Company, apparatus	85 95
H. C. Tugwell & Co., photographic apparatus.....	66 90
Eugen Ulmer, apparatus	6 02
Freight charges	36 44
Superintendent's Dept., labor, \$128.89; material, \$133.20	262 09
Laboratory and Office Supplies (\$321.41):	
Bausch & Lomb Optical Co., supplies	24 89
W. R. Brock & Co., cloth	20 16
The Bursar, postage supplied	5 00
Prof. J. H. Faull, petty disbursements:	
Expenses collecting material, \$9.24; photographic supplies, \$5.86; laboratory supplies, \$6.19....	21 29
J. F. Hartz & Co., bottles	4 00
Prof. C. D. Howe, petty disbursements:	
Cork bottles, \$3.50; thermometer, \$2.75; chemicals, \$2.55; specimens, \$2.45; sundries, \$5.07.....	16 32
Lyman Bros. & Co., chemicals	6 89
Marine Biological Laboratories, specimens	15 10
J. G. Ramsay & Co., photographic supplies	17 02
J. A. Simmers, seeds	0 80
Prof. R. B. Thomson, petty disbursements:	
Hardware, etc., \$13.59; freight and express charges, \$12.83; postage, car fares, etc., \$10.54; photographic supplies, etc., \$7.40; typewriting, \$3.50; sundries, \$6.90; \$54.76, of which \$29.76 charged to 1914-15	25 00
Topley Company, chemicals and supplies	58 12
United Typewriter Co., inspection	7 25
University Press, stationery and supplies	189 00
Freight charges	4 33
Superintendent's Dept. material	16 24
	<hr/>
	\$431 41
Less received from sales of supplies to students ..	110 00
	<hr/>
	\$321 41
Museum and Herbarium Supplies (\$508.91):	
Auburn Nurseries, Ltd., plants	18 07
E. Bartholomew, specimens	12 30
Cambridge Botanical Supply Co., supplies	2 55
W. P. Carr, specimens	14 85
F. S. Collins & Co., plants	5 03
Freek, Clark & Co., label holders	2 26
W. T. Gardon, sections	17 73
Photography, Dept. of, slides	6 80
Rudd Paper Box Co., boxes	54 50
P. Sydow, specimens	7 67
Voigt & Hochgesang, supplies	18 00
Ward's Natural Science Establishment, specimens ...	22 50
Theodor Oswald Weigel, specimens	25 72
James White, specimens, etc.	12 00
University Press, cases and supplies	131 65

27. *Sub-Department of Botany.*—Continued.

Freight charges	22 85
Petty items (2)	2 03
Superintendent's Dept., labor, \$59.52; material, \$72.88	132 40
Assistance in Museum and Herbarium (\$428.20):	
A. E. Allin, 188 hours at 40c.	75 20
G. H. Graham, 70 hours at 40c., \$28.00; 50 hours at 50c., \$25.00	53 00
N. C. Hart, 58 hours at 50c.	29 00
H. B. Sifton, 142 hours at 50c.	71 00
James White, mounting plant specimens, 4,000 sheets at 5c.	200 00
Botanic Garden and Greenhouse Supplies, material and labor (\$885.04):	
American Forestry Co., trees	\$4 58
Beaver Flint Glass Co., vials	16 00
Brobst Forestry Co., wood preserver	2 20
Henry A. Dreer, seed	2 89
F. J. Grootendorst & Son, plants	14 45
Thos. Meehan & Sons, plants	8 04
A. A. Moses, tools	8 41
R. Robertson & Sons, sand and cement	6 80
Sand & Supply Co., sand	2 60
J. A. Simmers, seeds	13 00
University Press, labels	2 00
Freight charges	12 66
Petty items (2)	3 50
Superintendent's Dept., labor, \$123.44; material, \$93.97	217 41
George Cruden, 802 hours at 25c.	200 50
Roy Donald, 55½ days at \$2.00	111 00
Charles Gray, 12 hours at 25c., \$3.00; 54 days at \$2.00, \$108.00; 1 month at \$50.00; 1 month at \$55.00	216 00
J. Pilsbury, 16 hours at 25c.	4 00
John Scott, 80 hours at 25c., \$20.00; 2 days at \$2.00, \$4.00	24 00
A. Wesley, 60 hours at 25c.	15 00
Clerical Assistance (\$124.95):	
Arthur Allen, 20 hours at 20c.	4 00
Miles Burford, 341 hours at 35c.	119 35
J. Cruickshanks, 8 hours at 20c.	1 60
Extra laboratory space in attic (\$504.15):	
R. Robertson & Sons, alterations to windows	\$25 00
Superintendent's Dept., labor, \$317.17; material, \$161.98	479 15

 \$4,026 52
28. *Department of Bio-Chemistry.*

Maintenance, laboratory and office supplies (\$1,392.65):	
Allen Mfg. Co., laundry	\$4 65
Art Metropole, supplies	7 94
Baird & Tatlock, Ltd., chemicals and supplies	208 44
Canadian Carbonate Co., gas	19 50
Canadian General Electric Co., electrical supplies	12 66
Dominion Carbonic Co., gas	30 00
T. Eaton Co., towels, \$15.00; chairs, \$40.50	55 50
Eimer & Amend, chemicals	317 81
Geo. M. Hendry Co., apparatus	35 00
Lake Simcoe Ice Co., Ice	31 02
E. Leitz, apparatus	24 70
Rice, Lewis & Son, refrigerator	58 50
Lyman Bros. & Co., chemicals	20 19
Prof. A. B. Macallum, disbursements:	
Animals \$12.53; groceries, \$8.00; specimens and car fares, \$5.39; laboratory supplies, \$4.99; animal food, \$2.13; sundries, \$7.91	40 95
A. D. Macallum, draughting	56 50

28. *Department of Bio-Chemistry.*—Continued.

Office Specialty Mfg. Co., cabinet	36 75	
Ontario Rubber Co., tubing	12 93	
Photography, Dept. of, slides	19 35	
Physiology, Dept. of, fodder supplied	51 85	
A. Pride, backing diagrams	4 58	
Steele Briggs Seed Co., seed	12 50	
Students' Book Dept., books	84 70	
Toronto Hydro-Electric System, apparatus	70 00	
United Typewriter Co., inspection	10 50	
University Press, printing and stationery	46 15	
Freight charges	23 27	
Petty items (5)	5 41	
Superintendent's Dept., labor, \$99.51; material, \$120.66	220 17	
		<u>\$1,521 52</u>
Less sundry credits:		
Received from students for breakages, etc.	\$124 81	
Inland Revenue Dept., allowance on barrels returned	4 00	
		<u>128 87</u>
		\$1,392 65
<i>29. Department of Physiology.</i>		
Maintenance, laboratory and office supplies (\$1,611.79):		
Aikenhead Hardware, Ltd., hardware	\$30 00	
F. E. Becker & Co., glassware and chemicals.....	366 94	
Wm. Blaikie, castings	3 19	
Prof. T. G. Brodie, disbursements:		
Hardware, \$43.74; laboratory supplies, \$31.79;		
postage and car fares, \$19.57; laundry, \$15.75;		
photographic supplies, \$13.45; animals, \$11.50;		
utensils, \$7.70; paint and oil, \$6.05; chemicals,		
\$5.25; food for animals, \$4.05; cables, \$2.99;		
sundries, \$7.65	169 49	
Brown & Sharpe Mfg. Co., gears	13 55	
Canadian Independent Telephone Co., timer and relay.	13 70	
J. A. Fontaine, frogs	64 00	
Harvard Apparatus Co., supplies	19 78	
Ingram & Bell, chemicals and supplies	57 00	
Inland Revenue Dept., methylated spirits	31 12	
Library Bureau of Canada, cases, etc.	41 58	
Norman Macdonald, carborundum	6 27	
T. J. McDonnell, rabbits	9 00	
Northern Electric & Mfg. Co., batteries	21 88	
Walter Oehmke, filter paper	6 00	
Ontario Rubber Co., tubing	6 75	
Chas. Potter, photographic supplies	11 65	
Wm. Staughton, fodder	98 69	
Students' Book Dept. text-books	57 50	
Toronto Dog and Cat Hospital, animals	224 25	
H. C. Tugwell & Co., photographic supplies	33 88	
United Typewriter Co., inspection	6 00	
University Press, stationery and printing	126 17	
Freight charges	61 96	
Petty items (6)	6 74	
Superintendent's Dept., labor, \$80.29; material, \$96.26	176 55	
		<u>\$1,663 64</u>
Less credit from Bio-Chemical Dept.	51 85	
		<u>\$1,611 79</u>
Apparatus (\$487.20):		
Cambridge Scientific Instrument Co., galvanometer	\$136 26	
John McCall, apparatus	24 36	
Walter Oehmke, apparatus	39 03	

29. *Department of Physiology.*—Continued.

R. Robertson & Sons, base for compressor	7 25	
Topley Company, apparatus	19 40	
Carl Zeiss, apparatus	219 61	
Freight charges	41 29	
		\$2,098 99

30. *Chemical Building and Department.*

(a) Maintenance of Building:		
Heat and light (supplied from Central Power Plant):		
Gas, city current and occasional fuel (\$210.98):		
Consumers' Gas Co.		\$210 98
Water (\$62.98):		
City Treasurer		62 98
Caretaker's Supplies (\$46.37):		
Superintendent's Dept., supplies		46 37
Cleaning (\$574.04):		
Allen Mfg. Co., laundry		4 40
Canadian Window Cleaning Co., cleaning windows....		11 00
Superintendent's Dept., labor		558 64
Repairs and Renewals (\$700.32):		
Wm. Card, exterminating rats		12 00
A. Matthews, Ltd., repairs to roof		114 70
Superintendent's Dept., labor \$335.50; material \$238.12		573 62
		\$1,594 69
Less sundry credits; cleaning		2 00
		\$1,592 69
Caretaker, E. Repath (paid as laboratory attendant, with rooms, fuel and light chargeable against building and included in above)		
(b) Maintenance of Department:		
Chemicals, glassware and apparatus (\$2,391.98):		
Aikenhead Hardware Co., hardware		\$20 44
J. T. Baker Chemical Co., chemicals	\$134 55	
Less allowance for cases and bottles returned	58 40	
		76 15
Bausch & Lomb Optical Co., apparatus and supplies...		575 64
Boeckh Bros. & Co., brushes		55 13
J. Bishop & Co., platinum wire		121 10
Connell Anthracite Mining Co., fuel for distilled water plant		5 82
Dominon Carbonic Co., gas		7 50
Eimer & Amend, combustion furnace		100 00
Fletcher Mfg. Co., utensils		11 25
Freyseng Cork Co., corks		27 40
Grasselli Chemical Co., chemicals		89 98
Inland Revenue Dept., methylated spirits		37 29
C. A. F. Kahlbaum, chemicals		1,261 06
Prof. W. R. Lang, disbursements:		
Postage and car fares, \$6.01; hardware, \$5.66; groceries, \$3.45; card catalogue, \$2.05; sundries, \$8.57		
		25 74
Lyman Bros. & Co., chemicals		145 20
Ontario Rubber Co., tubing		44 21
United Typewriter Co., typewriter, \$90.00, less allowance for old machine, \$20.00—\$70.00, of which \$40.00 charged to Pathology		30 00
University Press, printing and stationery		229 65
Freight charges		41 59
Petty items (2)		3 20
Superintendent's Dept., labor, \$198.09; material, \$85.54		283 63
		\$3,191 98
Less received from students' account		800 00
		\$2,391 98

30. *Chemical Building and Department.*—Continued.

Laboratory shelving, cupboards, etc. (\$227.91):		
R. Robertson & Sons, beam	49 00	
Superintendent's Dept., labor, \$115.14; material, \$63.77	178 91	
		\$2,619 89
		\$4,212 58

31. *Sub-Department of Physical Chemistry.*

Chemicals, apparatus and maintenance (\$495.73):		
American Platinum Works, platinum ware	\$27 12	
Central Electric Supply Co., sockets	7 20	
Eimer & Amend, incubator, etc.	192 51	
P. W. Ellis & Co., apparatus	110 00	
Fletcher Mfg. Co., apparatus and supplies	82 48	
F. D. Mezen, apparatus	8 40	
Prof. W. Lash Miller, disbursements:		
Typewriting, \$9.00; chemicals, \$8.35; sundries, \$3.50.	20 85	
Office Specialty Mfg. Co., cabinet	12 99	
University Press, paper	1 10	
Freight charges	2 25	
Superintendent's Dept., labor, \$18.19; material, \$12.64.	30 83	
		\$495 73

32. *Physics Building and Department.*

(a) Maintenance of Building:

Heat and light (supplied from Central Power Plant):		
Gas, city current and occasional fuel (\$81.48):		
Consumers' Gas Co.	\$81 48	
Water (\$137.07):		
City Treasurer	137 07	
Caretaker's Supplies (\$95.62):		
Superintendent's Dept., supplies	95 62	
Cleaning (\$880.23):		
Allen Mfg. Co., laundry	4 49	
Canadian Window Cleaning Co., cleaning windows....	33 00	
Superintendent's Dept., labor	842 74	
Repairs and Renewals (\$1,208.38):		
Wm. Card, exterminating rats	12 00	
City Treasurer, elevator license	5 00	
Johnston Temperature Regulating Co., regulators	51 12	
Otis-Fenson Elevator Co., repairs to elevator	46 25	
R. Robertson & Sons, masonry	143 63	
Superintendent's Dept., labor, \$726.98; material, \$223.40	950 38	
		\$2,402 78
Less sundry credits, repairs, \$18.62; cleaning, \$33.50..	52 12	
		\$2,350 66
Caretaker, J. Wicksey (paid also \$350.00 as laboratory car- penter)	550 00	\$2,900 66

(b) Maintenance of Department:

Laboratory and workshop supplies (\$2,259.29):		
Aikenhead Hardware Ltd., hardware	\$266 92	
Allen Mfg. Co., laundry	11 12	
Art Metropole, paper	2 19	
British American Oil Co., oil	4 95	
British Aluminum Co., aluminum	4 75	
Buchler & Co., polonium	96 17	
Canada Metal Co., tin	7 01	
Canadian Allis-Chalmers Ltd., iron	3 25	
Canadian Carbonate Co., gas	3 00	
Canadian Seamless Wire Co., wire	2 48	
John Catto & Son, towels	9 00	
Central Electric Supply Co., electrical supplies.....	185 28	

32. *Physics Building and Department.*—Continued.

Consumers' Gas Co., tubing	8 96
Dominion Carbonic Co., gas	11 25
Dominion Photo Supply Co., photographic supplies....	16 06
T. Eaton Co., supplies	22 19
Eimer & Amend, tubing, etc.	18 95
Goldsmith Bros., platinum, etc.	37 52
W. & J. G. Greey, castings	16 21
J. F. Hartz Co., stoppers	3 33
Geo. M. Hendry & Co., tubing, etc.	5 10
Adam Hilger & Co., scales	11 20
Wm. Jessop & Son, steel	16 23
Johnston, Matthey & Co., platinum wire	40 72
Kimble-Durand Glass Co., tubing	6 02
Albert Kleiser & Co., silver	5 00
Max Kohl, glassware, etc.	14 50
Lake Simcoe Ice Co., ice	30 20
Ernst Leitz, supplies	10 03
Rice, Lewis & Son, steel	4 38
Lyman Bros. & Co., chemicals	110 95
Prof. J. C. McLennan, disbursements:	
Postage and express, \$17.70; hardware, \$4.83; mes-	
senger service, \$3.05; sundries, \$10.59	36 17
James Morrison Brass Mfg. Co., tubing	5 40
R. Müller-Uri, glassware	245 80
Ontario Rubber Co., tubing	22 25
H. W. Petrie, Ltd., lathe	60 05
Planet Bicycle Co., tube	3 51
Chas. Potter, gas	26 70
W. G. Pye & Co., supplies	246 43
Queen City Brass Foundry Co., castings	24 05
J. G. Ramsay & Co., photographic supplies	3 25
Rogers Electric Co., bronze table	3 30
Ryrie Bros., repairs	5 50
Sanderson, Percy & Co., enamel	3 16
Silica Syndicate, tubing	131 50
Standard Foundry Co., castings	4 00
Thermal Syndicate, glassware	36 33
Toronto Salt Works, salt	5 00
Toronto School Supply Co., supplies	20 26
United Photographic Stores, photographic supplies	7 03
University Press, printing and stationery	134 75
John Wanless & Co., repairs	2 50
Weston Electrical Instrument Co., electrical supplies...	24 68
Whaley Royce & Co., repairs	3 00
Wheeler & Bain, zinc, etc.	8 70
Wratten & Wainwright, photographic supplies	47 22
Freight charges	51 00
Petty items (13)	17 42
Superintendent's Dept., labor, \$13.53; material, \$81.83..	95 36
Apparatus (\$1,438.72):	
Cambridge Scientific Instrument Co.	190 85
Canadian General Electric Co.	3 60
J. Carpentier	45 52
T. Eaton Co., Ltd.	12 50
Günter & Tegetmeyer	47 18
Adam Hilger, Ltd.	267 85
Ernst Leitz	29 20
W. G. Pye & Co.	535 02
Franz Schmidt & Haensch	83 94
Thompson, Ahern & Co.	13 83
Weston Electrical Instrument Co.	134 90
A. R. Williams Machinery Co.	10 00
C. Wilson & Son	4 85
Freight charges	51 48
Superintendent's Dept., material	8 00
Experimental tables, cases, books, charts, etc. (\$479.36):	

32. *Physics Building and Department.*—Continued.

Adams Furniture Co., chairs	12 72	
Boake Mfg. Co., lumber	64 83	
W. Booth Lumber Co., lumber	39 37	
T. Eaton Co., stools	5 10	
MacMillan & Co., Ltd., subscription	7 43	
Ph. Rettig, cage	72 15	
R. Robertson & Sons, stone table	100 00	
Students' Book Dept., books	20 60	
University Press, printing and stationery	19 95	
Freight charges	2 76	
Petty items (2)	2 93	
Superintendent's Dept., labor, \$53.84; material, \$77.68	131 52	
Workshop Assistance (\$344.40):		
E. Slade, 52 weeks at \$6.60	\$343 20	
Overtime, 8 hours at 15c.	1 20	
	<hr/>	
	344 40	
		<hr/>
		\$4,521 77
		<hr/>
		\$7,422 43

33. *Sub-Department of Astro-Physics.*

Maintenance (\$321.06):

Aikenhead Hardware Ltd., hardware	\$1 25
Art Metropole, supplies	16 88
Prof. C. A. Chant, disbursements:	
Laboratory supplies, \$11.40; drawing material, \$3.51;	
repairs, \$2.75; express and postage, \$4.55; sun-	
dries, \$10.24	32 45
Harvard University, negatives	34 35
Geo. M. Hendry Co., mounting charts	12 45
D. J. Howell, plates	3 85
J. L. Jones Engraving Co., cuts	8 95
Geo. B. Meadows Co., models	8 30
Northern Electric & Mfg. Co., supplies	12 34
"Popular Astronomy," Carleton College, slides and	
prints	9 06
Queen City Glass Co., glass	2 00
J. G. Ramsay & Co., photographic supplies	9 75
G. W. Ritchey, prints	12 10
Students' Book Dept., books	26 05
University of Chicago, prints	15 82
University Press, stationery	37 10
Freight charges	23 67
Superintendent's Dept., labor, \$37.76; material, \$16.93.	54 69
Apparatus (\$719.62):	
Bernhard Liebisch, atlas	4 29
Clipsham & Delamere, apparatus	30 00
E. Dent & Co., apparatus	222 46
Foote Mineral Co., specimens	16 10
L. E. Knott Apparatus Co., apparatus	51 95
R. Müller-Uri, apparatus	101 64
Newton & Co., slides	24 81
Photography, Dept. of, slides	13 85
Underwood & Underwood, slides	2 53
H. A. Van Winckel, meteorite	20 00
E. R. Watts & Son, apparatus	161 00
Max Weg, maps and atlas	75 52
Freight charges	7 81
Superintendent's Dept., labor, \$40.75; material, \$6.50.	47 25
	<hr/>
	\$1,100 27
Less credit for apparatus broken in transit	59 59
	<hr/>
	\$1,040 68

34. *Geological Department.*

Maintenance (\$301.43):

Bausch & Lomb Optical Co., magnifiers and supplies..	\$47 05
Dominion Paper Box Co., trays	8 25
Geo. M. Hendry Co., map	9 00
International Geological Congress, guide books	25 00
Office Specialty Mfg. Co., fyles	3 78
Prof. W. A. Parks, petty disbursements	4 10
D. Pike & Co., bags	7 20
Photography, Dept. of, prints and slides	46 95
Max Weg, books	9 06
Whitman & Barnes Mfg. Co., hammers	13 50
G. R. Workman, draughting	21 00
University Press, printing and stationery	166 00
Freight charges	1 77
Petty items (2)	2 02
Superintendent's Dept., labor, \$1.40; material, \$4.50 ..	5 90
	<hr/>
	370 58
Less received from students for breakages	69 15
	<hr/>
	301 43

Palæontological Material (\$72.54):

Grebel, Wendler & Cie, specimens	67 33
Ward's Natural Science Establishment, specimens ...	5 21

Storage Cases (\$158.18):

Office Specialty Mfg. Co., storage cases	158 18
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\$532 1535. *Mineralogical Department.*

Maintenance (\$352.20):

Elmer & Amend, crucibles, etc.	\$256 07
Fletcher Mfg. Co., bowls	12 25
Fritz Köhler, supplies	13 45
Lyman Bros. & Co., chemicals	36 59
Norman Macdonald, carborundum	3 07
Ontario Lime Co., plaster	1 85
Peter Stöe, cutting topaz	5 05
Students' Book Dept., books	5 10
Toronto Electric Light Co., plate	5 00
Prof. T. L. Walker, disbursements:	
Travelling expenses, \$14.00; postage, \$3.99; labor, \$3.60; sundries, \$9.50	31 09
Ward's Natural Science Establishment, specimens...	23 63
Max Weg, books	18 97
University Press, stationery and printing ...	44 60
Freight charges	17 13
Superintendent's Dept., labor, \$4.99; material, \$12.10...	17 09
	<hr/>
	\$490 94

Less received from students for breakages, sales of
minerals, etc., Sessions 1912-13 and 1913-14.....

138 74

\$352 20

Apparatus (\$286.69):

Peter Stöe, apparatus	286 69
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Cases and trays (\$154.55):

Superintendent's Dept., labor, \$122.61; material, \$31.94	154 55
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\$793 4436. *Psychological Department.*

Maintenance (\$384.97):

T. Eaton Co., stop watch	\$14 00
Gas Control Co., rent of governor	4 20
Office Specialty Mfg. Co., table	4 00

36. *Psychological Department.*—Continued.

Prof. W. G. Smith, disbursements:	
Laboratory supplies, \$15.12; cleaning and painting, \$9.00; lenses and mirrors, \$4.66; photographic work, \$4.00; bow, \$3.00; sundries, \$4.22	40 00
C. H. Stoelting Co., apparatus	95 33
Students' Book Dept., books	19 75
University Press, stationery	15 10
Young People's Forward Movement, lantern	53 50
Freight charges	7 75
Superintendent's Dept., labor, \$60.36; material, \$70.98.	131 34
Laboratory assistance (\$200.00):	
John Line	100 00
Lloyd Smith	100 00
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	\$584 97

37. *Mathematical Department.*

Class Room Supplies (\$10.80):	
University Press, stationery	\$8 15
Superintendent's Dept., material	2 65
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	\$10 80

38. *Sub-Department of Mechanics.*

Maintenance and Supplies (\$77.50):	
Art Metropole, pins	\$3 00
Freek, Clark & Co., hardware	11 30
Longmans, Green & Co., book	3 36
Renouf Publishing Co., book	1 22
Students' Book Dept., books	25 85
University Press, stationery	21 17
Superintendent's Dept., labor, \$5.28; material, \$6.32.....	11 60
Apparatus (\$235.30):	
Freek, Clark & Co.	31 41
Keufel & Esser	49 27
W. F. Stanley & Co.	66 22
University Press	69 50
Freight charges	4 90
Superintendent's Dept., labor, \$7.15; material, \$6.85.....	14 00
	<hr/>
	\$312 80

39. *Political Science.*

Class Room Supplies (\$151.24):	
Office Specialty Mfg. Co., furniture	\$114 79
University Press, stationery and printing	18 15
Superintendent's Dept., labor, \$12.62; material, \$5.68	18 30
	<hr/>
	\$151 24

40. *History.*

Class Room Supplies (\$28.19):	
Geo. M. Hendry & Co., maps	\$18 69
University Press, printing	9 50
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	\$28 19

41. *Italian and Spanish.*

Class Room Supplies (\$25.75):	
Photography, Dept. of, slides	\$12 75
Students' Book Dept., books	4 00
University Press, stationery	9 00
	<hr/>
	\$25 75

42. *University College Departments.*

Greek (\$127.50):	
Prof. A. Carruthers, slides	\$125 00
Photography, Dept. of, slides	2 50
Latin (\$41.73):	
Geo. M. Hendry & Co., maps	15 68
Photography, Dept. of, slides	8 75
University Press, printing, etc.	17 30
English (\$573.85):	
University Press, stationery	8 85
Reading Essays:	
Mrs. P. Cudmore	150 00
Mrs. Mabel Hincks	150 00
Miss H. G. Macdonald	115 00
Miss Mona McLaughlin	150 00
French (\$100.54):	
Central Electric Supply Co., lens	7 95
Photography, Dept. of, slides	1 50
Chas. Potter, camera	3 75
Students' Book Dept., books and stationery	44 55
Topley Co., carbons	2 64
University Press, printing, etc.	37 35
Freight charges	40
Superintendent's Dept., labor, \$1.86; material, 54c.	2 40
German (\$3.75):	
University Press, stationery	3 75
Orientals (\$107.06):	
Prof. J. F. McCurdy, books	13 66
Students' Book Dept., books	88 15
University Press, binding, etc.	5 25
Ethics (\$9.25):	
Office Specialty Mfg. Co., fyle	6 00
University Press, stationery	3 25
General Expenses:	
Stationery (\$48.40):	
The Bursar, postage supplied	10 00
University Press, stationery	38 40
Printing (\$10.55):	
University Press, printing	10 55
Advertising (\$4.80):	
Evening Telegram	1 80
News Publishing Co.	1 20
Toronto Daily Star	1 80
Clerical Assistance to Registrar (\$343.20):	
Miss C. Tocque, 596 hours at 50c.	298 00
Miss M. A. Sparks, 113 hours at 40c.	45 20
Incidentals (\$84.95):	
College Sermons Committee, hymnals	25 00
Dominion Typewriter Exchange, supplies	2 70
Gourlay, Winter & Leeming, piano hire	26 00
Ryrie Bros., medal	25 00
Toronto Railway & Steamboat Guide Co., sub. to Guide... ..	5 20
University Press, paper weight	55
Superintendent's Dept., labor, 45c.; material, 5c.	50

 \$1,455 58

43. *World History.*

Supplies (\$66.89):

Theodor Benzinger, slides	\$29 79
Photography, Dept. of, slides	2 25
University Press, printing, etc.	34 70
Freight charges	15

 \$66 89
44. *Trinity College Service.*

The Bursar, Trinity College, students' car fares paid for transportation to University lectures

 \$794 36

 \$794 36
45. *University Extension.*

(a) Summer Session, 1913 (\$3,823.08):

Remuneration to Instructors:

Wm. Pakenham, English (and Director)	\$350 00
I. M. Levan, English	250 00
J. T. Crawford, Mathematics	250 00
J. G. Workman, Mathematics	250 00
Wm. Ward, Commerce	250 00
A. N. Scarrow, Manual Training	200 00
G. A. Cornish, Elementary Science	200 00
A. T. Cringan, Music	200 00
Dr. J. W. Barton, Physical Training	250 00
A. Williams, Physical Training	100 00
G. N. Bramfitt, Physical Training	100 00
Miss Ivy Coventry, Physical training	120 00
Miss Hazel Doran, Physical Training	80 00
Miss N. L. Pattinson, Household Science	150 00
Miss L. L. Ockley, Household Science	150 00
Miss Muriel Miller, Household Science	75 00

Expenses:

Manual Training:

R. Laidlaw & Co., lumber	24 88
University Press, stationery and supplies	15 37

Commerce:

United Typewriter Co., rental of typewriter	9 75
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Elementary Science:

Kny-Scheerer Co., specimens	15 48
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Music:

Gourlay, Winter & Leeming, rental of piano	6 00
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Physical Training:

Connell Anthracite Mining Co., fuel for heating swimming tanks	35 59
Mrs. Dixon, cleaner at gymnasium	14 00

Household Science:

Wm. Davies Co., provisions	3 15
Alex. Provan, provisions	17 87
City Dairy, milk	1 00
Mrs. Parkinson, cleaning	2 70

Spring Session in Household Science (April to June, 1913):

Remuneration to Instructors:

Miss E. M. Eadie	150 00
Miss A. L. Laird	100 00
Miss N. L. Pattinson	150 00
Miss H. A. Paul	150 00
Miss L. L. Ockley	150 00

Expenses:

Alex. Provan, provisions	22 59
City Dairy, milk	10 00

45. *University Extension*.—Continued.

Wm. Davies Co., provisions	5 47
R. Barron, Ltd., provisions	1 74
	\$3,860 59
Less paid in 1912-13	37 51
	\$3,823 08
(Amount paid by the Provincial Government on account of Session 1913, \$3,860.59, included in Revenue from Fees.)	
Correspondence Courses between Summer Sessions (\$1,561.04):	
Remuneration to Instructors (\$1,093.00):	
J. O. Carlisle	21 00
G. A. Cornish	201 50
H. J. Crawford	180 00
J. T. Crawford	115 00
W. C. Ferguson	80 00
H. A. Grainger	167 50
D. E. Hamilton	34 50
H. G. Manning	34 50
O. J. Stevenson	105 00
Wm. Ward	96 50
J. G. Workman	57 50
Expenses (\$468.04):	
Miss A. M. Brown, addressing circulars	10 67
The Bursar, postage supplied	111 32
Grand & Toy, Ltd., paper	2 00
Office Specialty Mfg. Co., cabinet	49 89
United Typewriter Co., rent of neostyle, \$15.00; sup- plies, \$12.11	27 11
University Press, printing, etc.	229 50
Wm. Ward, duplicating	37 55
Preliminary Expenses, Summer Session, 1914 (\$331.30):	
The Bursar, postage supplied	130 00
Miss A. L. Laird, flannel, cotton, etc.	5 00
University Press, printing and stationery	113 55
Printing and mailing circulars:	
H. Edwards	47 75
G. A. Walton	11 00
J. A. Whiting	24 00
(b) Teachers' Course (\$4.50):	
University Press, printing	4 50
(c) Local Lectures (\$262.70):	
Remuneration to Lecturers (\$215.00):	
A. H. Abbott	111 50
W. J. Alexander	100 00
J. A. Amyot	39 50
B. A. Bensley	26 00
G. S. Brett	110 50
C. A. Chant	25 00
A. P. Coleman	70 30
F. E. Coombs	15 00
G. A. Cornish	132 00
J. H. Faulli	13 00
L. E. Horning	52 00
M. Hutton	5 00
G. E. Jackson	53 00
E. J. Kylie	5 00
W. A. Parks	13 00
M. W. Wallace	118 00
A. H. Young	5 00
	\$893 80
Less paid by local centres	678 80
	\$215 00

45. *University Extension.*—Continued.

Printing, etc. (\$47.70):	
Toronto Weekly Railway and Steamboat Guide Co., subscription to Guide	3 00
University Press, printing	44 70
(d) Office Expenses (\$1,707.67):	
The Bursar, postage supplied	130 00
Grand & Toy, Ltd., stationery	6 70
C. W. Mack, rubber stamp	1 25
Office Specialty Mfg. Co., folders	1 10
United Typewriter Co., inspection	10 70
University Press, stationery	79 90
Superintendent's Dept., labor, \$24.85; material, \$13.17	38 02
A. H. Abbott, services as secretary.....	300 00
E. A. Bott, services as assistant secretary	500 00
Clerical Assistance:	
Miss C. Mead, 5 weeks at \$10.00 per week	50 00
Miss D. V. Freeborough, 4 weeks at \$15.00 per week..	60 00
Miss C. McCallum, 34 weeks at \$10.00, \$340.00; 8 weeks at \$11.25, \$90.00; bonus for extra services, \$100.00	530 00
	\$7,690 29
	\$294,046 31

III. FACULTY OF MEDICINE.

46. *Salaries.*

Anatomy:	
J. P. McMurrich, Professor, 12 mos. to 30th June	\$4,000 00
J. C. Watt, Lecturer (Sessional)	1,400 00
Assistants (Sessional):	
C. J. Copp	150 00
N. D. Frawley	150 00
W. B. Hendry (paid also in Gynæcology)	150 00
E. R. Hooper	150 00
W. W. Jones (paid also in Clinical Surgery)	150 00
O. A. McNichol	150 00
W. A. Scott (paid also in Clinical Surgery)	150 00
N. S. Shenstone (paid also in Clinical Surgery)	150 00
C. B. Shuttleworth (paid also in Clinical Surgery) ..	150 00
G. E. Wilson (paid also in Clinical Surgery).....	150 00
W. W. Wright (paid also in Clinical Surgery)	150 00
G. R. Philp	50 00
Technical Assistant:	
Miss A. S. McDougall, 1st July to 31st Dec. at \$450 per annum (resigned)	225 00
Miss J. Mair, 26th Jan. to 28th Feb. at \$436 per annum (resigned)	43 35
Miss M. Black, 5th March to 30th June at \$436 per annum	141 70
G. Lynne, Attendant, Dissecting Room, 12 mos. to 30th June	800 00
	\$8,310 05
Pathology and Bacteriology:	
J. J. Mackenzie, Professor, 12 months, to 30th June	3,600 00
D. Graham, Lecturer in Bacteriology (Sessional)	1,700 00
A. I. McCalla, Fellow (Sessional), at \$500 (resigned 1st March)	312 50
D. E. Robertson, Demonstrator and Assistant Curator of Pathological Museum (Sessional—paid also in Clinical Surgery)	300 00
Assistants (Sessional):	
O. R. Mabee	150 00
F. E. Watts (resigned 31st December)	75 00
C. E. C. Cole (paid also in Therapeutics)	100 00
J. A. Oille (paid also in Clinical Medicine)	100 00

46. Salaries.—Continued.

G. A. Campbell	50 00	
J. M. Livingstone	50 00	
H. J. Shields	50 00	
L. B. Robertson (Easter Term)	25 00	
Assistants in Clinical Laboratory (Sessional):		
D. H. Boddington (paid also in Chemical Pathology) ..	125 00	
N. T. Maclaurin	150 00	
Laboratory Assistants, each 12 months to 30th June:		
A. Wilson, at \$700, of which \$300 charged as Caretaker of Pathological building	400 00	
F. Thibault	650 00	
Glass-blowers, share of salaries detailed under Physiology	50 00	
Miss I. E. Ruttan, Stenographer, 12 months to 30th June..	700 00	
		<u>\$8,587 50</u>
Chemical Pathology:		
J. B. Leathes, Professor, 12 months to 30th June	3,600 00	
F. W. Rolph, Demonstrator, \$500; Assistant in Clinical Laboratory, \$250 (Sessional)	750 00	
R. T. Elworthy, Assistant (Sessional—paid also in Chemistry)	200 00	
D. H. Boddington, Assistant in Clinical Laboratory (Ses- sional—paid also in Pathology)	125 00	
A. Husband, Laboratory Assistant, 12 months to 30th June	600 00	
Laboratory Attendants:		
E. Blackaby, 1st July to 15th August at \$400 per an- num (resigned)	50 00	
Mrs. Margaret Davis, from 11th October at \$4.50 per week (part time)	163 50	
Glass-blowers, share of salaries detailed under Physiology	50 00	
		<u>\$5,538 50</u>
Pharmacy and Pharmacology:		
V. E. Henderson, Associate Professor, 12 months, to 30th June	\$2,500 00	
J. A. MacDonald, Instructor (Sessional)	200 00	
Class Assistants (Sessional):		
J. H. Duncan	75 00	
R. I. Harris	75 00	
F. C. Harrison	75 00	
D. E. S. Wishart	75 00	
T. James, Laboratory Assistant, 12 months, to 30th June..	650 00	
		<u>\$3,650 00</u>
Clinical Departments:		
Medicine and Clinical Medicine:		
Associates (each 12 months to 30th June):		
W. J. McCollum	\$300 00	
J. H. Elliott	300 00	
H. C. Parsons	300 00	
G. W. Howland	300 00	
H. S. Hutchison	300 00	
D. McGillivray	300 00	
Demonstrators, Clinical Medicine (Sessional):		
E. C. Burson	250 00	
F. A. Clarkson	250 00	
J. S. Graham	250 00	
J. H. McPhedran	250 00	
C. S. McVicar	250 00	
B. O'Reilly	250 00	
D. K. Smith	250 00	
G. S. Strathy	250 00	
C. J. Wagner	250 00	
A. J. Mackenzie	200 00	
R. W. Mann	200 00	
G. W. Ross	200 00	

46. Salaries.—Continued.

G. S. Young	200 00	
W. F. McPhedran (for services Oct. and Nov., 1912)	50 00	
Assistants, Clinical Medicine (Sessional):		
A. W. Canfield (Pediatrics)	150 00	
G. Boyer	100 00	
J. D. Loudon	100 00	
J. A. Oille (paid also in Pathology)	100 00	
M. B. Whyte	100 00	
		\$5,450 00
Surgery and Clinical Surgery:		
Associates, each 12 mos. to 30th June:		
C. B. Shuttleworth (paid also in Anatomy).....	300 00	
J. F. Uren	300 00	
T. B. Richardson.....	300 00	
W. W. Jones (paid also in Anatomy).....	300 00	
W. J. O. Malloch.....	300 00	
E. S. Ryerson (paid also as Assistant Secretary to Faculty)	300 00	
W. A. Scott (paid also in Anatomy).....	300 00	
G. Silverthorn	300 00	
Demonstrators, Clinical Surgery (Sessional):		
M. H. V. Cameron.....	200 00	
R. E. Gaby (paid also in Bio-Chemistry).....	200 00	
W. E. Gallie	200 00	
J. A. Roberts.....	200 00	
N. S. Shenstone (paid also in Anatomy).....	200 00	
G. E. Wilson (paid also in Anatomy).....	200 00	
A. B. Wright	200 00	
Assistants, Clinical Surgery (Sessional):		
A. S. Moorhead	100 00	
D. E. Robertson (paid also in Pathology).....	50 00	
W. W. Wright (paid also in Anatomy).....	50 00	
E. C. Williams, Laboratory Attendant, 1 Aug. to 30 June, at \$500 per an., of which one-half charged to Physiology	229 17	
		\$4,229 17
Obstetrics and Gynæcology:		
Demonstrators, Obstetrics (Sessional):		
M. M. Crawford	\$250 00	
J. A. Kinnear	250 00	
W. J. Mabee	200 00	
Demonstrators, Gynæcology (Sessional):		
A. C. Hendrick	250 00	
W. B. Hendry (paid also in Anatomy).....	250 00	
Helen MacMurchy	250 00	
Assistants, Obstetrics (Sessional):		
S. J. N. Magwood.....	150 00	
G. Gallie	50 00	
Assistant, Gynæcology (Sessional):		
F. A. Cleland	150 00	
A. Johnston, Laboratory Attendant, 12 mos. to 30th June (half time)	225 00	
		\$2,025 00
Ophthalmology and Otology:		
Assistants (Sessional):		
C. Campbell	\$100 00	
W. H. Lowry	100 00	
D. N. MacIennan	100 00	
		\$300 00
Oto-Laryngology:		
Assistants (Sessional):		
P. Goldsmith	\$150 00	
P. Goldsmith (for services Session 1912-13).....	100 00	
G. Royce	150 00	
G. Royce (for services Session 1912-13).....	100 00	
		\$500 00

46. *Salaries.*—Continued.

Therapeutics:		
Demonstrator, etc., Anaesthesia (Sessional):		
S. Johnston, Demonstrator	\$250 00	
R. J. MacMillan, Assistant	150 00	
Assistant in Therapeutics (Sessional):		
C. E. C. Cole (paid also in Pathology).....	150 00	
		\$550 00
Psychiatry:		
J. M. Forster, Associate, 12 mos. to 30th June.....	\$50 00	
H. Clare, Demonstrator (Sessional)	25 00	
		\$75 00
Dental Surgery:		
A. D. A. Mason, Demonstrator (Sessional).....	\$50 00	
		\$50 00
		\$13,179 17
Associate Professors (each 12 mos. to 30th June).		
H. B. Anderson, Clinical Medicine.....	\$700 00	
A. M. Baines, Clinical Medicine.....	700 00	
G. A. Bingham, Clinical Anatomy, etc.	700 00	
H. A. Bruce, Clinical Surgery.....	700 00	
J. T. Fotheringham, Medicine and Clinical Medicine.....	700 00	
A. Primrose, Clinical Surgery (paid also as Secretary to Faculty)	700 00	
F. N. G. Starr, Clinical Surgery.....	600 00	
W. B. Thistle, Clinical Medicine	600 00	
H. W. Aikins, Anatomy.....	450 00	
G. Chambers, Clinical Medicine.....	450 00	
R. J. Dwyer, Clinical Medicine	450 00	
A. R. Gordon, Clinical Medicine.....	450 00	
H. T. Machell, Obstetrics, etc.....	450 00	
W. McKeown, Clinical Surgery.....	450 00	
C. L. Starr, Clinical Surgery.....	450 00	
D. J. G. Wishart, Laryngology, etc.....	450 00	
J. M. MacCallum, Ophthalmology, etc.....	450 00	
K. C. McIlwraith, Obstetrics.....	450 00	
W. Goldie, Clinical Medicine.....	350 00	
F. W. Marlow, Gynaecology.....	350 00	
G. Boyd, Oto-Laryngology	350 00	
J. G. Fitzgerald, Hygiene (\$350, paid from special fund)...	.....
		\$10,950 00
Professors (each 12 mos. to 30th June):		
I. H. Cameron, Surgery and Clinical Surgery.....	\$1,050 00	
A. McPhedran, Medicine and Clinical Medicine.....	1,050 00	
J. A. Amyot, Hygiene	2,000 00	
R. D. Rudolf, Therapeutics.....	1,000 00	
B. P. Watson, Obstetrics and Gynaecology	1,000 00	
N. A. Powell, Medical Jurisprudence.....	700 00	
R. A. Reeve, Ophthalmology, etc. (retired 30th June)....	450 00	
G. R. McDonagh, Laryngology, etc. (retired 30th June)...	450 00	
G. S. Ryerson, Ophthalmology, etc.....	450 00	
G. H. Burnham, Ophthalmology, etc.....	450 00	
C. K. Clarke, Psychiatry (also Dean of Faculty).....	450 00	
N. H. Beemer, Mental Diseases (extra-mural—without salary) .....	.....
A. H. Wright, for services as Professor of Obstetrics during part of Session 1912-13.....	500 00	
		\$9,550 00
Secretary's Office:		
A. Primrose, Secretary to Faculty, 12 mos. to 30th June (paid also in Clinical Surgery).....	\$800 00	
E. S. Ryerson, Assistant Secretary, 12 mos. to 30th June (paid also in Clinical Surgery).....	500 00	

46. *Salaries.*—Continued.

Stenographers (each 12 mos. to 30th June):	
Miss E. A. Jamleson.....	900 00
Miss O. Russell.....	500 00
	\$2,700 00
	\$62,465 22

47. *Retiring Allowances.*

Retiring allowances to Emeritus Professors (limited to five annual payments):	
J. L. Davidson, final payment.....	\$500 00
F. Le M. Grasett, final payment	500 00
J. A. Temple, final payment.....	500 00
L. Teskey, final payment.....	500 00
W. T. Stuart, fourth payment.....	300 00
W. Oldright, fourth payment.....	250 00
A. H. Wright, second payment.....	250 00
	\$2,800 00

48. *Anatomical Department.*

Anatomical Material (\$1,615.70):

H. Cornish	\$32 00
Chas. A. Down	16 00
F. J. Hamon	16 00
D. J. Harris	80 00
Albert Ingram	32 00
F. W. Matthews	735 70
G. W. Morse	64 00
H. R. Ranks	368 00
N. J. Roadhouse	16 00
J. K. Shinn	64 00
Wm. Speers	192 00

Material for Preservation (\$336.85):

W. R. Brock Co., cloth.....	4 61
John Catto & Son, cloth.....	37 13
H. S. Eckels & Co., supplies.....	1 46
Ingram & Bell, chemicals.....	137 51
Inland Revenue Department, methylated spirits.. \$94 27	
Less allowance on barrels returned..... 11 15	
	83 12
Sanderson, Percy & Co., shellac.....	7 45
Freight charges	3 07
Superintendent's Dept., (boxes), labor, \$26.63; material, \$35.87.....	62 50

Incidentals (614.86):

Albert Allen, embryological supplies	5 20
Bridgens, Ltd., prints	10 00
John Catto & Son, material for aprons.....	111 91
J. F. Hartz Co., models	135 00
Ingram & Bell, medical supplies.....	81 69
Prof. J. P. McMurrich, petty disbursements.....	8 61
Miller Mfg. Co., coats	35 00
John W. Smith, drawings.....	17 50
Spencer Lens Co., slide cabinet.....	18 10
St. John's Hospital, S.S.J.D., aprons.....	32 00
United Typewriter Co., inspection	9 00
University Press, stationery and supplies.....	27 15
Victoria Paper and Twine Co., twine.....	3 20
Freight charges	2 21
Superintendent's Dept., labor, \$81.12; material, \$37.17....	118 29

\$2,567 41

49. *Pathology and Bacteriology.*

Chemicals and Supplies (\$770.12):	
Canadian Carbonate Co., gas.....	\$9 00
Dominion Carbonic Co., gas.....	45 00
Eimer & Amend, chemicals and supplies.....	440 21
Geo. W. Grant & Co., chemicals.....	3 00
Ingram & Bell, chemicals and supplies.....	158 65
Inland Revenue Department, methylated spirits..	\$61 45
Less allowance on barrels returned.....	7 85
	53 60
Ontario Rubber Co., tubing.....	88
J. G. Ramsay & Co., chemicals.....	7 93
Schering & Glatz, chemicals.....	12 93
Freight charges	38 92
Apparatus (\$257.45):	
Ingram & Bell	137 30
Ernst Leitz	30 87
Chas. Potter	5 25
T. G. Rice Wire Mfg. Co.....	32 00
Richards Bros.	21 65
Carl Zeiss	29 38
Superintendent's Dept., material.....	1 00
Care of Refrigerating Plant (\$150.00):	
Toronto General Hospital, for share of services of attendant	150 00
Incidentals (\$734.42):	
Aikenhead Hardware, Ltd., hardware.....	2 94
Art Metropole, paper	3 89
Bausch & Lomb Optical Co., supplies.....	5 03
Beardmore Belting Co., belting	25 41
Miss F. Cartwright, rabbits	5 10
Fletcher Mfg. Co., repairs	4 75
Geo. W. Grant & Co., oil.....	3 50
Lake Simcoe Ice Co., ice.....	25 57
Library Bureau of Canada, cards.....	6 16
Prof. J. J. Mackenzie, disbursements:	
Laboratory and office supplies, \$18.98; food for animals,	
\$18.06; car fares and postage, \$14.85; animals,	
\$14.50; animal house fixtures, \$11.55; groceries,	
\$4.19; sundries, \$5.87	88 00
T. J. McDonnell, animals	57 00
J. McGillian, fodder	70 60
Miss M. Mitchell, drawings.....	19 50
Ontario Agricultural College, animals.....	15 00
Thos. Painter & Son, cupboard.....	9 50
J. G. Ramsay & Co., photographic supplies.....	5 37
Wm. Staughton, fodder	84 82
Students' Book Dept., books	7 20
United Typewriter Co., typewriter, \$90.00; less allowance	
for old machine, \$20.00—\$70.00; of which \$30.00	
charged to Chemistry	40 00
University Press, printing and stationery.....	107 80
Freight charges	29 62
Petty items (5)	7 64
Superintendent's Dept., labor, \$52.83; material, \$57.19....	110.02
	1,911 99

50. *Chemical Pathology.*

Maintenance, Chemicals and Supplies (\$1,204.47):	
Canada Stamp and Stencil Co., stamp.....	\$2 50
Canada Consolidated Rubber Co., tubing.....	16 46
T. Eaton Co., pails	3 50
Eimer & Amend, chemicals	3 41
Emil Greiner Co., glassware.....	10 06
Ingram & Bell, basins	6 34
Prof. J. B. Leathes, disbursements:	
Laboratory supplies, \$8.20; groceries, etc., \$2.66;	
hardware, \$2.50; sundries, \$1.65.....	15 01

50. *Chemical Pathology.*—Continued.

Lyman Bros. & Co., chemicals.....	2 61	
Theodor Schuchardt, chemicals	169 51	
J. Stevenson & Son, tubes.....	6 00	
University Press, books	6 00	
Vereinigte Fabriken, glassware and supplies.....	609 23	
Freight charges	97 63	
Superintendent's Dept., labor, \$203.00; material, \$53.21..	256 21	
		<hr/>
		\$1,204 47

51. *Pharmacy and Pharmacology.*

Chemicals, Supplies and Apparatus (\$611.17):		
Allen Mfg. Co., laundry	\$1 99	
F. J. Burns & Co., frogs	2 63	
Ludwig Castagna, apparatus	26 01	
Eimer & Abend, motor	6 93	
J. A. Fontaine, frogs	32 00	
Harvard Apparatus Co., supplies	4 63	
Prof. V. E. Henderson, disbursements: Hardware, etc., \$13.32; animals, \$9.20; glassware, \$3.00; sundries, \$5.21	30 73	
Geo. M. Hendry Co., blackboard	5 88	
Ingram & Bell, instruments and supplies	18 27	
Lyman Bros. & Co., supplies	14 05	
J. McGillian, fodder	27 60	
Merck & Co., chemicals	47 09	
National Drug & Chemical Co., chemicals	5 45	
Ontario Rubber Co., tubing	4 70	
Photography, Dept. of, slides	2 50	
Purity Distilling Co., alcohol	21 82	
R. Robertson & Sons, cement	3 93	
Wm. Staughton, fodder	35 97	
C. Stewart, castings	3 00	
Toronto Dog and Cat Hospital, animals	53 00	
University Press, stationery	7 65	
Vereinigte Fabriken, apparatus	109 79	
Vokes Hardware Co., hardware	7 50	
Weston Electrical Instrument Co., apparatus	36 55	
Freight charges	14 86	
Superintendent's Dept., labor, \$26.74; material, \$71.75..	98 49	
		<hr/>
		\$623 02
Less received from sale of pamphlets.....	\$10 35	
Less rabbits supplied to Dept. of Hygiene....	1 50	
		<hr/>
		11 85
		<hr/>
		\$611 17

52. *Medicine.*

J. F. Hartz Co., apparatus	\$517 00	
Ingram & Bell, lens	2 50	
F. D. Mezen, glassware	6 00	
Office Specialty Mfg. Co., fyling cabinet	46 55	
Superintendent's Dept., material	65 00	
		<hr/>
		\$637 05

53. *Surgery.*

Supplies (\$112.19):		
Geo. M. Hendry & Co., blackboards	\$57 50	
Ingram & Bell, medical supplies	39 69	
Miller Mfg. Co., coats	15 00	
Apparatus (\$125.67):		
Frank S. Betz Co.	55 67	
J. F. Hartz Co.	70 00	
		<hr/>
		\$237 86

54 and 55. *Obstetrics and Gynæcology.*

Supplies (\$132.23):		
Alexander Fraser, medical supplies	\$98 44	
Ingram & Bell, medical supplies	5 95	
Freight charges	26 08	
Superintendent's Dept., labor, \$1.48; material, 28c.	1 76	
Apparatus (\$630.55):		
Ingram & Bell, scale	10 00	
Ernst Leitz, apparatus	329 63	
Medicinisches Waarenhaus, models	192 72	
Spencer Lens Co., apparatus	94 65	
Freight charges	3 55	
		<u>\$762 78</u>

56. *Ophthalmology.*

J. F. Hartz Co., apparatus	\$41 00	
		<u>\$41 00</u>

57. *Oto-Laryngology.*

Ingram & Bell, models	\$60 00	
Microscope Account, Dept. of Pathology, microscope	60 00	
Paul Seifert, model	46 50	
Toronto General Hospital, apparatus	230 90	
		<u>\$397 40</u>

58. *Therapeutics.*

Baird & Tatlock, Ltd., apparatus	\$31 09	
Burroughs, Wellcome & Co., appliances	6 37	
Hupfeld, Lüdeking & Co., apparatus	8 47	
Ingram & Bell, appliances	16 58	
J. Stevenson & Son, syringes	6 15	
Petty items (2)	2 79	
Freight charges	20	
		<u>\$71 65</u>

59. *Hygiene.*

T. Eaton Co., supplies	\$9 60	
Wm. Fenton, baskets	10 00	
Ingram & Bell, chemicals and supplies	180 30	
Thos. James, shelving	6 00	
University Press, stationery	7 80	
Petty items (3)	4 90	
Superintendent's Dept., labor, \$10.39; material, \$9.25.....	19 64	
		<u>\$238 24</u>

60. *Medical Jurisprudence.*

(Nothing Spent.)

61. *Medical Building.*

Heat and light (supplied from Central Power Plant):	
Gas, city current and occasional fuel (\$189.70):	
Consumers' Gas Co.	\$189 70
Water (\$179.26):	
City Treasurer	179 26
Caretaker's supplies (\$79.13):	
Superintendent's Dept., supplies	79 13
Cleaning (\$848.93):	
Allen Mfg. Co., laundry	8 88
Canadian Window Cleaning Co., cleaning windows	40 00
Superintendent's Dept., labor	800 05

61. *Medical Building.*—Continued.

Repairs and Renewals (\$1,398.82):	
Wm. Bartlett & Son, shades	15 92
Wm. Card, exterminating rats	12 00
City Treasurer, elevator license	5 00
A. Matthews Ltd., repairs to roof	5 70
R. Robertson & Sons, masonry	24 57
Routery Bros., plastering	35 55
Superintendent's Dept., labor, \$857.46; material, \$442.62..	1,300 08
	<hr/>
	\$2,695 84
Less sundry credits: cleaning, 50c.; repairs, \$22.26....	22 76
	<hr/>
	\$2,673 08
Caretaker, Thos. Motton, 12 mos. to 30th June	800 00
	<hr/>
	\$3,473 08

62. *Pathological Building.*

Fuel and light (\$4,000.00):	
Toronto General Hospital, on account of heat and light supplied (subject to adjustment)	\$4,000 00
Gas and City Current (\$349.30):	
Consumers' Gas Co.	349 30
Water (\$116.25):	
City Treasurer	116 25
Caretaker's Supplies (\$96.37):	
Superintendent's Dept., supplies	96 37
Cleaning (\$710.95):	
Allen Mfg. Co., laundry	14 97
Canadian Window Cleaning Co., cleaning windows	24 00
Superintendent's Dept., labor	671 98
Repairs and Renewals (\$948.05):	
R. Robertson & Sons, masonry	57 55
Routery Bros., plastering	2 15
Superintendent's Dept., labor, \$579.44; material, \$303.91....	888 35
	<hr/>
	\$6,220 92
Less credit, repairs	80
	<hr/>
	\$6,220 12
Caretaker, Alex. Wilson, 12 months to 30th June, \$700.00 (of which \$400.00 charged as laboratory attendant)	300 00
	<hr/>
	\$6,520 12

63. *General Expenses.*

Stationery, printing, postage and office supplies (\$1,362.27):	
American Medical Association, directory	\$7 06
The Bursar, postage supplied	247 64
Canadian Multipost Co., stamping machine	25 00
F. C. Flannery, envelope sealer	2 50
Harcourt & Sons, gowns	28 00
Might Directories, Ltd., city directory	10 00
United Typewriter Co., inspection and supplies	27 00
University Press, calendar, printing and stationery	863 80
Superintendent's Dept., labor, \$12.17; material, \$51.60....	63 77
Medals and engraving	87 50
Appropriation for Dean's office (\$640.75):	
Dr. C. K. Clarke, various disbursements	640 75
	<hr/>
	\$2,003 02
Less returned by Dr. A. Primrose of advance made in 1912-13	8 94
	<hr/>
	\$1,994 08

Special Fund for Medical Research.

Salaries (\$8,586.68):

W. Goldie, Director of Medical Clinic of Out-patient Department, 15th October to 30th June at \$2,000.00 per annum	\$1,416 68	
Research Fellows:		
R. G. Armour, 12 months	1,500 00	
A. H. Caulfeild, 12 months	1,500 00	
W. F. McPhedran, 12 months	1,500 00	
C. Imrie, 3 months at \$750.00, \$187.50; 9 months at \$1,000.00, \$750.00	937 50	
N. C. Sharp, 9 months to 30th June at \$1,000.00	750 00	
K. M. B. Simon, 9 months to 30th June at \$750.00	562 50	
C. Greenwood, Laboratory Attendant, 12 months to 30th June at \$35.00 per month	420 00	
Laboratory Expenses and Equipment (\$793.35):		
Crofton Storage Battery Co., battery	12 00	
Elmer & Amend, chemicals	18 26	
J. Hope, white mice	11 10	
Ingram & Bell, apparatus and supplies	273 93	
F. & M. Lautenschlager, apparatus and supplies	179 73	
Prof. J. B. Leathes, disbursements: Animals, \$34.00; chemicals, absorbent cotton, etc., \$13.99; sundries, .70	48 69	
Leeds & Northrup Co., apparatus	107 25	
T. S. Plaskett, electrical work	16 08	
Richards Bros., apparatus	13 00	
Spencer Lens Co., instruments	16 30	
Wm. Staughton, fodder	5 49	
A. H. Thomas Co., syringes	8 60	
R. B. Turner, syringes	14 84	
University Press, circulars	5 00	
Wm. Woodley & Sons, apparatus	56 58	
Freight charges	2 67	
Petty items (3)	2 88	
Superintendent's Dept., material	95	
Charged to Medical Research Fund (Schedule 4a)	\$9,380 03	
		<u>\$85,933 52</u>

IV. FACULTY OF APPLIED SCIENCE.

64. Salaries.

Engineering.

J. Galbraith, Professor (also Dean of Faculty), 12 mos. to 30th June	\$4,500 00	\$4,500 00
		<i>Electrical Engineering.</i>
T. R. Rosebrugh, Professor, 12 mos. to 30th June	\$3,600 00	
H. W. Price, Associate Professor, 12 mos. to 30th June	2,300 00	
Lecturers (Sessional):		
W. S. Guest	1,300 00	
R. H. Hopkins	1,200 00	
A. R. Zimmer	1,200 00	
Demonstrators (Sessional):		
R. Taylor	900 00	
O. F. Adams	800 00	
R. J. Allan	800 00	
W. B. Buchanan	800 00	
F. Robbins, Electrician, 12 mos. to 30th June	750 00	
J. H. Challacombe, Assistant Electrician, 12 mos. to 30th June. Laboratory Attendant at \$400 per annum:	550 00	
V. W. Colmer, 1st July to 30th Sept. (resigned)	100 00	
E. Challacombe, 1st Oct. to 30th June	300 00	
		<u>\$14,600 00</u>

Mechanical Engineering.

R. W. Angus, Professor, 12 mos. to 30th June.....	\$2,900 00	
Lecturers (Sessional):		
L. M. Arkley	1,700 00	
J. J. Traill	1,500 00	
J. T. Lagergren	1,500 00	
M. B. Jackson, Jr.	1,300 00	
Demonstrators (Sessional):		
J. H. Parkin	900 00	
D. J. Thomson	800 00	
F. Hickey, Machinist, 10 mos. salary.....	850 00	
R. Fullerton, Engineer of Experimental Plant, 12 mos. to 30th June.....	750 00	
T. J. Pope, Laboratory Fireman, 8 mos. salary.....	400 00	
G. S. Laing, Laboratory Assistant, 12 mos. to 30th June.....	720 00	
		\$13,320 00

Applied Mechanics.

J. McGowan, Associate Professor, 12 mos. to 30th June.....	\$2,800 00	
P. Gillespie, Associate Professor, 12 mos. to 30th June.....	2,300 00	
C. R. Young, Assistant Professor, 12 mos. to 30th June.....	2,000 00	
A. T. Laing, Lecturer (Sessional—part time; paid also as Secretary to Faculty)	400 00	
Demonstrators (Sessional):		
R. J. Marshall	1,100 00	
A. Young	900 00	
W. K. Simpson, Mechanician, 12 mos. to 30th June.....	1,200 00	
J. J. Brown, Laboratory Attendant, 9 mos. salary.....	400 00	
		\$11,100 00

Mining Engineering.

H. E. T. Haultain, Professor, 12 mos. to 30th June	\$3,400 00	
F. C. Dyer, Lecturer (Sessional)	1,200 00	
J. T. King, Demonstrator (Sessional)	1,000 00	
A. L. Steele, Assistant (Sessional)	700 00	
E. Tozer, Laboratory Assistant, 12 mos. to 30th June	650 00	
C. Waybrant, Laboratory Attendant, 8 mos. salary	350 00	
		\$7,300 00

Metallurgical Engineering.

G. A. Guess, Professor, 12 mos. to 30th June	\$3,250 00	
W. S. Bishop, Lecturer at \$1,400 (Sessional—paid from special fund) .....	.....
W. Meade, Laboratory Attendant, 15 Sept. to 4 May at \$35 per month	267 17	
		\$3,517 17

Ferro-Metallurgy.

T. R. Loudon, Lecturer (Sessional)	\$1,800 00	
		\$1,800 00

Surveying.

L. B. Stewart, Professor, 12 mos. to 30th June	\$3,600 00	
W. M. Treadgold, Assistant Professor, 12 mos. to 30th June	2,100 00	
Lecturers (Sessional):		
S. R. Crerar	1,500 00	
E. W. Banting	1,300 00	
J. T. Ransom, Demonstrator (Sessional)	800 00	
Fellows (Sessional) at \$500:		
J. H. Curzon, $\frac{3}{8}$ of \$500, balance in Drawing	187 50	
F. R. Scandrett, $\frac{3}{8}$ of \$500, balance in Drawing	187 50	
		\$9,675 00

Applied Chemistry.

W. H. Ellis, Professor, 12 mos. to 30th June	\$4,000 00	
J. W. Bain, Associate Professor, 12 mos. to 30th June	2,800 00	
Assistant Professors, each 12 mos. to 30th June:		
E. G. R. Ardagh, Analytical Chemistry	2,000 00	
M. C. Boswell, Organic Chemistry	2,000 00	
L. J. Rogers, Demonstrator (Sessional)	1,000 00	
J. B. Coghill, Assistant (Sessional)	600 00	
Fellows (Sessional) at \$500:		
W. A. Davidson	500 00	
M. E. Nasmith (resigned 31st January)	250 00	
A. R. Duff (1st Feb. to 31st May).....	250 00	
H. M. Lancaster, Special Lecturer in Sanitary Chemistry (Sessional—part time)	300 00	
G. E. Leworthy, Lecture Assistant and Glass-blower (Sessional)	750 00	
D. Sinclair, Laboratory Assistant, 12 mos. to 30th June	950 00	
Laboratory Attendant:		
M. O'Bryan, 1st July to 30th Sept. at \$350 per an. (resigned)	87 50	
R. Spence, 6th Oct. to 30th June at \$300 per ann.	222 36	
		\$15,709 86

Electro-Chemistry.

J. T. Burt-Gerrans, Lecturer (Sessional)	\$1,300 00	
H. Brownlee, Demonstrator (Sessional)	800 00	
M. O'Brien, Laboratory Attendant, 9 mos. salary.....	200 00	
		\$2,300 00

Architecture and Drawing.

(a) Architecture:		
C. H. C. Wright, Professor, 12 mos. to 30th June	\$3,600 00	
A. W. McConnell, Lecturer (Sessional), at \$1,800 (on leave of absence on two-thirds salary)	1,200 00	
Instructors (Sessional):		
J. M. Lyle, substitute during absence of Lecturer, \$500; instruction to night classes in Architecture, \$500..	1,000 00	
J. L. Banks, Modelling	600 00	
C. W. Jefferys, Freehand Drawing and Water Colour ..	600 00	
		\$7,000 00
(b) Drawing:		
C. H. C. Wright, Professor (paid as Professor of Architecture)		
J. R. Cockburn, Assistant Professor, Descriptive Geometry, 12 mos. to 30th June	2,100 00	
Demonstrators (Sessional):		
L. T. Rutledge, \$1,000; instruction to night classes in Architecture, \$75	1,075 00	
W. J. Smither	1,000 00	
H. H. Madill, \$900; instruction to night classes in Architecture, \$225	1,125 00	
F. E. Watson	900 00	
G. K. Williams	900 00	
L. A. Badgeley	800 00	
J. S. Galbraith	800 00	
J. T. Howard	800 00	
W. H. Martin	800 00	
Fellows (Sessional) at \$500:		
G. E. Squire	500 00	
W. S. Wickens	500 00	
G. R. Workman	500 00	
J. H. Curzon ($\frac{2}{3}$ of \$500, balance in Surveying)	312 50	
F. R. Scandrett ($\frac{2}{3}$ of \$500, balance in Surveying)	312 50	
Miss J. C. Laing, Assistant and Stenographer, 12 mos. to 30th June	650 00	

64. *Salaries.*—Continued.

Attendants in Drafting Rooms, each 9 mos. salary:

G. Brown, \$500; additional for night classes in Architecture, \$50	550 00
C. J. Mead	350 00

 \$20,975 00

Less charged to night classes in Architecture (Section 78) 850 00

 \$20,125 00
Engineering Physics and Photography.

G. R. Anderson, Associate Professor, 12 mos. to 30th June	\$2,300 00
G. L. Wallace, Demonstrator (Sessional)	900 00
W. C. Murdie, Fellow (Sessional)	500 00
Photographers at \$60 a month, each 9 mos. salary:	
A. J. Burge	540 00
E. Collier	540 00

 \$4,780 00
Special Lectures.

W. S. Ferguson, Lecturer in Accountancy (Sessional)	\$500 00
J. M. Langstaff, Lecturer in Company Organization (Sessional)	400 00

 \$900 00
Secretary's Office.

A. T. Laing, Secretary to Faculty and Librarian, 12 mos. to 30th June (paid also in Applied Mechanics)	\$2,000 00
Miss A. J. Rickard, Assistant to Secretary, 12 mos. to 30th June	800 00
Stenographers:	
Miss R. Cave, 12 mos. to 30th June.....	650 00
Miss E. Myers, occasional, 36½ weeks at \$11	400 00

 \$3,850 00

 \$113,477 03
65. *Chemistry and Mining Building.*

Heat and light (supplied from Central Power Plant):

Gas, city current and occasional fuel (\$543.76):

Consumers' Gas Co.	\$543 76
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Water (\$153.65):

City Treasurer	153 65
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Caretaker's Supplies (\$179.46):

Superintendent's Dept., supplies	179 46
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Cleaning (\$1,482.01):

Allen Mfg. Co., laundry	13 18
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Canadian Window Cleaning Co., cleaning windows	30 00
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Superintendent's Dept., labor	1,438 83
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Repairs and Renewals (\$1,936.43):

Wm. Bartlett & Son, shades	36 44
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Wm. Card, exterminating rats	12 00
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City Treasurer, elevator license	10 00
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Johnson Temperature Regulating Co., repairs to regulators	57 58
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A. Matthews, Ltd., repairs to roof	310 50
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R. Robertson & Sons, masonry	16 78
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Superintendent's Dept., labor, \$987.51; material, \$505.62..	1,493 13
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 \$4,295 31

Less sundry credits: cleaning, \$21.00; repairs, \$111.43

 132 43

 \$4,162 88

Caretaker, E. Bishop, 12 mos. to 30th June

950 00

Messengers (\$166.33):

John Brown, 15 weeks 2 days at \$4.00	61 33
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Chas. Kinwood, 21 weeks at \$4.00	84 00
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C. McGee, 4 weeks 4 days at \$4.50	21 00
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 \$5,279 21

66. *Engineering Building.*

Heat and light (supplied from Central Power Plant):	
Gas, city current and occasional fuel (\$35.56):	
Consumers' Gas Co.	\$35 56
Water (\$71.41):	
City Treasurer	71 41
Caretakers' Supplies (\$154.54):	
Superintendent's Dept., supplies	154 54
Cleaning (\$1,491.40):	
Allen Mfg. Co., laundry	9 78
Canadian Window Cleaning Co., cleaning windows	35 00
Superintendent's Dept., labor	1,446 62
Repairs and Renewals (\$1,226 76):	
Wm. Bartlett & Son, shades	14 04
Wm. Card, exterminating rats	12 00
Elevator Specialty Co., repairs	17 35
Matthews Bros., repairing walls	12 20
A. Matthews, Ltd., repairing roof	89 36
R. Robertson & Sons, masonry	12 21
Routery Bros., plastering	11 00
Superintendent's Dept., labor, \$607 34; material, \$451.26...	1,058 60
	<hr/>
	\$2,979 67
Less sundry credits: cleaning, \$11.00; repairs, \$33.14	44 14
	<hr/>
	\$2,935 53
Caretakers (\$600.00):	
W. J. Graham, 12 mos. to 30th June (reduced service)	\$500 00
S. J. Apted (supervision)	100 00
Messenger (\$213.75):	
C. McGee, 47 weeks 3 days at \$4.50	213 75
	<hr/>
	\$3,749 28

67. *Thermodynamics Building.*

Heat and light (supplied from Central Power Plant):	
Fuel for Experimental Plant (\$650.00):	
Connell Anthracite Mining Co.	\$650 00
Gas, city current and occasional fuel (\$7.56):	
Consumers Gas Co.	7 56
Water (\$128.11):	
City Treasurer	128 11
Caretaker's Supplies (\$62.12):	
Superintendent's Dept., supplies	62 12
Cleaning (\$108.21):	
Allen Mfg. Co., laundry	3 71
Canadian Window Cleaning Co., cleaning windows	17 00
Superintendent's Dept., labor	87 50
Repairs and Renewals (\$851.15):	
Wm. Card, exterminating rats	12 00
Elevator Specialty Co., repairs	51 84
R. Robertson & Sons, masonry	59 90
Superintendent's Dept., labor, \$373.45; material, \$353 96....	727 41
	<hr/>
	\$1,807 15
Less sundry credits for repairs	52 06
	<hr/>
	\$1,755 09

68. *Geodetic Observatory Building.*

Heat and light (supplied from Central Power Plant):	
Water (\$25.00):	
City Treasurer	\$25 00
Caretakers' Supplies (\$21.99):	
Superintendent's Dept., supplies	21 99

68. *Geodetic Observatory Building.*—Continued.

Cleaning (\$148.50):	
Superintendent's Dept., labor	148 50
Repairs and Renewals (\$226.32):	
Wm. Mallott Weather Strip Co., weather stripping	34 00
Murray-Kay, Ltd., cork carpet	45 93
Superintendent's Dept., labor, \$53.60; material, \$92.79....	146 39
	\$421 81

69. *Electrical Engineering.*

Supplies (\$1,847.43):	
Aikenhead Hardware, Ltd., hardware	\$171 38
Mervin Armstrong, couplings	22 00
Baines & Peckover, galvanized iron	8 91
Bausch & Lomb Optical Co., supplies	21 67
British Aluminium Co., aluminum	8 75
R. J. Campbell, signs	6 55
Canadian General Electric Co., electrical supplies	428 17
Canadian Kodak Co., photographic supplies	96 65
Canadian Westinghouse Co., oil and supplies	64 19
Consolidated Bag and Paper Co., cutter	4 75
Consolidated Plate Glass Co., glass	5 72
Dean Bros., castings	8 63
E. Dietzgen Co., paper	2 59
Dodge Mfg. Co., pulley	3 42
T. Eaton Co., cloth	30 40
Engineering Society, supplies	16 41
Galloway Taylor & Co., castings	15 35
General Electric Review publications	16 10
J. A. Goddard, cartage	12 00
Ingram & Bell, tubing	5 25
Kilmer, Pullen and Burnham, brushes	16 20
H. W. Knight & Co., tubing	13 20
Lester Storage and Cartage Co., cartage	13 70
Lyman Bros. & Co., chemicals	32 13
H. Maunder & Co., enamelling	4 26
Metallurgical Engineering, Dept. of, tube	2 00
F. D. Mezen, glass blowing	7 00
Moir & Warren, binders	27 50
James Morrison Brass Mfg. Co., hardware	45 84
Northern Electric & Mfg. Co., wire	8 89
Ontario Rubber Co., tubing	7 62
Patterson & Heward, figures	3 76
Photography Dept. of, prints	12 25
J. G. Ramsay & Co., photographic supplies	7 20
Rogers Electric Co., switches	23 25
Prof. T. R. Rosebrugh, disbursements:	
Hardware, \$67.03; supplies, \$37.24; car fares, \$21.00; dry goods, \$10.60; express and cartage, \$3.55; sun- dries, \$10.50; . . .	149 92
Prof. T. R. Rosebrugh, paid W. P. Dobson for out of town expenses <i>re</i> research work.....	7 50
Russill Hardware, Ltd., netting	4 74
Sanderson, Percy & Co., paint	9 51
Carl Schleicher & Schull, paper	30 15
Students' Book Dept., text-books	64 30
Toronto Hydro-Electric System, filter paper	3 40
Trumbull Electrical Mfg. Co., slate	2 40
University Press, supplies	4 90
Wells Pattern and Machine Works, patterns.....	3 25
Westinghouse Electric & Mfg. Co., repairs.....	48 90
Weston Electrical Instrument Co., repairs	33 98
J. T. Wilson, Ltd., pans	4 50
A. H. Winter-Joyner, Ltd., lamps.....	6 57
10 B.G.	

69. *Electrical Engineering.*—Continued.

Freight charges	25	23
Petty items (8)	11	29
Superintendent's Dept., labor, \$178.41; material, \$84.79	263	20
Apparatus (\$1,988.51):		
Aikenhead Hardware, Ltd., tachometer	\$144	06
Mervin Armstrong, base for generator	29	82
S. G. Brown, apparatus	146	50
Canada Cycle & Motor Co., wheel pulley	6	00
Canadian General Electric Co., motors	80	48
Canadian Westinghouse Co., generators	438	50
John Chaitlon & Sons, scale	12	10
Driver Harris Wire Co., apparatus	23	70
Edison Storage Battery Co., apparatus parts	29	55
Electric Storage Battery Co., battery	7	81
Electro Importing Co., apparatus parts	53	00
J. A. Goddard, cartage on apparatus	14	00
Holtzer Cabot Electric Co., meter	36	15
Leeds & Northrup, galvanometer	20	70
F. D. Mezen, glass apparatus	31	00
Moir & Warren, punch	21	00
James Morrison Brass Mfg. Co., terminals	34	55
National Electric Heating Co., heaters	30	00
Radio Apparatus Co., apparatus	60	15
Rogers Electric Co., apparatus	77	08
Siemens Co. of Canada, apparatus	144	00
Thordarson Electric Mfg. Co., transformers	50	15
Triple Tread Mfg. Co., batteries	15	75
Weston Electrical Instrument Co., apparatus	357	24
A. R. Williams Machinery Co., apparatus	45	00
Freight charges	80	22
Furniture, printing and incidentals (\$295.23):		
T. H. Hancock, tables	34	00
Macey Office Equipment Co., cabinet and guides	54	56
G. N. Reynolds & Co., cabinet	28	40
University Press, instruction sheets, etc.	74	25
Superintendent's Dept., labor, \$55.89; material, \$48.13	104	02
	\$4,131	17
Less received from students for damages to apparatus	54	00
	\$4,077	17

70. *Mechanical Engineering.*

Supplies (\$600.06):		
Aikenhead Hardware, Ltd., hardware	\$139	40
Prof. W. R. Angus, disbursements:		
Laboratory and office supplies, \$14.30; repairs, \$6.25;		
oil, \$5.40; sundries, \$4.91	30	86
Applied Chemistry, Dept. of, glassware	4	00
Beardmore Belting Co., belting	8	00
Philip Carey Co., cement	10	00
Crosby Steam Gauge & Valve Co., gauge	8	56
Eimer & Amend, glassware and supplies	74	75
Engineering Society, supplies	16	54
Garlock Packing Co., packing	39	49
Ingram & Bell, mercury	4	54
Lyman Bros. & Co., mercury	3	88
Lumen Bearing Co., castings	11	46
McColl Bros. & Co., oil	31	12
James Morrison Brass Mfg. Co., valve	2	20
Ontario Rubber Co., tubing	3	40
Photography, Dept. of, prints	17	15
Students' Book Dept., book	2	25

70. *Mechanical Engineering.*—Continued.

University Press, printing and stationery	48 90	
John Whitfield & Co., castings	12 50	
Freight charges	4 52	
Petty items (2)	1 95	
Superintendent's Dept., labor, \$16.26; material, \$108.33....	124 59	
Apparatus (\$1,310.55):		
W. H. Banfield & Sons, steel stamp	5 00	
Canadian Fairbanks-Morse Co., scale	31 10	
Canadian General Electric Co., fan	10 00	
Canadian Westinghouse Co., apparatus	290 50	
Eimer & Amend, balance	48 50	
Goddard Bros., cartage on apparatus	7 20	
Geo. M. Hendry Co., blackboard	5 15	
John Inglis Co., apparatus	475 50	
R. G. Kirby, table	34 90	
Macey Office Equipment Co., furniture	22 50	
Northern Electric and Mfg. Co., voltmeter	25 07	
Office Specialty Mfg. Co., cabinet	44 59	
Purdy, Mansell, Ltd., piping	14 50	
Remington Typewriter Co., typewriter and desk	118 22	
Ryrie Bros., watch	11 00	
Students' Book Dept., text-books	12 80	
Torsion Balance Co., scale	40 15	
White & Thomas, tray	5 00	
Freight charges	5 29	
Petty items (2)	2 50	
Superintendent's Dept., labor, \$64.51; material, \$36.57	101 08	
Proportion of fuel for Experimental Plant (\$741.70):		
Connell Anthracite Mining Co., fuel	741 70	
		\$2,652 31

71. *Applied Mechanics.*

Supplies (\$346.00):		
Aikenhead Hardware Ltd., hardware	\$98 61	
Bains & Peckover, steel	20 83	
Britnell & Co, stone and cement	20 90	
Dean Bros., castings	0 63	
Frazer Storage Co., cartage	6 50	
W. & J. G. Greey, iron	22 58	
Rice Lewis & Son, iron	23 48	
Photography, Dept. of, slides	22 30	
Steel & Radiation, metal	4 05	
Freight charges	8 50	
Superintendent's Dept., labor, \$35.12; material, \$77.50....	112 62	
Apparatus (\$859.55):		
Canada Furniture Manufacturers Ltd., chairs	24 70	
Canadian Fairbanks-Morse Ltd., meter	14 60	
A. C. Champagne, charts	3 15	
A. Chevojon, charts	5 80	
Dean Bros., apparatus parts	21 50	
Eimer & Amend, balances	166 75	
Elevator Specialty Co., repairs to apparatus	8 15	
Howard & Morse, motor and apparatus	199 95	
G. Koppmann & Co., charts	11 87	
Macey Office Equipment Co., fying cabinet	30 76	
Geo. Murphy Inc., album for prints	23 05	
Office Specialty Mfg. Co., book cases	65 25	
Students' Book Dept., text-books	46 40	
Wetlaufer Bros., crusher	228 40	
Freight charges	0 72	
Superintendent's Dept., labor, \$6.12; material, \$2.38	8 50	
		\$1,205 55

72. Mining.

Supplies (\$1,411.09):

Paul O. Abbé, pebbles	\$9 99
Aikenhead Hardware Ltd., hardware	95 79
Wm. Ainsworth & Sons, weights	56 51
Baird & Tatlock Ltd. glassware and supplies	164 79
Boeckh Bros. & Co., brushes	21 83
Braun Corporation, plates	39 40
R. J. Campbell, signs	4 00
Canadian General Electric Co., lamps	25 56
Central Electric Supply Co., switches	17 20
Contractors Supply Co., lime	7 48
Denver Fire Clay Co., fire clay and supplies	112 15
Domes Mines Ltd., ore	15 00
Dominion Paper Box Co., trays	3 75
Driver Harris Wire Co., wire	8 05
W. A. Drummond & Co., measures	4 50
T. Eaton Co., supplies	64 44
Eimer & Amend, chemicals and supplies	26 86
Fletcher, Russell & Co., trays	36 49
Gowans, Kent & Co., jars	12 17
Grand & Toy, Ltd., stationery	28 15
Prof. H. E. T. Haultain, petty disbursements	1 79
Kingston Feldspar and Mining Co., ore	6 52
Lyman Bros. & Co., chemicals	24 04
A. Matthews, pans	22 00
F. D. Mezen, glass blowing	15 00
Mussens, Ltd., hammers	11 40
Office Specialty Mfg. Co., guide cards	7 16
Ontario Rubber Co., tubing	25 01
Photography, Dept. of, slides and prints	29 60
Reid & Brown, iron	10 50
S. Robertson, sharpening steel	20 00
Elias Rogers Co., coal	40 50
Rogers Electric Co., batteries	8 28
Rogers Supply Co., sand and cement	19 73
Scythes & Co., bags	21 00
Sturtevant Mill Co., discs	24 30
Superior Mfg. Co., rubber stamps	6 25
F. G. Terry Co., fire brick	8 70
W. S. Tyler Co., paper	10 10
University Press, stationery and supplies	45 95
Vinegar Hill Zinc Co., lead	14 10
J. Wearing Refining Co., silver	7 50
Petty items (7)	12 34
Freight charges	134 40
Superintendent's Dept., labor, \$57.58; material, \$73.23	130 81
Apparatus (\$1,993.52):	
Baird & Tatlock, Ltd., apparatus	124 25
Canadian Allis-Chalmers, Ltd., work on apparatus	15 00
Denver Fire Clay Co., apparatus	35 15
Dodge Mfg. Co., apparatus parts	61 89
T. Eaton Co., stools and carpet	56 05
Fletcher, Russell & Co., apparatus	17 15
B. Greening Wire Co., wire screens	19 76
A. Matthews, Ltd., apparatus parts	122 62
F. D. Mezen, glass apparatus	10 25
G. C. Mooring, completing tube mill, \$370.93; apparatus \$226.53	597 46
Norton Company, tube	9 81
Office Specialty Mfg. Co., cabinet	6 00
Reid & Brown, apparatus parts	10 80
S. Robertson, apparatus	43 25
Rogers Electric Co., apparatus parts	17 58
Taylor Instrument Companies, apparatus	12 60

72. *Mining.*—Continued.

Torsion Balance Co., balances	26 10
W. S. Tyler Co., sieves	88 05
Varsity Cycle Works, apparatus parts	8 40
Weston Electrical Instrument Co., ammeter	37 42
Petty items (2)	6 13
Freight charges	22 25
Superintendent's Dept., labor, \$420.72; material, \$224.83 ..	645 55
	<hr/>
	\$1,993 52
Less credit for apparatus broken in transit	6 24
	<hr/>
	\$1,987 28
	<hr/>
	\$3,398 37

73. *Metallurgical Engineering.*

Supplies (\$837.89):

Baker & Co., platinum wire	\$107 44
Eimer & Amend, chemicals and supplies	274 86
Prof. G. A. Guess, disbursements:	
Supplies, \$37.13; oil, paints, etc., \$27.96; labor, \$9.98;	
crucibles, \$4.20; sundries, \$4.26; disbursed in pre-	
vious year and not recouped, \$4.30; balance un-	
expended returned in 1914-15, \$12.17	100 00
Imperial Oil Co., oil	6 40
E. H. Sargent & Co., chemicals	6 19
Standard Calorimeter Co., chemicals	3 53
Toronto Silver Plate Co., silver	6 65
University Press, printing, etc.	15 20
Petty items (3)	4 70
Freight charges	39 75
Superintendent's Dept., labor \$217.86; material, \$55.31 ..	273 17

Apparatus (\$1,086.06):

Aikenhead Hardware Ltd., tools	64 66
Wm. Ainsworth & Son, balances	172 15
Canadian Copper Co., apparatus	81 21
Canadian General Electric Co., motor	41 00
Canadian Hoskins Ltd., meters	45 00
Eimer & Amend, silica tubes	25 90
Fletcher Mfg. Co., copper tubes	7 39
Fletcher, Russell & Co., furnace	75 00
German-American Stoneware Works, tanks	15 24
B. Greening Wire Co., sieves	10 44
Norton Company, apparatus	7 34
Plastics, Ltd., apparatus	37 96
Petty items (3)	7 58
Freight charges	18 34
Superintendent's Dept., labor, \$225.45; material, \$251.30..	476 75

Fitting up Laboratory for Ceramics (\$283.64):

Paul O. Abbé, assay mill	20 10
Canadian Fairbanks-Morse Co., scale	17 50
Canadian Porcelain Co., moulds	4 25
Superintendent's Dept., labor, \$193.76; material, \$48.03	241 79

\$2,207 59

Less cost of tube supplied to Dept. of Electrical Engineer-	
ing	2 00

\$2,205 5974. *Ferro-Metallurgy.*

Supplies (\$45.75):

Photography, Dept. of, prints	\$26 60
Students' Book Dept., books	19 15

74. *Ferro-Metallurgy.*—Continued.

Apparatus (\$92.59):	
Acheson Graphite Co., electrodes	16 85
Dean Bros., apparatus parts	9 50
Northern Electric and Mfg. Co., cable	25 74
Thor Iron Works, Ltd., apparatus	23 50
Weston Electrical Instrument Co., repairs to apparatus..	5 26
Petty items (3)	5 39
Freight charges	1 35
	<hr/>
	\$138 34

75. *Surveying.*

Supplies (\$223.76):	
Art Metropole, linen	\$15 05
Consolidated Optical Co., surveyor's supplies.....	126 22
Engineering Society, stationery and supplies.....	9 55
Keuffel & Esser, tools	12 60
Rice Lewis & Son, mallets.....	10 20
Superior Mfg. Co., rubber stamps.....	2 94
Freight charges	8 58
Superintendent's Dept., labor, \$27.50; material, \$11.12....	38 62
Apparatus (\$616.04):	
Bausch & Lomb Optical Co., chronograph.....	148 95
Philip Harris & Co., thermometers.....	24 79
A. Johnston, transit	150 00
Keuffel & Esser, apparatus	230 22
Superintendent's Dept., labor, \$42.96; material, \$19.12....	62 08
Cartage, etc. (\$81.10):	
Frazer Storage & Cartage Co., cartage.....	21 00
Prof. L. B. Stewart, car fares for staff to and from High Park.....	15 10
W. J. Stinson, two months' storage of instruments at High Park.....	45 00
	<hr/>
	\$920 90

76. *Chemistry.*

Supplies (\$1,988.70):	
American Platinum Works, platinum.....	\$20 33
Prof. J. W. Bain, disbursements:	
Hardware, paint, glass, etc., \$5.75; cotton and rubber tape, \$1.92; sundries, \$4.20.....	11 87
Baird & Tatlock, Ltd., chemicals.....	232 76
Baker & Adamson Chemical Co., chemicals.....	4 63
J. Bishop & Co., crucibles, wire, etc.....	23 37
Black Lake Asbestos Co., asbestos.....	9 18
Boeckh Bros. & Co., brushes.....	6 40
Canada Metal Co., tin.....	5 64
Central Electric Supply Co., supplies.....	2 20
Driver Harris Wire Co., wire.....	2 72
T. Eaton Co., fyle and cards	11 88
Eimer & Amend, chemicals, glassware and supplies	678 49
Eureka Mineral Wool Co., asbestos.....	10 39
Fletcher Mfg. Co., casing and repairs.....	96 00
Freyseng Cork Co., corks	11 71
F. W. Harbord, rubber stamps.....	7 50
Geo. M. Hendry Co., blackboard	6 86
Lake Simcoe Ice Co., ice.....	3 03
Lyman Bros. & Co., chemicals.....	133 36
F. D. Mezen, glass tubing, etc.....	19 00
John Millen & Sons, tubing	2 64
Nicholls Chemical Co., chemicals.....	\$268 13
Less bottles returned	76 50
	<hr/>
	191 63
Ontario Rubber Co., tubing	23 79
Plastics, Ltd., stoppers	10 25
Chas. Potter, gas	10 25
Scientific Materials Co., cups	2 73

76. *Chemistry.*—Continued.

A. H. Thomas & Co., tubing.....	4 66
Toronto School Supply Co., stoppers.....	6 20
University Press, printing and stationery.....	15 05
Petty items (3)	2 85
Freight charges	79 38
Superintendent's Dept., labor, \$233.58; material, \$108.37	341 95.
Apparatus (\$532.85):	
Aikenhead Hardware, Limited, micrometer	6 50
F. E. Becker & Co., cathetometer	95 74
J. Bishop & Co., platinum ware	162 72
Canadian Westinghouse Co., motor	17 49
W. A. Drummond & Co., tester	12 15
Elmer & Amend, motor	7 00
Ingram & Bell, instruments	4 21
Leeds & Northrup Co., apparatus	207 25
Rice, Lewis & Son, tools	19 79
Fitting up rooms (\$210.91):	
Superintendent's Dept., labor, \$137.93; material, \$72.98	210 91
	<hr/>
	\$2,732 46
Less sundry credits:	
Glassware supplied to Dept. of Mechanical	
Engineering	\$4 00
Received from sale of cases	3 25
	<hr/>
	7 25
	<hr/>
	\$2,725 21

77. *Electro-Chemistry.*

Supplies (\$573.58.):	
Aikenhead Hardware, Limited, hardware	\$11 33
American Platinum Works, platinum wire	26 36
J. T. Baker Chemical Co., chemicals	29 88
Canadian General Electric Co., lamps	18 00
Contractors Supply Co., fireclay	3 85
Death & Watson, separators and repairs	16 20
Driver Harris Wire Co., wire	7 70
Engineering Society, supplies	13 90
Harbison-Walker Refractories, supplies	7 60
John Hargreaves, electrical supplies	88 69
C. A. F. Kalbaum, chemicals	66 32
Lake Simcoe Ice Co., ice	4 01
Lyman Bros. & Co., chemicals	95 17
Prof. W. Lash Miller, disbursements: Hardware, oils, etc., \$22.89; laboratory and office supplies, \$17.29; enamel- ling and repairs, \$10.00; slate, \$4.00; sundries, \$9.91..	64 09
Northern Electric and Mfg. Co., lamps, etc.	53 55
Ontario Rubber Co., tubing	3 64
University Press, printing and stationery	35 70
W. W. Wells, chemicals	5 75
G. R. Workman, draughting	3 10
Petty items (4)	4 83
Freight charges	9 91
Superintendent's Dept., material	4 00
Apparatus (\$823.41):	
Aikenhead Hardware, Limited, tools	9 31
Bausch & Lomb Optical Co., apparatus	147 87
Canadian General Electric Co., apparatus parts	38 77
Central Electric Supply Co., relay	6 25
J. H. Challacombe, wiring oscillograph	52 15
Fletcher Manufacturing Co., apparatus	129 95
Leeds & Northrup, apparatus	137 35
George Leworthy, glass apparatus	23 40
Northern Electric and Mfg. Co., apparatus parts	23 12
H. W. Petrie Co., pump	12 59
Photography, Department of, slides	5 00
Plastics, Limited, apparatus parts	22 75
Rogers Electric Co., apparatus parts	3 25

77. *Electro-Chemistry.*—Continued.

Trumbull Electric Mfg. Co., battery	7 14	
Weston Electrical Instrument Co. apparatus	43 20	
Freight charges	7 89	
Superintendent's Dept., labor, \$95.52; material, \$57.90 ...	153 42	
Alterations in Laboratory (\$113.20):		
Superintendent's Dept., labor, \$50.80; material, \$62.40 ...	113 20	
		1,510 19

78. *Architecture and Drawing.*

Architecture:

Supplies (\$346.29):

Aikenhead Hardware, Limited, hardware	\$1 06
American Architect, subscription	12 10
Art Metropole, supplies	20 10
Balmer & Blakely, plaster and cartage	30 65
Canadian General Electric Co., carbons	2 03
Central Electric Supply Co., wire	3 50
T. Crashley, cartage	10 50
T. Eaton Co., mats, screens, and supplies	57 43
Engineering Society, cuts	9 17
E. Harris Co., paint	4 30
Office Specialty Mfg. Co., folders and guides	25 67
Photography, Dept. of, prints	19 30
Students' Book Dept., pamphlets	5 50
F. G. Terry Co., plaster paris	21 00
University Press, stationery and printing	40 06
Prof. C. H. C. Wright, petty disbursements	5 00
Petty items (5)	4 75
Freight charges	10 27
Superintendent's Dept., labor, \$24.71; material, \$39.19..	63 90

Apparatus (\$548.36):

Aikenhead Hardware, Limited, tools	8 31
American Architect, books	33 66
Architectural Book Publishing Co., books	40 15
Art Metropole, portfolio	5 00
W. R. Brock Co., felt	27 78
E. Challenger, model	7 85
E. Dietzgen Co., pencil sharpener	11 30
The Librarian, journals	3 50
McCormack & Carroll, apparatus	5 25
Office Specialty Mfg. Co., fying cabinets	126 57
Photography, Dept. of, slides	43 90
F. E. Simpson, moulds	50 00
Students' Book Dept., text books	134 00
Freight charges	1 10
Superintendent's Dept., labor	49 99

Assistance and models for life class (\$135.00):

Prof. C. H. C. Wright, paid for services of models....	35 00
F. E. Simpson, assistance	100 00

Night Classes (\$850.00):

Remuneration to Instructors, detailed under Salaries	850 00
	1,879 65

Drawing:

Supplies (\$267.32):

E. Dietzgen Co., paper	10 41
Engineering Society, supplies	45 98
Carl Schleicher & Schüll, drawing paper.....	127 22
Students' Book Dept., books	2 20
University Press, stationery and supplies	29 77
United States Geological Survey, maps	3 21
United Typewriter Co., inspection	9 00
Petty items (2)	2 92
Freight charges	5 85
Superintendent's Dept., labor, \$24.64; material, \$6.12..	30 76

78. *Architecture and Drawing.*—Continued.

Apparatus (\$101.99):	
Keuffel & Esser, instruments	20 04
Students' Book Dept., text books	30 45
White & Thomas, apparatus part	2 00
Superintendent's Dept., labor, \$24.78; material, \$24.72.	49 50
Printing Instruction Sheets (\$70.20):	
Photography, Dept. of, prints	4 60
University Press, printing	65 60
	\$2,319 16
Less received from sale of old locks	2 00
	\$2,317 16

79. *Physics and Photography.*

Physics:

Supplies (\$197.04):	
Alkenhead Hardware, Ltd., hardware	\$20 79
Prof. G. R. Anderson, disbursements:	
Hardware, paint, etc., \$4.04; car fares, \$3.25; sun-	
dries, \$6.44	13 73
Canadian General Electric Co., electrical supplies	36 26
E. Dietzgen Co., repairs	6 62
Fletcher Mfg. Co., repairs	5 15
Phillip Harris & Co., thermometers	6 07
Geo. M. Hendry Co., glassware	28 50
Lake Simcoe Ice Co., ice	7 79
Lyman Bros. & Co., chemicals	15 75
Reliance Moulding Co., moulding	4 20
R. E. Walker & Co., cloth	11 20
Petty items (2)	2 43
Freight charges	25 56
Superintendent's Dept., labor, \$2.86; material, \$10.13..	12 99
Apparatus (\$540.08):	
Ernemann Apparatus Co., apparatus	32 89
Macey Office Equipment Co., cabinet	51 79
G. N. Reynolds & Co., bookcase	31 90
Topley Company, apparatus	423 50
	\$737 12

Photography:

Supplies (\$876.92):	
Actien Gesellschaft, chemicals	\$197 07
AnSCO Co., supplies	53 19
Central Electric Supply Co., lamps	6 60
Eugene Dietzgen Co., supplies	21 78
J. M. Dolbey, repairs	11 50
T. Eaton Co., supplies	5 00
C. P. Goerz, supplies	3 02
Goerz Photochemische Werke, film	87 60
J. G. Ramsay & Co., supplies	24 40
Reliance Moulding Co., moulding	20 95
Dr. C. Schleussner, plates	47 15
United Photographic Stores, supplies	296 83
University Press, stationery	5 85
Petty items (2)	3 50
Freight charges	7 48
Superintendent's Dept., labor, \$68.81; material, \$16.19..	85 00
Apparatus (\$835.10):	
T. Eaton Co., camera	18 60
Heinr. Ernemann, kinematograph	463 75
A. B. Ormsby Co., booth for kinematograph	110 00
Topley Company, apparatus	242 75
Messengers (\$135.00):	
Percy Blair, 6 weeks at \$4.50	27 00
Wm. Clegg, 9 weeks at \$4.00	36 00
H. Faulkner, 16 weeks at \$4.50	72 00
	\$2,584 14

79. *Physics and Photography.*—Continued.

Less sundry credits:

Received for goods damaged in transit	\$5 94	
Work done for various departments (including accounts receivable \$99.70)	558 05	
		\$563 99

\$2,020 15

80. *General Expenses.*

Stationery, printing and office supplies (\$1,118.20):

Acton Publishing Co., time-tables	\$87 50	
The Bursar, postage supplied	150 00	
A. T. Laing, petty disbursements	4 75	
Library Bureau of Canada, cards	45 00	
Might Directories, Ltd., directories	20 00	
Remington Typewriter Co., inspection and supplies	16 50	
G. N. Reynolds & Co., fying cases	78 00	
United Typewriter Co., inspection	9 00	
University Press, printing calendar, stationery, etc.	704 75	
Petty items (2)	2 70	
		\$1,118 20
		\$148,971 56

V. FACULTY OF HOUSEHOLD SCIENCE.

81. *Salaries.*

Household Science Department:

Miss A. L. Laird, Associate Professor, 12 mos. to 30th June.	\$2,400 00	
Miss E. M. Eadie, Lecturer in Household Economics (Sessional—paid also in Education)	1,000 00	
Instructors (Sessional):		
Miss N. L. Pattinson	900 00	
Miss H. A. Paul	800 00	
Miss L. L. Ockley	700 00	
Miss Lexa Denne, Assistant (Michaelmas Term)	300 00	
		\$6,100 00

Food Chemistry Department:

Miss C. C. Benson, Associate Professor of Physiological Chemistry (also Secretary to the Faculty) 12 mos. to 30th June	\$2,400 00	
Miss O. G. Patterson, Instructor (Sessional)	600 00	
		\$3,000 00
		\$9,100 00

82. *Household Science Building and Department.*

(a) Maintenance of Building:

Heat and light (supplied from Central Power Plant):		
Gas, city current and occasional fuel (\$157.90):		
Consumers' Gas Co.	\$146 30	
Connell Anthracite Mining Co.	11 00	
Water (\$187.64):		
City Treasurer	187 64	
Caretaker's Supplies (\$100.88):		
Superintendent's Dept., supplies	100 88	
Cleaning (\$955.42):		
Superintendent's Dept., labor	955 42	
Repairs and Renewals (\$379.69):		
Wm. Card, exterminating rats	12 00	
City Treasurer, elevator license	10 00	
R. Robertson & Sons, masonry	23 10	
Superintendent's Dept., labor, \$142.87; material, \$191.72	334 59	
Sundries, changes in elevator control, steam connections, etc. (\$347.42):		

82. Household Science Building and Department.—Continued.

Elevator Specialty Co., repairs to motor.....	24 60	
Superintendent's Dept., labor, \$138.39; material, \$184.43	322 82	
		\$2,128 95
Less sundry credits: cleaning \$6.00; repairs, \$2.00	8 00	
		\$2,120 95
Caretaker, F. Hanmer, 12 months to 30th June.....	885 00	\$3,005 95
(b) Maintenance of Department:		
Household Science branch:		
Laboratory supplies, provisions, fuel, etc. (\$779.36):		
R. Barron, Ltd., groceries	\$105 46	
City Dairy Co., milk	70 00	
CConnell Anthracite Mining Co., fuel.....	24 28	
Wm. Davies Co., provisions	72 39	
Harris Abattoir Co., meat and provisions.....	174 65	
Miss A. L. Laird, petty disbursements.....	7 66	
Lever Bros., cleaning material	20 75	
Lyman Bros. & Co., chemicals	13 78	
H. W. Nelson & Co., matches.....	5 00	
A. Provan, groceries	282 64	
University Press, bags	1 95	
Superintendent's Dept., material	80	
Laboratory Attendance (\$748.15):		
Mrs. Bowes, 3½ months at \$29.00	\$101 50	
173½ days at \$1.40	243 10	
		344 60
Mrs. Longley, 45½ days at \$1.40	63 70	
Mrs. Parkinson, 2 days at \$1.35.....	2 70	
Mrs. Rogers, 5 days at \$1.35.....	6 75	
Mrs. Smart, 65 days at \$1.40.....	91 00	
Mrs. Stonestreet, 171 days at \$1.40	239 40	
Food Chemistry branch:		
Maintenance (\$166.13):		
Baird & Tatlock, Ltd., glassware and supplies.....	55 54	
Dr. C. C. Benson, disbursements:		
Food supplies, \$13.89; utensils and office supplies, \$5.94; sundries, \$4.73.....	24 56	
T. Eaton Co., refrigerator, \$7.45; utensils, \$4.15..	11 60	
Eimer & Amend, chemicals and supplies.....	28 44	
Harvard Apparatus Co., kymograph.....	32 65	
Lake Simcoe Ice Co., ice.....	20	
Ontario Rubber Co., tubing	6 07	
University Press, printing	13 25	
S. S. White Dental Mfg. Co., gas.....	2 80	
Freight charges	3 87	
Superintendent's Dept., labor, \$3.40; material \$1.20.	4 60	
		\$183 58
Less received from students for breakages ..	17 45	
		\$166 13
Laboratory Attendance (\$157.77):		
K. Bain, at 17½ cents an hour.....	\$154 77	
Mrs. Bowes, do do	3 00	
General Expenses:		
Stationery, printing and incidentals (\$82.31):		
The Bursar, postage supplied	24 00	
University Press, calendar and stationery.....	43 25	
Petty items (2)	2 68	
Superintendent's Dept., labor, \$4.10; material, \$8.28.	12 38	
		\$1,933 72
		<u>\$14,039 67</u>

VI. FACULTY OF EDUCATION.

83. *Salaries.*

W. Pakenham, Professor of History and Science of Education (also Dean of Faculty), 12 months to 30th June	\$3,600 00
Associate Professors:	
H. T. J. Coleman, 1st July to 30th Sept. (resigned)	750 00
P. Sandiford, 12 months to 30th June	2,700 00
H. J. Crawford, also Head Master of University Schools, 12 months to 30th June	3,000 00
Lecturers in Methods; also Chief Instructors, University Schools, each 12 months to 30th June:	
G. A. Cornish, Science	2,300 00
J. T. Crawford, Mathematics	2,200 00
O. J. Stevenson, English and History	2,100 00
W. C. Ferguson, French and German	2,100 00
F. E. Coombs, Elementary Subjects	2,100 00
S. W. Perry, Art and Commercial Work, also Assistant Instructor, University Schools	1,900 00
Assistant Instructors in University Schools, each 12 months to 30th June:	
T. M. Porter	2,000 00
H. A. Grainger	2,000 00
J. A. Irwin	1,900 00
J. O. Carlisle	1,800 00
J. G. Workman	1,800 00
W. J. Dunlop	1,700 00
G. A. Cline	1,600 00
H. G. Manning (ten payments)	1,600 00
W. L. C. Richardson	1,600 00
A. N. Scarrow; also Instructor in Faculty of Education	1,600 00
G. N. Bramfitt; " " " "	1,500 00
D. E. Hamilton	1,400 00
J. B. Wallace (ten payments)	1,400 00
Miss E. M. Eadie, Instructor in Household Science (Sessional— paid also in Faculty of Household Science)	100 00
Supervisors of Practice Teaching (Sessional):	
L. E. Embree, High Schools	100 00
W. E. Groves, Public Schools	100 00
Stenographer in Dean's Office:	
Miss E. Watkins, 1st July to 31st August at \$650 per annum (resigned)	108 32
Miss V. Kerr, four weeks at \$9 per week	36 00
Miss L. Swinarton, 29th Sept. to 30th June at \$12 per week..	472 00
	\$45,566 32

84. *Education Building and Department.*

(a) Maintenance of Building:

Fuel (\$1,171.56):	
W. H. Cox Coal Co., fuel	\$1,039 28
Connell Anthracite Mining Co., fuel	13 80
Britnell & Co., cartage	118 48
Light* (\$655.26):	
Consumers' Gas Co.	7 98
Toronto Electric Light Co.	647 28
Water (\$122.46):	
City Treasurer	122 46
Caretaker's Supplies (\$239.18):	
Scientific Boiler Compound Co., compound	12 50
Superintendent's Dept., supplies	226 68
Cleaning (\$1,310.24):	
Allen Manufacturing Co., laundry	6 38
Canadian Window Cleaning Co., cleaning windows....	18 00
Superintendent's Dept., labor	1,285 86
Repairs and Renewals (\$1,036.85):	
Aikenhead Hardware, Limited, locks	50 00
Wm. Bartlett & Son, blinds	8 57

84. Education Building and Department.—Continued.

Canada Floors, Limited, on account for stair treads ..	125 00	
R. Robertson & Sons, cutting doorway	20 81	
Routery Bros., plastering	26 50	
J. C. Scott Co., doors	23 15	
Superintendent's Dept., labor, \$496.81; material, \$286.01	782 82	
		\$4,535 55
Less sundry credits: light, \$7.50; cleaning, \$52.50; repairs, \$26.90	86 90	
		\$4,448 65
Engineer and Caretaker, S. Hunter, 12 months to 30th June at \$1,200.00 (less 4½ days)	1,185 00	
Fireman, R. Bullock, 8 months at \$50.00	400 00	
Messenger, A. Scott, 52 weeks, 1 day, to 30th June, at \$4.75 (paid also as Laboratory attendant under Dept.)....	247 80	
		\$6,281 45
(b) Maintenance of Department:		
Payment to City for use of Schools (\$3,300.00): The Board of Education, City of Toronto.....	\$3,300 00	
Clerical Assistance (\$286.00): Miss Jean Ward, 52 weeks at \$5.50	286 00	
Office Supplies, printing, postage and incidentals (\$722.05): The Bursar, postage supplied	125 00	
Library Bureau of Canada, card cabinet	11 00	
Might Directories, Ltd., city directory	10 00	
Prof. Wm. Pakenham, disbursements: Car fares, \$12.54; telegrams, express, etc., \$4.58; fee for supply Instructor, \$2.50; sundries, \$4.17; balance unexpended returned in 1914-15, \$1.21	25 00	
United Typewriter Co., inspection	18 00	
University Press, calendar, printing and stationery..	529 00	
Superintendent's Dept., material	4 05	
General Supplies and Apparatus for class-room use (\$2,464.33): Aikenhead Hardware, Ltd., tools and hardware	42 21	
Art Metropole, drawing supplies, etc.	32 29	
Berlin Photographic Co., prints	15 50	
Braun & Co., picture	9 61	
P. P. Caproni & Bros., models.....	62 15	
E. Dietzgen Co., instruments and drawing supplies ...	38 35	
T. Eaton Co., bookcase, \$54.45; shades, \$53.00; cabinet and supplies, \$29.97	137 42	
E. B. Eddy Co., matches	4 70	
W. & J. George, Ltd., glassware and supplies	430 30	
Gourlay, Winter & Leeming, rent of piano	24 00	
J. F. Hartz Co., chemicals	3 05	
Heintzman & Co., rent of piano	4 00	
George M. Hendry Co., seats, \$52.43; supplies, \$13.22..	65 65	
Keystone View Co., cabinet	28 10	
R. Laidlaw & Co., lumber	157 93	
Rice Lewis & Son, locks	15 00	
Lyman Bros. & Co., chemicals	38 93	
C. W. Mack, rubber stamps	10 60	
Mackenzie & Co., framing	38 25	
George B. Meadows Co., lockers	154 00	
Owl Drug Stores, bottles	3 60	
T. S. Plaskett, repairs	6 10	
Rogers Electric Co., apparatus and supplies	9 26	
Russill Hardware Co., hardware	15 90	
"The School," copies of "The School," \$5.00; maps, \$3.00	8 00	
Robert Simpson Co., burlap	36 46	
Students' Book Dept., text books, stationery and supplies	312 80	
Teachers' College, slides	21 70	
Arthur Tooth & Sons, picture	7 77	
'opley Company, supplies	13 05	

84. *Education Building and Department.*—Continued.

United States Geological Survey, maps	13 34	
University Press, stationery and supplies	131 40	
Warwick Bros. & Rutter, examination paper	41 50	
R. M. Williams, diplomas	3 50	
Sundry Newspapers, advertising re-opening of school..	12 00	
Petty items (11)	19 48	
Freight charges	49 72	
Superintendent's Dept., labor, \$205.66; material, \$241.05	446 71	
Athletics (\$282.33):		
Dunlop Tire & Rubber Goods Co., hose and couplings..	22 71	
A. G. Spalding Co., balls	16 55	
Stock & Bickle, medals	87 90	
Superintendent's Dept., labor, \$146.73; material, \$8.44	155 17	
Laboratory Assistance (\$80.00):		
A. Scott, 40 weeks at \$2.00 (paid also as Messenger)....	80 00	
		<u>\$7,134 71</u>
		<u>\$58,982 48</u>

VII. FACULTY OF FORESTRY.

85. *Salaries.*

B. E. Fernow, Professor (also Dean of Faculty), 12 months to 30th June	\$4,000 00	
C. D. Howe, Assistant Professor, at \$2,100, of which \$1,050 charged to Botany, 12 months to 30th June	1,050 00	
Lecturers (Sessional):		
A. H. D. Ross	1,800 00	
J. H. White, \$1,700, of which \$350 charged to Botany	1,350 00	
Miss E. W. Mills, Stenographer in Dean's office, 12 months to 30th June	550 00	
		<u>\$8,750 00</u>

86. *Forestry Building and Department.*

(a) Maintenance of Building:		
Fuel (\$358.74):		
Connell Anthracite Mining Co.	\$358 74	
Light (\$326.52):		
Consumers' Gas Co.	37 24	
Toronto Electric Light Co.	289 28	
Water (\$30.88):		
City Treasurer	30 88	
Caretaker's Supplies (\$66.97):		
Superintendent's Dept., supplies	66 97	
Cleaning (\$242.80):		
Allen Manufacturing Co., laundry	2 70	
Superintendent's Dept., labor	240 10	
Repairs and Renewals (\$495.94):		
Adams Furniture Co., chairs	6 90	
Canada Glass Mantels and Tiles, Ltd., tiles	8 50	
R. Robertson & Sons, masonry	14 70	
Routery Bros., plastering	7 90	
Superintendent's Dept., labor, \$291.80; material, \$166.14	457 94	
		<u>\$1,521 85</u>
Less sundry credits: cleaning, \$7.00; repairs, \$2.30	9 30	
		<u>\$1,512 55</u>
Caretaker, H. Lonergan, 12 months to 30th June	600 00	
		<u>\$2,112 55</u>
(b) Maintenance of Department:		
Apparatus (\$276.57):		
Eimer & Amend, sieves	\$13 67	
Prof. B. E. Fernow, disbursements: Vials, \$4.00; lamp chimneys, \$3.60; tumblers, \$3.00; pans, \$2.80; sundries, \$1.20	14 60	

86. *Forestry Building and Department.*—Continued.

George M. Hendry Co., maps	7 87
Lyman Bros. & Co., chemicals	7 50
Emil Pfenninger & Co., apparatus	11 70
Photography, Dept. of, prints and slides	23 60
Queen City Glass Co., opal glass	8 00
Rudd Paper Box Co., boxes	12 50
W. E. Saunders & Co., boxes	5 77
Students' Book Dept., books	3 25
Topley Company, jars and balance	129 35
University Press, mounting cards	4 25
Petty items (2)	3 71
Superintendent's Dept., labor, \$25.65; material, \$5.15..	30 80
Office expenses, printing and postage (\$110.13):	
The Bursar, postage supplied	40 00
Prof. B. E. Fernow, petty disbursements	3 82
O. B. Stanton & Wilson Co., paper	3 00
United Typewriter Co., inspection and supplies	9 50
University Press, stationery and supplies	50 35
Superintendent's Dept., material	3 46
Fittings and Contingencies (\$111.02):	
Dale Furniture Co., tables	7 50
Prof. B. E. Fernow, disbursements; Express, postage and car fares, \$9.98; telegrams, \$5.63; framing and photographic supplies, \$4.20; sand, \$3.75; sund- ries, \$1.79	25 35
Might Directories, Ltd., clippings	5 70
Freight charges	24 47
Superintendent's Dept., labor, \$31.56; material, \$16.44..	48 00
Reserve for Summer work, travel and special lectures (\$375.00):	
Prof. B. E. Fernow, advance for expenses locating camp, etc.	87 66
A. H. D. Ross, travelling expenses, field work, etc. ..	7 34
W. N. Miller, lectures on trail and telephone construc- tion	30 00
Dr. H. von Schrenk, lectures on diseases of timber	200 00
A. S. Williams, lectures on logging	50 00
Clerical Assistance (\$115.30):	
W. F. Bumsted, 44 hours at 25c.	11 00
Miles Burford, 298 hours at 35c.	104 30
	\$988 02
	<u>\$11,850 57</u>

VIII. RESIDENCES AND DINING HALL.

87. *Men's Residences.*

Heat and light (supplied from Central Power Plant, except for 85 St. George Street):	
Gas, city current and occasional fuel (\$340.70):	
Consumer's Gas Co.	\$0 84
Connell Anthracite Mining Co	339 86
Water (\$192.39):	
City Treasurer	192 39
Caretaker's Supplies (\$349.00):	
Superintendent's Dept., supplies	349 00
Cleaning and House Service (\$3,997.31):	
Allen Mfg. Co., laundry	231 11
Puritan Laundry Co., laundry	58 80
Alderson, Hammond & Ritchey, cleaning and polishing floors	51 80
Superintendent's Dept., labor	3,653 60
Disbursed for taxi, taking attendant home (illness)	2 00
Repairs and Renewals (\$1,388.24):	
Adams Furniture Co., desk	9 75

87. *Men's Residences.*—Continued.

Wm. Card, exterminating rats	15 00	
T. Eaton Co., utensils	37 20	
Robt. Simpson Co., utensils	8 35	
Standard Bedding Co., mattress	5 20	
Petty items (3)	2 86	
Superintendent's Dept., labor, \$743.43; material, \$566.45..	1,309 88	
		<u>\$6,267 64</u>
Less sundry credits:		
International Geological Congress	\$300 00	
City Planning Congress	37 50	
Sundry repairs	61 94	
		<u>399 44</u>
		<u>\$5,868 20</u>

88. *Women's Residences.*

Fuel (\$1,705.88):		
Connell Anthracite Mining Co.	\$1,705 88	
Light (\$693.21):		
Consumers' Gas Co.	243 74	
Toronto Electric Light Co.	342 16	
Toronto Hydro-Electric System	107 31	
Water (\$148.51):		
City Treasurer	148 51	
Repairs and Renewals (\$1,194.96):		
Boiler Repair & Grate Bar Co., grate bars	40 50	
Canada Furniture Co., settee	23 67	
City Storage Co., cartage	1 10	
Murray-Kay, Ltd., rugs and carpet	142 82	
Reliance Moulding Co., moulding	8 10	
R. Robertson & Sons, masonry	12 84	
Routery Bros., plastering	39 35	
Robt. Simpson Co., tables	5 70	
Freight charges	3 18	
Superintendent's Dept., labor, \$529.86; material, \$387.84..	917 70	
		<u>\$3,742 56</u>
Less sundry credits for repairs	13 93	
		<u>\$3,728 63</u>
Housekeeping Account:		
Provision and Housekeeping Expenses (\$7,686.52):		
Acme Dairy Co., milk	\$713 36	
Rowes Co., provisions, butter and eggs	908 24	
Brown Bros., meat	2,474 72	
Mrs. M. H. Campbell, disbursements: utensils, \$73.44;		
car fares and postage, \$15.55; Christmas presents		
for help, \$13.29; dry goods, \$13.02; clocks, \$6.25;		
travelling expenses, \$6.00; soap, \$5.30; food sup-		
plies, \$3.65; sundries, \$16.69	153 19	
Canada Bread Co., bread	380 12	
W. J. A. & H. Carnahan, medical supplies.....	1 75	
Carter & Leonard, fish	136 52	
John Catto & Sons, linen, etc.....	105 63	
Club Coffee Co., coffee	78 40	
Geo. Coles, cake, etc.	254 49	
R. T. Dean, flowers	5 25	
Fox Provision Co., provisions	278 67	
Gourlay, Winter & Leeming, piano hire	98 00	
Gowans, Kent & Co., dishes	121 91	
Grand & Toy, cards	2 35	
Gurney Oxford Stove Co., repairs	3 80	
Harris Abattoir, meat	25 05	

88. *Women's Residences.*—Continued.

H. J. Heintz Co., pickles	60 90
Knickerbocker Ice Co., ice	81 00
Lake Simcoe Ice Co., ice	24 00
Rice Lewis & Son, cutlery	9 35
F. W. Matthews, ambulance service	2 50
Michie & Co., spring water, etc.	7 06
Dr. Miller, Stamford, apples.....	28 00
Murray-Kay, Ltd., carpet sweeper and brushes	13 00
F. Simpson & Sons, provisions	7 49
Geo. Sparrow & Co., utensils and repairs	60 75
Swan Bros., groceries	1,182 79
Students' Book Dept., stationery	2 30
Chas. Topping, vegetables	436 95
University Press, printing and stationery	13 80
John Wanless & Co., clock	10 00
Superintendent's Dept., labor making bread box ...	5 18
Cleaning and House Service (\$3,285.27):	
Allen Mfg. Co., laundry	290 32
Baillies' Laundry, laundry	36 26
Canadian Window Cleaning Co., cleaning windows ..	8 00
Superintendent's Dept., cleaning material, etc.	68 81
Pay Lists, wages of servants, maids, etc.	2,860 38
Employment Agencies, securing maids	21 50
..	\$14,700 42
Superintendent, Mrs. M. H. Campbell, 12 months to 30 June	1,100 00
	<hr/>
	\$15,800 42
Less credited from International Geological Congress..	507 18
	<hr/>
	\$15,293 24

89. *Dining Hall.*

Fuel (\$241.20):	
Connell Anthracite Mining Co.	\$241 20
Light (\$177.52):	
Consumers' Gas Co.	177 52
Cleaning and House Service (\$7,249.96):	
Allen Mfg. Co., laundry	634 61
Pay Lists, wages of waiters and other servants	6,615 35
Food Supplies (\$22,882.96):	
Barnes Bros., fruit	5 75
Belle Ewart Ice Co., ice	149 89
W. L. Bengough, fruit	9 00
J. J. Brennan, fruit	11 00
Calumet Tea & Coffee Co., meal	15 00
Canada Bread Co., bread	1,238 65
Canada Tea Co., tea	27 60
Carpenter Bros., fruit	13 50
Chatsworth Marketing Co., fruit	31 50
Cleghorn & Co., fruit and vegetables	545 85
Club Coffee Co., coffee	18 70
Geo. Coles, Ltd., ice cream	28 85
Davidson & Hay, groceries	5 40
James Dempster, bread	403 77
M. Doyle Fish Co., fish	97 59
H. P. Eckardt & Co., groceries	603 99
Farmers' Dairy Co., milk	2,870 96
Harris Abattoir Co., meat	11,355 32
R. B. Hayhoe & Co., groceries	113 88
H. J. Heintz Co., pickles	7 55
Imperial Extract Co., extracts	5 00
Laurentia Milk Co., milk	4 85
Geo. A. Livingstone, fruit	51 75
11 B.G.	

89. Dining Hall.—Continued.

James Lumbers Co., groceries	90 10
Geo. W. Manly, meat	4 90
Maple Leaf Milling Co., flour	193 20
Medland Bros., groceries	1,359 71
T. J. Medland, Ltd., groceries	275 30
Minto Bros., tea	40 25
Wm. Neilson Co., ice cream	8 25
Nicholson & Dempster, vegetables	17 25
Rutherford, Marshall & Co., honey, etc.	93 93
J. J. Ryan, vegetables	99 25
Ryley & Sons, eggs	387 30
F. Simpson & Sons, groceries	584 76
Stevens' Meat Co., meat	24 41
Stronach & Sons, vegetables	24 50
Chas. Topping, vegetables	402 35
Todhunter, Mitchell & Co., coffee, etc.	200 42
Vanluven Bros., maple syrup	27 50
Warren Bros. & Co., groceries	652 21
White & Co., fruit and vegetables	779 54
Petty items (2)	2 48
Dishes, utensils and sundry expenses (\$1,631.93):	
Wm. Card, exterminating rats	4 60
John Catto & Son, table linen and towelling	123 10
Davidson & Hay, sealers	10 80
T. Eaton Co., utensils	31 83
Fletcher Mfg. Co., utensils and repairs	21 60
Gowans, Kent & Co., dishes and glassware.....	290 61
Gurney Foundry Co., utensils	21 59
Inglis & Co., table linen	134 85
Miller Mfg. Co., coats	33 00
Miller & Sons, flowers	59 35
Northern Aluminum Co., aluminum ware	9 40
W. G. Patrick & Co., table linen	5 00
Dr. Victoria Reid, attending injured dietitian	12 00
Dr. D. E. Robertson, attending injured waiter	20 00
Miss V. M. Ryley, disbursements: express and freight, \$31.62; utensils, \$10.90; office supplies, \$5.96; postage and telephone tolls, \$5.40; dry goods, \$5.03; drugs, \$4.81; sundries, \$18.42; to be accounted for in 1914-15, \$2.85	84 99
Geo. Sparrow & Co., utensils and repairs	200 05
John Taylor & Co., cleaning material	9 63
Toronto Silver Plate Co., cutlery	18 00
University Press, printing meal tickets, etc.	90 90
Women's Welcome Hostel, fee for securing waiters	3 50
Petty items (5)	7 43
Superintendent's Dept., labor, \$282.22; material, \$157.43...	439 65
	<hr/>
	\$32,183 57
Superintendent, Miss V. M. Ryley, 12 months to 30 June	1,250 00
	<hr/>
	\$33,433 57
Less credited from International Geological Congress, \$900.00; Civic Planning Congress, \$100.00	1,000 00
	<hr/>
	\$32,433 57
	<hr/>
	\$53,595 01

IX. (90) ROYAL ONTARIO MUSEUM.

University's share of maintenance advanced to the Trustees of the Royal Ontario Museum, under 2 Geo. V., Cap. 80	\$14,918 53
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X. (91) CENTRAL LIGHT, HEAT AND POWER PLANT.

Fuel (\$26,649.23):		
W. H. Cox Coal Co.	\$24,008	38
Britnell & Co., teaming	2,640	85
City Electric Current (\$1,424.24):		
Toronto Electric Light Co.	1,424	24
Water (\$265.90):		
City Treasurer	265	90
Repairs and renewals, engineers' supplies, removal of ashes, etc. (\$3,674.89):		
Aikenhead Hardware, Ltd., tools	6	26
Babcock & Wilcox, Ltd., guage glasses	40	20
Bell Telephone Co., repairs to cable in tunnel	20	67
Callis, Sheppard & Abbott, repairs to meter	18	00
Canadian General Electric Co., packing	34	50
Canadian H. W. Johns Manville Co., insulation in tunnel	74	06
Canadian Window Cleaning Co., cleaning windows	6	00
Wm. Card, exterminating rats	9	00
Philip Carey Co., engineers' supplies	10	10
Central Station Steam Co., counters	4	03
Collett's Carriage Works, tools	41	50
L. M. Ellison, guage	7	94
Gardner Grate Co., grates	15	10
Garlock Packing Co., packing	6	02
International Engineering Works, valve rod	29	00
G. S. Knickerbocker, analysis of coal	85	00
G. C. Mooring, boiler compound	21	50
Murphy Iron Works, repairs to mechanical stokers	123	86
Purdy, Mansell, Ltd., repairing mains.....	121	36
R. Robertson & Sons, repairing floors and drains	171	53
L. J. Rogers, analysis of fuel	48	00
Schaeffer & Budenberg Mfg. Co., charts	4	53
Scientific Boiler Compound Co., boiler compound	23	75
The Superintendent, disbursements: inspection of scales, \$10.87; oil, \$8.00; sundries, \$1.60	20	47
Turnbull Elevator Mfg. Co., repairs to elevator	226	98
Freight charges	66	48
Petty items (4)	6	72
Superintendent's Dept. labor, \$929.22; material, \$1,503.11..	2,432	33
Engineers, firemen and helpers (\$7,992.47):		
Chief Engineer:		
Chas. Moseley, Sr., 1st July to 23rd September, at \$2,400.00; 23rd September to 30th June, at \$2,000.00	2,092	22
Assistant Engineers, at \$840.00 per annum:		
C. S. Moseley, 12 mos. to 30th June.....	840	00
J. Sandie, 12 mos. to 30th June, overtime 2 hours ..	842	00
W. Smith, 12 mos. to 30th June	840	00
Firemen and helpers to 30th June:		
At \$60.00 per month	\$2,287	00
At \$50.00 per month	905	00
At 25 cents per hour	186	25
	<u>3,378</u>	<u>25</u>
		<u>\$40,006 73</u>

XI. (92) CONTINGENCIES.

City Treasurer, local improvement taxes for 1913 on 11 Queen's Park, \$20.83; 85 St. George Street, \$12.47	\$33	30
W. N. Ponton, K.C., valuation of Belleville lands	15	00
Loudon Portrait Fund:		
Wm. Orpen, amount required to complete payment	79	49
Napier Tercentenary Celebration, subscription to Memorial volume	9	77

XI. (92) *Contingencies*.—Continued.Interest on Contractors' Deposits, *re* Central Power Plant Construction:

W. J. McGuire, Ltd.	271 00	
Purdy, Mansell, Ltd.	96 00	
		\$504 56

XII. (93) CAPITAL ACCOUNT CHARGES.

Accountant, Supreme Court of Judicature, fifth annual payment on debenture issue of 1909	\$25,260 00	
Toronto General Hospital, third annual payment on debenture issue of 1911, <i>re</i> Pathological Building	6,568 00	
Toronto General Hospital, third annual payment on debenture issue of 1911, <i>re</i> grant to Toronto General Hospital	15,157 00	
Repayment to Endowment on account of advance for construction of Central Power House, tunnels and equipment	18,945 00	
		\$65,930 00
		\$931,452 57

APPENDIX IV.

UNIVERSITY PRESS.

Transactions for year ending 30th June, 1914.

Receipts during 1913-14		\$35,224 36	
Accounts receivable for work completed and not paid for:			
Departmental accounts	\$462 70		
General accounts	4,768 04		
		<u>5,230 74</u>	
			\$40,455 10
Expenses (detailed below)		\$34,670 78	
Value of supplies bought in advance and on hand 30th June, 1914	\$1,488 00		
and work in progress	295 00		
		<u>\$1,783 00</u>	
Less liabilities	524 00		
		<u>1,259 00</u>	
			33,411 78
Surplus on operations, 1913-14			\$7,043 32
Purchases in advance (net) as above			<u>1,259 00</u>
Carried to Plant Account			<u>\$5,784 32</u>

Plant Account.

Amount of account, 30th June, 1913	\$5,263 78	
Additions to type and equipment	3,501 83	
		<u>\$8,765 56</u>
Transferred from Operating Account	5,784 32	
		<u>\$2,981 24</u>

Details of Expenditure. Operating Account.

R. J. Hamilton, Manager, 12 mos. salary	\$1,000 00	
R. J. Hamilton, allowance for clerical work	200 00	
E. A. Hughes, 6 3-5 mos. salary as bookkeeper	606 17	
Pay Lists, wages of employees	19,594 76	
		<u>\$21,400 93</u>

Printing and binding supplies (\$12,208.85):

Alexander & Cable Lithographing Co., lithographing	\$42 00
Art Metropole, Ltd., paper	47 89
Ault & Wiborg, printing ink	106 54
Barber & Ellis, Ltd., paper	618 33
Barber Paper & Coating Mills, paper	523 00
W. A. Blachford, ruling, etc.	221 50
Brigdens, Ltd., half-tones	275 11
W. R. Brock Co., ribbon	12 86
J. Brotherton, ribbon	5 00
Brown Bros., paper, etc.	3,411 54
Brown Stewart & Co., paper	417 27
Bryant Press, printing	14 00
Buntin-Reid Co., paper	642 00
Business Systems, Ltd., paper	18 60
The Bursar, postage supplied	368 70
Canada Paper Co., paper	311 51
E. Carroll, grinding knives	11 00

University Press.—Continued.

College Press, printing	50 00
Copp, Clark Co., binding, etc.	295 43
Dennison Mfg. Co., tags	9 59
R. Dinnis & Son, lumber	7 18
Dominion Envelope Co., envelopes	39 48
Dominion Leather Goods Co., cases	198 72
Dominion Paper Box Co., tubes, etc.	32 40
J. Doust, fyling cases	7 00
Gordon E. Edward, commutators	37 00
W. J. Gage & Co., paper	239 67
Goldsmith Bros., gold leaf	27 00
G. Goulding & Sons, ribbon	9 00
Grand & Toy, blankbooks, stationery	197 95
F. W. Halls Paper Co., paper	92 61
R. J. Hamilton, disbursements: cleaning, \$61.50; carpentry work and material, \$14.09; freight, cartage, etc., \$12.77; car fares, \$8.84; sundries, \$7.06	104 26
G. M. Hendry Co., supplies	4 17
Hoyt Metal Co., metal	18 00
Imperial Oil Co., oil	21 64
W. S. Johnston & Co., printing	29 50
Kilgour Bros., bags	4 07
Lanston Monotype Machine Co., monotype supplies	318 30
H. J. Logan, wire	14 30
Littlejohn & Vaughan, electros	10 90
McFarlane Sons & Hodgson, paper	154 57
Geo. B. Meadows Co., guard	7 50
Menzies & Co., cards	36 73
Miller & Richard, supplies	6 62
Moir & Warren, paper	27 00
John Muir & Son, leather	36 96
National Paper Goods Co., envelopes	6 78
National Typewriter Co., typewriter supplies	73 48
Office Specialty Mfg. Co., office supplies	16 69
Paste & Gum Co., paste	16 00
B. Pearce, envelopes	4 00
Ratcliff Paper Co., paper	2 45
Remington Typewriter Co., paper	3 00
E. & J. Richardson, leather	94 14
Shackell, Edwards & Co., printing ink	98 33
Southam, Ltd., printing	81 38
Standard Embossing Co., embossing, etc.	390 10
W. J. Stewart, ruling	40 49
Students' Book Dept., stationery and sundries.....	125 00
St. Lawrence Paper Mills Co., paper	1,840 50
Telfer Mfg. Co., boxes	115 40
F. S. Thomas & Co., ruling, etc.	235 55
Toronto Delivery & Cartage Co., cartage	45 68
United Typewriter Co., typewriter supplies	41 40
Warwick Bros. & Rutter, examination books	25 00
Whaley, Royce & Co., music plates	32 25
Wilson, Munroe & Co., paper, etc.	552 32
Freight charges	116 54
Petty items (20)	22 85
Superintendent's Dept., labor, \$45.79; material, \$49.33 ..	95 12
Advertising (\$61.00):	
<i>The School</i>	36 00
Trinity University Review	10 00
University Y. M. C. A.	15 00
	\$13,269 85
	\$34,670 78

Details of Expenditure, Plant Account.

Hoyt Metal Co., monotype metal	\$83 73
Lanston Monotype Machine Co., equipment	3,069 55
Miller & Richard, type, etc.	162 22
James Robertson Co., monotype metal	123 20
Freight charges ..	33 40
Superintendent's Dept., labor, \$16.10; material, \$13.63	29 73
	<hr/>
	\$3,501 83

APPENDIX V.

SUPERINTENDENT'S STORES AND SUNDRY LABOR ACCOUNT.

Supplies on hand 30th June, 1913		\$3,043 31
Purchases during year:		
Advance Oil Supply Co., oils	\$37 50	
Aikenhead Hardware, Ltd., hardware	636 39	
Alberene Stone Co., soapstone	80 53	
Wm. Bartlett & Sons, blackboard	18 56	
C. H. Basters & Co., lamps	697 48	
Wm. Blaikie, castings	6 71	
Boeckh Bros. & Co., brushes and brooms	205 81	
W. J. Bolus & Co., wallpaper	6 04	
Booth-Coulter Copper & Brass Mfg. Co., hose and reels ..	48 50	
W. R. Brock Co., cloth	372 78	
Wm. Calder & Son, blacksmithing	9 55	
Callis, Sheppard & Abbott, journal box.....	40 00	
Canada Glass Mantels & Tiles Ltd., glass	1,207 70	
Canada Hardware Ltd., hardware	513 96	
Canada Show Case Co., locks	32 40	
Canadian Allis-Chalmers Ltd., compressor	360 75	
Canadian General Electric Co., motor and brushes	25 25	
Canadian H. W. Johns-Manville Co., pipe covering	68 83	
Canadian Powers Regulator Co., regulators	74 00	
John Catto & Son, towels	21 60	
Central Electric & Schools Supply Co., electrical supplies..	1,533 66	
Chapman & Walker, lamps	379 80	
Freek Clark Co., hardware	123 81	
Consumers' Gas Co., burners	9 00	
Crescent Oil Co., oil	72 48	
Henry Disston & Son, saws	5 94	
Dominion Radiator Co., plumbers' and steamfitters' supplies	1,753 19	
C. A. Dunham & Co., traps	383 27	
Dunlop Tire Co., hose and couplings	509 49	
Eagle Lock Co., locks	101 29	
T. Eaton Co., Ltd., supplies	91 52	
H. P. Eckardt & Co., cleaning material	272 14	
Economy Fuse & Mfg. Co., fuse	265 98	
E. B. Eddy Co., toilet paper	254 00	
Electric Storage Battery Co., batteries	28 81	
Fletcher Mfg Co., dust-pans	8 24	
Garlock Packing Co., waste	102 94	
Gurney Foundry Co., plumbers' supplies	24 42	
T. H. Hancock & Co., lumber	1,362 57	
Geo. M. Hendry Co., crayons, blackboards, etc.	96 28	
Frank Hillock & Co., lumber	19 67	
Imperial Ladder Co., ladders	15 20	
Interlake Tissue Mills, towels	52 00	
Warden King, Ltd., grates, etc.	23 17	
R. Laidlaw & Co., lumber	1,782 45	
Lansing Co., casters	19 84	
Lyman Bros., chemicals	17 25	
McColl Bros. & Co., paints, oils, etc.	550 25	
McFarlane Ladder Works, ladders	23 72	
McGregor & McIntyre, glass	5 75	
Wm. Malott Weather Strip Co., weather-strip	20 00	
Alex. Marks & Son, plumbers' supplies	8 55	
Master Builders Co., concrete hardener.....	15 00	
A. Matthews, Ltd., piping	202 09	
Matthews Bros., moulding	33 00	
Geo. B. Meadows, wire work	47 45	
John Millen & Son, horn	6 00	
Jas. Morrison Brass Mfg. Co., plumbers' supplies	1,405 32	
G. W. Moss, tungsten lamps	35 00	
Mott & Co., drinking fountains	106 05	

Stores and Labour Account.—Continued.

Murray-Kay Co., cork carpet	238 79	
National Typewriter Co., ribbons, etc.	35 00	
H. W. Nelson Co., brooms and shovels	48 35	
Northern Electric Mfg. Co., electrical supplies	23 10	
Ontario Lime Co., lime	21 76	
Ontario Rubber Co., tips, etc.	14 56	
Onward Mfg. Co., floor-wax	24 80	
Page Wire Fence Co., fence	106 15	
Palmer & Elliott, wall-paper	5 60	
R. L. Peiler & Co., traps	21 50	
C. H. Perkins & Co., flanges	12 25	
N. L. Piper Railway Supply Co., oil	24 90	
Reid & Brown, castings	14 05	
Rice, Lewis & Son, hardware	40 39	
P. L. Robertson Mfg. Co., screws	55 67	
Sadler & Haworth, belting	35 30	
Sanderson Percy Co., paint, oil, etc.	2,262 68	
Scientific Boiler Compound Co., boiler compound	47 63	
Seythes & Co., waste	10 45	
Sheet Metal Products Co., iron	31 34	
Robert Simpson Co., wallpaper	84 22	
Sloan Valve Co., valves	42 88	
J. B. Smith & Son, lumber	195 49	
Soclean, Ltd., cleaning material	25 00	
Standard Foundry Co., castings	67 04	
Standard Rubber Supply Co., rubber	25 20	
Standard Sanitary Mfg. Co., plumbers' supplies	1,439 95	
Steel & Radiation, Ltd., plumbers' supplies	26 90	
Sturgeons, Ltd., paint	59 92	
Talbot & Talbot, mop cloths	106 00	
Topley Company, glass	30 00	
Toronto Brass Mfg. Co., screws	37 00	
Toronto Electric Light Co., heaters	39 00	
Toronto Wood Turning Works, lumber	38 65	
Uneeda Specialty Mfg. Co., dusters	7 41	
Union Rubber & Supply Co., sheet-rubber, washers, etc. ..	109 35	
University Press, stationery	22 20	
Weiss & Biheller, Ltd., lamps	100 00	
Stephens, Welch & Co., cleaning material	35 08	
West Disinfecting Co., cleaning material	32 40	
A. R. Williams Machine Co., shafting, etc.	19 48	
Wm. E. Wilson Co., plumbers' supplies	24 28	
The Superintendent, petty disbursements, gasoline, etc. ..	15 76	
Freight charges	87 58	
Items under \$5.00 (20)	49 64	
		\$22,025 63
		\$25,068 94
Sundry labor, as per pay lists:		
Carpenters	\$10,047 70	
Electricians	3,005 58	
Painters	4,141 85	
Plumbers	6,151 16	
Laborers, firemen, etc.	10,001 10	
Cleaners	16,617 64	
		49,965 03
		\$75,033 97
Apportionment of the foregoing:		
	Labor.	Material
Administration (\$10,336.72):		
Bursar's Office	\$4 30	\$0 30
Registrar's Office	1 68	0 77
Superintendent's Office		0 92
Library Building	976 70	340 46

Stores and Labour Account.—Continued.

Library Current	230 28	90 65
Gymnasium Building	528 49	89 61
Gymnasium: Aid to Athletics	4 05	0 40
Convocation Hall	977 35	549 69
Grounds	5,938 00	566 15
Convocation Expenses	5 00	.....
Examinations	29 42	.....
Receptions	2 50	.....
Faculty of Arts (\$12,922.01):		
Main Building	3,611 17	1,748 30
Biological Building	1,131 08	468 76
Biological Department	99 64	65 14
Botanical Department	629 02	478 27
Bio-Chemical Department	99 51	120 66
Physiological Department	80 29	96 26
Chemical Building	894 14	284 49
Chemical Department	313 23	149 31
Physical Chemistry Department	18 19	12 64
Physics Building	1,569 72	319 02
Physical Department	67 37	167 51
Astro-Physical Department	78 51	23 43
Geological Department	1 40	4 50
Mineralogical Department	127 60	44 04
Psychological Department	60 36	70 98
Mathematical Department . . . . .	.....	2 65
Mechanics	12 43	13 17
Political Science	12 62	5 68
French Department	1 86	0 54
University College Incidentals	0 45	0 05
University Extension	24 85	13 17
Faculty of Medicine (\$4,632.64):		
Anatomical Department	107 75	73 04
Pathological Department	52 83	58 19
Chemical Pathology Department	203 00	53 21
Pharmacological Department	26 74	71 75
Medical Department . . . . .	.....	65 00
Obstetrics and Gynecology	1 48	0 28
Hygiene Department	10 39	9 25
Medical Building	1,657 51	521 75
Pathological Building	1,251 42	405 28
General Expenses	12 17	51 60
Faculty of Applied Science (\$10,663.49):		
Chemistry and Mining Building	2,426 34	685 08
Engineering Building	2,053 96	605 80
Thermodynamics Building	460 95	416 08
Observatory Building	202 10	114 78
Department of Electrical Engineering	234 30	132 92
Department of Mechanical Engineering	80 77	144 90
Department of Applied Mechanics	41 24	79 88
Department of Mining Engineering	478 30	298 06
Department of Metallurgical Engineering	637 07	354 64
Department of Surveying	70 46	30 24
Department of Applied Chemistry	371 51	181 35
Department of Electro-Chemistry	146 32	124 30
Department of Architecture and Drawing	124 12	70 03
Department of Engineering Physics and Photography	71 67	26 32
Faculty of Household Science (\$1,731.49):		
Household Science Building	1,236 68	477 03
Household Science Department	7 50	10 28
Faculty of Education (\$2,901.29):		
Education Building	1,782 67	512 69
Education Department	352 39	253 54

Stores and Labour Account.—Continued.

Faculty of Forestry (\$847.27):

Forestry Building	531 90	233 11
Forestry Department	57 21	25 05
Residences and Dining Hall (\$6,743.82):		
Men's Residences	4,397 03	915 45
Women's Residences	529 86	387 84
Women's Residence, Housekeeping Account	5 18	68 81
Dining Hall	282 22	157 43
Central Power Plant	4,307 47	1,503 11
University Press	45 79	49 33
Printing Plant Account	16 10	13 63
Antitoxin Laboratory Alterations	386 36	345 10
Museum Building Construction Account	621 30	.....
Pathological Building Construction Account..	863 09	881 07
Central Heat, Light and Power Construction Account	231 46	140 75
Knox College Extension	77 59	761 96
Alterations to No. 4 Queen's Park	1,456 13	808 53
Repairs to Rented Properties	188 58	148 61
Royal Ontario Museum	3,841 99	2,510 14
Medical Research Fund .....	.....	0 95
Work done for members of the staff, etc. (in- cluding accounts receivable on 30th June, \$568.87)	492 92	946 88

<u>\$49,965 03</u>	<u>\$21,452 54</u>
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<u>\$71,417 57</u>

Ledger balance 30th June, 1914, Schedule 5a.....	<u><u>\$3,616 40</u></u>
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APPENDIX VI.

DETAILS OF EXPENDITURE ON NEW BUILDINGS, ETC.

1. Central Heat, Light and Power Plant (Construction):

General Contracts (\$366,862.45):		
Babcock & Wilcox, boilers	\$25,768	85
Chapman & Walker, engine, \$8,095.98; electric meters, \$1,081.25	9,177	23
L. K. Comstock & Co., tunnels, etc., \$163,739.38; extra payment <i>re</i> errors, etc., \$5,200.00	168,939	38
Darling & Pearson, architects' and engineers' fees and expenses	27,378	38
W. J. McGuire, Ltd., tunnel piping, etc., \$79,679.65; extra payment <i>re</i> errors, etc., \$7,126.53	86,806	18
Murphy Iron Works, mechanical stokers	10,425	00
Purdy, Mansell, Ltd., power house piping	32,403	47
R. Robertson & Sons:—		
Chimney and smoke tunnel.....	\$5,699	00
Foundation for engine	167	16
Removal of boiler	72	90
Wall in tunnel	24	90
		<hr/>
	5,963	96
Lighting Grounds (\$4,000.00):		
Dominion Illuminating Rental Co., lamp standards...	1,000	00
R. Robertson & Sons, bases for standards	26	80
Superintendent's Dept., labor, \$1,127.08; material, \$1,846.12	2,973	20
Domestic Hot Water Supply (\$1,711.93):		
Superintendent's Dept., labor, \$530.27; material, \$1,181.66	1,711	93
Vacuum System for Main Building (\$4,599.82):		
R. Robertson & Sons, foundation for pump	49	80
Superintendent's Dept., labor, \$891.57; material, \$3,658.45	4,550	02
Floor Drain in Boiler Room (\$293.15):		
R. Robertson & Sons, masonry	187	20
Superintendent's Dept., labor, \$22.90; material, \$83.05.	105	95
Diverting City Water Mains (\$635.90):		
City Treasurer, diverting mains	604	11
Purdy, Mansell, Ltd., connecting service	31	79
Permanent connection with City Service (\$345.14):		
Toronto Electric Light Co., wiring	345	14
Switchboard Panel (\$1,000.00):		
Electrical Engineering Department (1911-12) for ex- penditure in connection with motor generator set.	1,000	00
Domestic Telephone System (\$799.38):		
Superintendent's Dept., labor, \$395.08; material, \$404.30	799	38
Route across Carbrook Property (\$3,000.00):		
J. H. Mayne Campbell & A. H. Campbell, executors of estate of the late A. H. Campbell	3,000	00
Interest on advances during construction (to Decem- ber, 1911)	5,448	46
		<hr/>
	\$388,696	23
Less received from sale of old material	1,717	22
		<hr/>
		\$386,979 01
Extension to Knox College:		
Superintendent's Dept., labor, \$77.59; material, \$761.96, on account of construction	839	55
		<hr/>
		839 55
		<hr/>
		\$887,818 56
Expended prior to 1913-14	\$324,489	86
Expended during 1913-14	63,328	70
		<hr/>
		\$387,818 56

Expenditures on New Buildings.—Continued.

2. Pathological Building (Construction):

General Contracts (\$134,454.53):

Canada Foundry Co., ornamental iron	\$5,525 00
Canada Glass, Mantels & Tiles, Ltd., marble and tile, \$5,884.90; hardware, \$1,718.45	7,603 35
R. C. Dancy, plastering	11,830 00
Darling & Pearson, architects' fees	6,685 97
Dominion Bridge Co., structural steel	10,369 10
Eadie, Douglas Co., terra cotta	2,100 00
Forbes Roofing Co., roofing and sheet metal	1,335 05
George Henry, carpentry	12,074 40
A. E. Phillips, painting and glazing	2,369 79
Purdy, Mansell, Ltd., plumbing and heating	16,207 68
R. Robertson & Sons, masonry	55,650 94
Turnbull Elevator Co., elevators	2,453 25
Superintendent's Dept., domestic hot water system, labor, \$77.93; material, \$172.07	250 00

Fence (\$367.10):

Canadian Allis-Chalmers, Ltd., fence and erection....	350 00
Superintendent's Dept., labor, \$14.40; material, \$2.70..	17 10

Roadway (\$221.20):

City Treasurer, crossing at Christopher Street	12 60
Britnell & Co., stone	41 10
Superintendent's Dept., labor	167 50

Equipment:

(a) General Interior Furnishings and Fittings

(\$33,728.28):

Alberene Stone Co., alberene stone	684 85
Wm. Bartlett & Sons, blinds	244 21
Canadian Fire Underwriters Association, inspection Canada Furniture Manufacturers, Ltd., chairs and stools	13 58
Canada Glass, Mantels & Tiles, Ltd., tiling	165 16
City Storage Co., cartage	99 00
Consumers' Gas Co., piping	1 90
J. H. Craig, drafting	6 50
Kent Company, Ltd., refrigerating plant	15 00
Geo. B. Meadows, Ltd., lockers	2,288 00
Morse-Bulger Destructor Co., animal destructor...	684 40
R. Robertson & Sons, animal house and destructor	270 00
Turnbull Elevator Mfg. Co., dumb waiter	124 40
Vereinigte Fabriken, animal house equipment	72 00
Williams & Cole, plans and specifications for fume cabinet	210 00
Freight charges	75 00
Superintendent's Dept., labor and material as follows:	20 12

Labor. Material.

Laboratory plumbing, carpentry, painting, etc.	\$13,581 35	\$10,164 77
Animal house and de- structor	226 90	535 80
Refrigerating plant .	299 83	404 22
Fume flues	533 76	501 90
Locks for laboratory cupboards .....	.....	679 43
Shelf supports for laboratory tables ..	.....	382 85
Lecture room seats..	133 76	380 94
Chart drawers	42 00	32 50
Blackboards	76 52	7 31
Chairs and stools	42 79	21 62
Library furniture ...	62 56	.....
Lockers	18 51	29 00

Expenditures on New Buildings.—Continued.

Shades	8 60	.....
Autopsy room	191 95	207 09	
Telephones and bells.	25 30	162 90	
	\$15,243 83	\$13,510 33	\$28,754 16
(b) Instruments and Apparatus for the Department of Pathology (\$3,465.56):			
J. F. Hartz Co., epidiascope and drawing apparatus			\$634 16
Topley Company, microscopes			2,400 00
Spencer Lens Co., microtome and paraffin baths..			431 40
(c) Instruments and Apparatus for the Department of Chemical Pathology (\$7,925.74):			
Baird & Tatlock, Ltd., blowpipes, \$44.12; centrifuge, \$27.00; calorimeter, \$56.00; digesters and stills, \$28.17; gas apparatus, \$74.03; incubator, \$100.00; sterilizer, \$115.75; vacuum plant, \$52.46; staff outfit, \$125.00; students' outfit, \$59.00			681 53
Brown & Son, still			41 25
Doan Bros., Ltd., operation room equipment			63 00
Eimer & Amend, pumps, \$35.13; burners, \$26.00..			61 13
Geo. M. Hendry Co., water pump			1 10
Ingram & Bell, operation room equipment			11 03
International Instrument Co., centrifuges, \$529.55; digesters and stills, \$257.65			787 20
Inland Revenue Dept., methylated spirits			31 92
Johnson, Matthey & Co., platinum ware and dishes			106 41
Kny-Scheerer Co., students' outfit			69 79
W. H. Kuhlmann, balance			65 31
C. F. Palmer, kymograph			464 73
R. Robertson & Sons, concrete work for centrifuge			75 00
Franz Schmidt & Haensch, polarimeters, \$220.71; spectroscopes, \$126.75			347 46
Theodor Schuchardt, reagents and stock			406 95
Vereinigte Fabriken: autoclaves, \$120.00; balances, \$183.25; blowpipes, \$50.00; calorimeter, \$31.00; drying apparatus, \$13.00; furnaces, \$135.40; gas apparatus, \$46.00; glassware, \$415.73; mills, \$50.00; ovens, \$87.00; press, \$31.00; shaker, \$40.00; vacuum plant, \$89.00; staff outfit, \$138.00; students' outfit, \$579.66; clinical laboratory outfit, \$330.00; reagent and stock bottles, \$500.00			2,839 04
Wilhelm Walb, operation room equipment.....			16 80
Freight charges			210 71
Superintendent's Dept., labor and material as follows:—			
	Labor.	Material.	
Centrifugal machine.	\$17 48	\$33 66	
Compressor	36 88	211 49	
Pumps	28 50	388 50	
Motors and shafting.	51 24	77 91	
Stands, racks, etc . .	469 44	108 26	
Operation room equipment	13 00	5 10	
Workshop outfit	153 03	50 89	
	\$769 57	\$875 81	
			1,645 38
Clinical Theatre at Toronto General Hospital (\$775.35):			
Wm. Bartlett & Son, blinds			28 32
Geo. M. Hendry Co., chairs			600 00
Superintendent's Dept., labor, \$94.73; material, \$52.30			147 03

Expenditures on New Buildings.—Continued.

Furnishing Mortuary Chapel (\$147.92):

Superintendent's Dept., labor \$131.17; material, \$16.75	147 92	
		\$181,085 68
Expended prior to 1913-14	\$159,741 10	
Expended during 1913-14	21,344 58	
		<u>\$181,085 68</u>

3. Museum Building (Construction):

On account of General Contracts (\$11,746.33):

Alkenhead Hardware, Ltd., hardware	\$1,039 88	
R. C. Dancy, plastering	2,000 00	
McDonald & Wilson, electric fixtures	706 45	
Rice, Green & Co., electric wiring	500 00	
R. Robertson & Sons, masonry	7,500 00	
Grading, etc. (\$1,020.14):		
City Treasurer, crossing at Bloor St.	33 24	
R. Robertson & Sons, stone and culverts	86 90	
W. H. Thomson, teaming	331 50	
Superintendent's Dept., labor	568 50	
Fittings and Equipment (\$250.45):		
T. Eaton Co., mats	52 50	
Rice Lewis & Son, turnstiles	145 15	
Superintendent's Dept., labor, making cases	52 80	
		\$13,016 92
Expended prior to 1913-14		355,563 56
		<u>\$368,580 48</u>

4. Women's Residences:

No. 4 Queen's Park:

Alterations (\$4,908.82):

Canadian Fire Underwriters' Association, electrical inspection	4 00	
Canadian H. W. Johns-Manville Co., covering boil- ers	14 25	
City Treasurer, installing water mains	28 00	
A. Matthews, metal work and piping	131 30	
Routery Bros., plastering	387 80	
Superintendent's Dept., labor, \$2,535.38; material, \$1,808.09	4,343 47	
		\$4,908 82

Furnishings (\$3,839.32):

Alderson, Hammond & Ritchey, finishing floors	\$58 00
Anchor Mfg. Co., beds	145 70
Wm. Bartlett & Son, shades	30 34
W. R. Brock & Co., carpet, linen, etc.	454 05
John Brown, blankets	151 12
Canada Furniture Mfrs., Ltd., furniture	1,486 48
John Catto & Sons, spreads	27 00
T. Eaton Co., trays	7 20
John Macdonald & Co., curtains	8 62
F. J. Moore, tables	69 00
Murray-Kay, Ltd., linoleum, rugs, etc.	778 24
P. Myles, wardrobe	50 00
Phillips Mfg. Co., mirrors	12 35
M. Rawlinson, cartage	5 65
Robert Simpson Co., gas appliance	1 75
Standard Bedding Co., mattresses	119 40
Toronto Silver Plate Co., cutlery	113 26

Expenditures on New Buildings.—Continued.

Freight charges	39 47	
Superintendent's Dept., labor, \$176.72; material, \$121.97	298 69	
		\$3,856 32
Credit for bookcase supplied Library	17 00	
		\$3,839 32
		\$8,748 14
Less amount received from the Ontario Govern- ment in lieu of repairs after occupation....	800 00	
		\$7,948 14
Expended prior to 1913-14	\$2,498 50	
Expended during 1913-14	5,449 64	
		\$7,948 14

REPORT
OF THE
Secretary and Registrar

OF THE
PROVINCE OF ONTARIO

FOR THE YEAR
ENDING 31st DAY OF OCTOBER

1914

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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1915

Printed by
WILLIAM BRIGGS
Corner Queen and John Streets
TORONTO

To His Honour, JOHN STRATHEARN HENDRIE, Commander of the Royal Victorian Order, a Lieutenant-Colonel of the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs respectfully to present to Your Honour the Report prepared with respect to the chief transactions of the Department of the Secretary and Registrar of the Province of Ontario during the year ending the 31st day of October, 1914.

W. J. HANNA,

Secretary and Registrar of the Province of Ontario.

PROVINCIAL SECRETARY'S OFFICE,
Toronto, April 14th, 1915.

REPORT

OF THE

SECRETARY AND REGISTRAR

OF THE PROVINCE OF ONTARIO

For the Year ending October 31st, 1914

PROVINCIAL SECRETARY'S OFFICE,

TORONTO, April, 1915.

To the Honourable

WILLIAM JOHN HANNA, M.P.P.

Secretary and Registrar of the Province of Ontario.

SIR:—I beg leave to submit the Annual Report of the Provincial Secretary's office for the year ending October 31st, 1914, showing details of the various services rendered by the office during that period.

The following table shows the fees as they were received month by month:

STATEMENT OF OFFICE FEES RECEIVED, BY MONTHS, 1914.

November.....	\$15,757 50
December.....	19,161 30
January.....	62,283 40
February.....	41,507 76
March.....	36,900 18
April.....	42,244 39
May.....	38,728 32
June.....	33,759 76
July.....	26,966 17
August.....	18,089 97
September.....	12,608 70
October.....	11,774 86

Total..... \$359,782 31

STATEMENT OF SOURCE OF FEES RECEIVED DURING 1914.

Letters Patent, Licenses, etc.....	\$176,270 05
Companies' Returns	29,784 00
Automobile Licenses	149,210 45
Commissions.....	2,076 30
Certificates.....	184 15
By-Laws, Copies and Searches.....	2,257 36

Total..... \$359,782 31

NUMBER OF CHARTERS AND LICENSES ISSUED.

Year.	Number of Instruments.	Fees.
1892.....	158	\$6,780 00
1893.....	138	8,465 00
1894.....	139	7,729 00
1895.....	174	10,000 00
1896.....	154	14,335 00
1897.....	358	34,650 00
1898.....	295	23,820 00
1899.....	416	60,817 00
1900.....	438	71,179 00
1901.....	450	75,782 00
1902.....	591	95,330 00
1903.....	578	107,166 00
1904.....	673	87,177 00
1905.....	828	108,621 00
1906.....	1,045	181,998 11
1907.....	1,067	227,312 90
1908.....	924	132,252 50
1909 (ten months).....	828	171,695 80
1909-10.....	1,110	183,780 45
1910-11.....	1,211	235,662 10
1911-12.....	1,288	232,079 05
1912-13.....	1,305	232,364 35
1913-14.....	1,120	176,270 05

REPORT OF LICENSES ISSUED FOR AUTOMOBILES, ETC., DURING THE YEAR 1914.

<i>Auto Licenses:</i>		
To cars owned in Ontario.....	25,308	
To others	6,416	
		31,724
<i>Motor Cycle Licenses:</i>		
To motorcycles owned in Ontario.....	3,457	
To others	176	
		3,633
To chauffeur licenses.....	3,763	
		3,763
Total receipts for all licenses.....		\$149,210 45

The usual Tables and Appendices accompany this Report.

All of which is respectfully submitted,

S. A. ARMSTRONG,
Provincial Secretary.

APPENDIX A.

List of Companies incorporated for the year 1914, ending October 31st.

Name.	Address.	Capital.
A.		
Aurora Rink Company, Limited	Aurora.....	\$25,000
Algonquin Ranch Company, Limited	Trout Creek....	40,000
Automat Advertising Company of Canada, Limited, The.....	Toronto.....	40,000
Aird Island Logging & Trading Company, Limited	Spanish Mills..	10,000
Anchor Cap & Closure Corporation of Canada, Limited	Toronto.....	50,000
Arthur Flour Mills, Limited, The	Arthur.....	40,000
Auto Supplies, Limited	Toronto.....	40,000
Allfeatures, Limited	Toronto.....	40,000
Ante-Fired Clay Products Company, Limited, The	London.....	250,000
Antonio Silver Mines, Limited	Toronto.....	1,500,000
Appin Cemetery Company, Limited, The	Appin.....	3,000
Azoff Natural Gas Company, Limited, The	Canfield.....	40,000
Atikokan Development Company, Limited, The	Fort Frances..	40,000
Alvinston Brick and Tile Company, The	Alvinston.....	40,000
Adams Block, Limited	Lindsay.....	40,000
Armstrong & DeWitt, Limited	Toronto.....	40,000
American Textile Machine Company, Limited	Toronto.....	40,000
Adelaide Leaseholds, Limited	Toronto.....	40,000
Advertiser Job Printing Company, Limited, The	London.....	150,000
Almas Confectionery Company, Limited, The	Hamilton.....	40,000
Anglo-Canadian Oils, Limited	Toronto.....	100,000
Arnold & Bell, Limited	Sudbury.....	100,000
Armstrong & Paffard, Limited	Toronto.....	100,000
Allan General Supplies, Limited	Toronto.....	50,000
Austin Press, Limited	Toronto.....	40,000
Attercliffe Standard Brick, Block and Tile Company, Limited	Attercliffe Sta..	40,000
Anglo-Canadian Construction Company, Limited	North Bay.....	100,000
Alliance Realty Company, Limited	Toronto.....	100,000
Anglo-Canadian Motor Sales Company, Limited	Toronto.....	50,000
Arrow Neckwear Company, Limited, The	Toronto.....	40,000
B.		
Breslau Wood Products Company, Limited	Breslau.....	25,000
Blodgett Reinforced Safety Tube Company, Limited	Toronto.....	100,000
Brantford Heights, Limited	Hamilton.....	40,000
Beach Furniture, Limited	Cornwall.....	99,900
Burlington Skating Rink Company, Limited, The	Burlington.....	10,000
British Home Building Company (Toronto), Limited, The...	Toronto.....	150,000
Brick & Dundas, Limited	London.....	40,000
Baker Construction Company, Limited	Toronto.....	\$40,000
Border Cities Realty Company, Limited	Windsor.....	50,000
Belleville Creamery, Limited	Belleville.....	30,000
Building Products, Limited	Toronto.....	200,000
Brantford Exterior Cleaning Company, Limited	Brantford.....	40,000
Boyd Pressed Brick Company of Milton, Limited	Milton.....	200,000
Beaver-Acetylene Company, Limited	Toronto.....	40,000
Brockville, Country Club, Limited, The	Brockville.....	40,000
Barrie Club, Limited, The	Barrie.....	40,000
Beam Bros. Manufacturing Company, Limited, The	Waterloo.....	40,000
Buff Pressed Brick Company of Hamilton, Limited, The ...	Hamilton.....	40,000
Beeson Non-Skid Tire Band Company, Limited	Ford.....	40,000
Bertrand Lockhart Lumber Company, Limited, The	Port Arthur....	75,000
Business Aids, Limited	Toronto.....	40,000
Brant Theatre Company, Limited, The	Brantford.....	100,000
Burrows of Belleville, Limited	Belleville.....	50,000
Burk's, Limited	Toronto.....	40,000
Brantford Computing Scale Company, Limited, The	Brantford.....	150,000

List of Companies incorporated for the year 1914, ending October 31st.—*Continued.*

Name.	Address.	Capital.
Barrie Masonic Temple Company, Limited	Barrie.....	40,000
Bartlett Vehicle Patents, Limited	Toronto.....	250,000
Berlin Floral Company, Limited, The	Berlin.....	40,000
Brampton Estates, Limited	Toronto.....	200,000
Brantford Piano Case Company	Brantford.....	100,000
Bath, W. T.	Midland.....	40,000
Belleville Club, Limited, The	Belleville.....	15,000
Benjamin Wheel Company, Limited	Yarker.....	150,000
Baldwin, Evans & Co., Limited	West Lorne....	10,000
Beaver Bag Manufacturers, Limited	Toronto.....	40,000
Bowlby Sand, Lime, Brick Company, Limited	Milton.....	100,000
Bennett & Thwaites, Limited	Hamilton.....	75,000
Brockville Paper Box Company, Limited, The	Brockville....	10,000
Berlin Office & Fixture Company, Limited, The	Berlin.....	60,000
British Canadian Import Company, Limited	Toronto.....	1,000,000
Bobcaygeon Rural Telephone Company, Limited	Bobcaygeon....	4,200
Burnaby Lumber Company, Limited	Toronto.....	40,000
Burgess, J. W., Limited	Bala.....	40,000
Blohm Company, Limited, C.A.	Trenton.....	50,000
Blagdon, Limited	Toronto.....	100,000
Blachford Shoe Manufacturing Company, Limited	Toronto.....	50,000
British Canadian Film Company, Limited	Toronto.....	40,000
Broadway Social Club, Limited	Toronto.....	40,000
Baldwin Pianos, Limited	St. Thomas....	40,000
Builders' Cement Tiles, Limited	Hamilton.....	40,000
Buck Lake Mining Company, Limited	Kingston.....	50,000
Bassett Steamship Company, Limited	Toronto.....	100,000
Baker Laundry, Limited, The	Ottawa.....	80,000
Best Weather Strip Company, Limited	Hamilton.....	40,000
Bassano Townsites Company, Limited	Toronto.....	100,000
Berlin Home Builders and Investments, Limited	Berlin.....	40,000
Brantford Bowling and Athletic Club, Limited	Brantford.....	10,000
Boxall and Matthie, Limited	Lindsay.....	40,000
Bargnesi Company, Limited, The	Copper Cliff..	40,000
Beachburg Milling Company, Limited, The	Pembroke.....	40,000
Beaver Wood Fibre Company, Limited, The	Thorold.....	1,000,000
Belmont Property Company of Ottawa, Limited, The	Ottawa.....	20,000
Barton Sand and Gravel Company, Limited, The	Hamilton.....	100,000
Bijou Theatre Company, Limited	Kenora.....	25,000
C.		
Capital Lands Corporation, Limited	Toronto.....	40,000
City Garage Company of North Bay, Limited, The	North Bay.....	40,000
Century Pressed Brick & Tile Company, Limited	Georgetown....	250,000
Citizens' Fuel and Ice Company, Limited	Hamilton.....	500,000
Cliffside Park, Limited	Toronto.....	40,000
Canadian Bartlett Automobile Company, Limited	Toronto.....	1,000,000
Cleary Mines, Limited	Toronto.....	1,000,000
Champion Brick and Tile Company, Limited, The	Kingsville....	75,000
Consumers' Tire and Rubber Company, Limited, The	St. Catharines.	800,000
Canadian Sales Agency, Limited	Hamilton.....	40,000
Columb Tyres Import Company, Limited	Toronto.....	50,000
Canadian Elevator Equipment Company, Limited	Toronto.....	100,000
Credit Valley Stone Company, Limited, The	Toronto.....	250,000
Construction Supply Company, Limited	Toronto.....	60,000
Canadian Oak Leather Company, Limited, The	Brantford.....	100,000
Commercial Account Registers, Limited	Toronto.....	100,000
Canadian Mantel and Refrigerator Company, Limited, The	Hamilton.....	100,000
Connolly-Agnew Construction Company, Limited, The	Toronto.....	40,000
Concrete Builders, Limited	Oshawa.....	50,000

List of Companies incorporated for the year 1914, ending October 31st.—*Continued.*

Name.	Address.	Capital.
Casey Majestic Mines, Limited	Toronto	40,000
Canadian College of Mano-Therapy, Limited, The	Hamilton	40,000
Canadian Kennedy Manufacturing and Engineering Company, Limited	Niagara Falls	40,000
Cobalt South Silver Mining Company, Limited	Toronto	1,000,000
Canadian Copper and Armour Plate Company, Limited	Toronto	1,000,000
Cochrane Northland Post, Limited, The	Cochrane	10,000
Chapmans, Limited	Toronto	300,000
Canadian Auxiliary Syndicate, Limited	Toronto	40,000
Canadian Sewer Pipe and Clay Product Company, Limited	Hamilton	150,000
Clauss Shear Company, Limited, The	Toronto	40,000
Custodis Canadian Chimney Company, Limited	Toronto	50,000
Canadian Maier Company, Limited	Toronto	25,000
City Homes, Limited	Toronto	40,000
Central Ice and Cold Storage Company, Limited	Windsor	500,000
Canadian Peat Company, Limited, The	Toronto	250,000
Consolidated Cafes, Limited	Toronto	40,000
Capital Brewing Company, Limited, The	Ottawa	100,000
Canadian Union Metal, Limited	Galt	40,000
Carleton Dairy, Limited	Ottawa	100,000
Canadian Engineering and Contracting Company, Limited	Hamilton	100,000
Canadian Metal Products, Limited	Guelph	100,000
Canadian Casket Company, Limited	Warton	300,000
Couchiching Country Club, Limited	Orillia	40,000
Canadian Home Construction Company, Limited	Windsor	40,000
Canadian Live Stock News, Limited, The	Toronto	40,000
Cecil Investments, Limited	Ottawa	250,000
Canadian Fertilizer Company, Limited	Chatham	40,000
Chick Contracting Company, Limited	Windsor	100,000
Canadian Mersereau Company, Limited	Toronto	25,000
Canadian Niagara Linens, Limited	Niagara Falls	300,000
Cloverdale Creamery, Limited, The	Hamilton	40,000
Crescent Dresses, Limited	Toronto	40,000
Canadian Turbine Company, Limited	Toronto	50,000
Cataract Junction Sand and Gravel Company, Limited, The	Toronto	50,000
Connaught Northern Hotel, Limited	Toronto	50,000
Canadian Burrell Company, Limited	Windsor	40,000
Coal Trestle Company, Limited	Ottawa	300,000
Carleton Amusement Company	Ottawa	40,000
Canadian Fleischer Gas Company, Limited	Toronto	40,000
Canadian Expansion Bolt Co., Limited	Toronto	40,000
Crystal, H. S. & T. Company, Limited	Toronto	10,000
Canadian Menace Publishing Company, Limited	Aurora	40,000
Canada Breweries, Limited	Toronto	3,000,000
Consolidated Assets Company, Limited	Toronto	500,000
Consumers Mail Order Company, Limited, The	Alliston	40,000
Canadian Zagelmeyer Company, Limited	Windsor	30,000
Conness-Till Film Company, Limited, The	Toronto	50,000
Criterion Manufacturing Company of Toronto, Limited, The	Toronto	40,000
Canada Chain Company, Limited, The	Sarnia	40,000
Canada Lock Company, Limited	Hamilton	60,000
Canada Cut Glass Company, Limited	Toronto	25,000
Capital Contractors, Limited	Ottawa	40,000
City Properties, Limited	Toronto	40,000
Carlton Hotel Company, Limited, The	Ottawa	40,000
Crystal Beach Midway Restaurant, Limited	Crystal Beach	40,000
Canadian Sand and Gravel Company, Limited, The	Thorold	100,000
Copper Cliff General Supply Company, Limited	Copper Cliff	25,000
Canadian Automatic Fire Alarm Company, Limited, The	Bracebridge	40,000
Cart Lake Cobalt Silver Mines, Limited	Toronto	2,000,000
Charles Mueller Company, Limited, The	Waterloo	250,000

List of Companies incorporated for the year 1914, ending October 31st.—*Continued.*

Name.	Address.	Capital.
Canadian Dolarway Paving Company, Limited, The	Windsor.....	40,000
Canadian Picture Stamp Company, Limited, The	Ottawa.....	40,000
Canada Pole and Shaft Company, Limited, The	St. Catharines..	400,000
Connaught Building Corporation, Limited	Mimico.....	40,000
Carleton Apartments, Limited, The	Hamilton.....	50,000
Campbell, T. J., Company, Limited	Midland.....	25,000
Canadian-Detroit Steel Products, Limited	Windsor.....	40,000
Canadian Sporting Life, Limited	Toronto.....	10,000
Commercial Printing Company, Limited, The	Toronto.....	40,000
Canadian Novelty and Supply Company, Limited	Waterloo.....	60,000
Schipper, N. B., Company, Limited	Toronto.....	40,000
City Metal Products Company, Limited	Ford City.....	100,000
Canadian Storage Battery Company, Limited	Toronto.....	40,000
Coomac Oil Fields, Limited	Toronto.....	3,000,000
Chippewa Development Company, Limited	Chippewa.....	40,000
Crompton, E. B., & Company, Limited	Bracebridge....	150,000
Caslake, J. A., Limited	Collingwood....	40,000
Cobourg Felt Company, Limited, The	Cobourg.....	200,000
Clansman Mines, Limited	Toronto.....	1,500,000
Cemco, Limited	Toronto.....	40,000
Cooper, The, H. S. Company, Limited	Toronto.....	40,000
Canadian Coil Company, Limited	Walkerville....	40,000
Canadian Journal of Music, Limited	Toronto.....	50,000
Canada Yeast and Manufacturing Company, Limited	Toronto.....	100,000
Canadian Pure-o-phone Company, Limited	Toronto.....	100,000
Curtis Fire Systems, Limited	Berlin.....	250,000
Canadian Simplex Motors, Limited	Toronto.....	40,000
Canadian Jewish Publishing Company, Limited	Toronto.....	40,000
Canadian Shipbuilding and Dry Dock Company, Limited ..	Owen Sound....	2,000,000
Caldwell Feed and Cereal Company, Limited	Dundas.....	100,000
Caulfield, S., & Sons, Limited	Toronto.....	40,000
Comfort Horseshoe Company, Limited, The	Toronto.....	15,000
Clifton Sand and Gravel Corporation, Limited	Toronto.....	150,000
Canadian-American Graphite Company, Limited	Prescott.....	250,000
Campbell's Whitewear Company, Limited.....	Toronto.....	40,000
Central Casket Company, Limited	Welland.....	40,000
Copeland Medicine Company, Limited	Toronto.....	80,000
Canadian Credit Men's Association, Limited, The.....	Toronto.....	40,000
Creosoted Block Paving Company, Limited.....	Toronto.....	100,000

D.

Dickson Building Company, Limited, The.....	Dundas.....	40,000
Dart Cycle Car Company, Limited, The	Toronto.....	100,000
Dominion Agency Corporation, Limited	Toronto.....	40,000
Dominion Milk Flour Company, Limited, The.....	Listowel.....	100,000
Dominion Suspender Company, Limited, The.....	Niagara Falls..	500,000
DeMar Novelty Company, Limited	Fort Erie.....	10,000
Drayton Mills, Limited	Toronto.....	50,000
Dominion Mausoleum Company, Limited, The.....	Brantford.....	40,000
Dunlop Coal Company, Limited	Toronto.....	50,000
Dominion Lock Company, Limited	Toronto.....	100,000
Darlow Detective Agency, Limited	Toronto.....	40,000
Devitt and Company, Limited	Toronto.....	40,000
Dumarts, Limited	Berlin.....	40,000
Demees Electroplating and Manufacturing Company.....	Toronto.....	40,000
Driftwood Lands and Timber, Limited.....	Toronto.....	150,000
Dunning's, Limited	Toronto.....	100,000
Daly Tea Company, Limited, The	Napanee.....	300,000
Davies & Newton, Limited	Toronto.....	40,000

List of Companies incorporated for the year 1914, ending October 31st.—*Continued.*

Name.	Address.	Capital.
Dunlop and Company, Limited	Pembroke.....	300,000
Dominion Clay Products Company, Limited, The.....	Toronto.....	350,000
Dyer, W. E., Company, Limited	Toronto.....	250,000
Dunn-Hortop, Limited	Toronto.....	40,000
Dominion Motor Car Company, Limited	Berlin.....	40,000
Dominion Fur Farming Company, Limited, The.....	Ridgetown.....	100,000
Day Building Company, Limited, The.....	Sudbury.....	40,000
Dominion Linens, Limited	Guelph.....	300,000
Diver, The J. M. Sons & Company, Limited.....	Sarnia.....	100,000
Dove-Smith Inventions Development Company, Limited.....	Niagara Falls..	50,000
Dominion Cigar Company, Limited	Hamilton.....	40,000
Dale Wax Figure Company, Limited.....	Toronto.....	50,000
Direct Sales Company, Limited	Toronto.....	40,000
Dartmoor, Limited	Toronto.....	162,000
Dominion Travelling Bag Registry, Limited.....	Toronto.....	40,000
Dutton Fruit and Vegetable Growers, Limited, Company.....	Dutton.....	40,000
Dominion Ironite Company, Limited	Waterloo.....	40,000
Dominion Builders' Supplies, Limited	Toronto.....	40,000
E.		
East Hamilton Home Builders, Limited.....	Hamilton.....	100,000
Exeter Manufacturing Company, Limited, The.....	Exeter.....	20,000
Eureka Fence Brace Company Limited, The.....	Essex.....	20,000
Excelsior Plate Glass Company, Limited.....	Toronto.....	50,000
East Main Street Welland Syndicate, Limited.....	Toronto.....	40,000
Erie Construction Company, Limited.....	Toronto.....	40,000
Edmund Scheuer, Limited	Toronto.....	150,000
Equity Builders and Contractors, Limited.....	Toronto.....	40,000
Eureka Smoke Consumer Company of Canada, Limited.....	Toronto.....	10,000
East Welland Park Land Company, Limited, The.....	Toronto.....	40,000
Emmett Company, Limited, The	Toronto.....	40,000
Essa Fish, Fur and Sporting Company, Limited, The.....	Toronto.....	40,000
Electric Palaces, Limited	Hamilton.....	40,000
Eureka Rubber and Tire Company, Limited, The.....	Toronto.....	40,000
Elgin Farmers, Limited, The.....	St. Thomas.....	100,000
Eganville Enterprise Printing and Publishing Co., Limited...	Eganville.....	10,000
Edgemount Realty Company, Limited	Toronto.....	40,000
Elora Furniture Company, The, Limited	Elora.....	40,000
Electric Bond and Share Company, Limited	Hamilton.....	100,000
Edward Irvine and Company, Limited	Toronto.....	10,000
Eastwood Land Company, Limited, The	Toronto.....	40,000
Elms Amusement Company, Limited	Crystal Beach..	40,000
Excelsior Electric Manufacturing Company, Limited.....	Toronto.....	40,000
Empire Music and Travel Club, Limited.....	Toronto.....	25,000
Eastern Cities House Building Company, Limited.....	Toronto.....	100,000
Edmonton Stock Yards, Limited	Toronto.....	1,500,000
Essex Motorcycle and Machine Company, Limited	Essex.....	100,000
F.		
Fitzgerald and Company, Limited	Toronto.....	50,000
French River Lumber Company, Limited, The.....	Toronto.....	40,000
Fidelity Agency Corporation, Limited	Toronto.....	40,000
Fort William Baseball and Amusement Company, Limited...	Fort William..	10,000
Frank H. Harris Lumber Company, Limited	Toronto.....	40,000
Fox Chain Company, Limited	Hamilton.....	200,000
Fort William Printers, Limited.....	Fort William..	40,000
Frontenac Mica Company, Limited.....	Sydenham.....	50,000
Farrell Engineering Company, Limited, The	North Bay.....	40,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Fortier and Walker, Limited	Toronto.....	40,000
Fort William Opera Company, Limited	Fort William...	150,000
Flax Towels, Limited	Gravenhurst...	100,000
Fussel-McReynolds Company, Limited	Toronto.....	40,000
Fireco Range Company, The	Hespeler.....	50,000
Favary Tire Company, Limited	Toronto.....	500,000
Ford-Smith Machine Company, Limited, The.....	Hamilton.....	100,000
Fischhman Mattress Company, Limited	Toronto.....	40,000
Fitzpatrick & O'Connell, Limited	Toronto.....	40,000
Fearman, The F. W. Company, Limited.....	Hamilton.....	500,000
Fibre Boxes, Limited	Toronto.....	40,000
Fort Frances Athletic and Driving Association, Limited, The	Fort Frances...	40,000
Fairbanks, H. C., Limited	Toronto.....	50,000
Fidelity Construction Company, Limited	Toronto.....	40,000
Fashion Shop, Limited, The.....	Toronto.....	40,000
Frank Wilson & Company, Limited.....	Midland.....	40,000
Fairgrieve Metal and Stamping Company, Limited.....	Toronto.....	75,000
Field Lumber Company, Limited, The.....	Field.....	50,000
Fibred-Asphalt Paving Company, Limited	Toronto.....	500,000
Finch Brothers, Limited	Hamilton.....	125,000
Feick Manufacturing Company, Limited, The	Berlin.....	40,000
Ford's, Limited	Toronto.....	40,000
Fleming Publishing Company, Limited	Owen Sound...	40,000
Flexilac Paint Company, Limited	Toronto.....	50,000
G.		
General Exploration Company, Limited	Toronto.....	250,000
Givin, J. M., Limited	Toronto.....	50,000
Globe Casket Company, Limited	London.....	40,000
Galt Knife Company, Limited	Galt.....	50,000
Gould-Leslie, Limited	Brantford.....	40,000
Gardner Basket Company, Limited, The.....	St. Catharines..	45,000
Great Northern Land Company, Limited (Amalgamation)...	Toronto.....	600,000
Georgian Bay Summer Resort Company, Limited, The.....	Owen Sound...	60,000
Graphic Advertisers, Limited	Toronto.....	40,000
Great West Securities, Limited	Toronto.....	40,000
Garment, The J. & G. Manufacturing Company, Limited.....	Toronto.....	40,000
Gay Company, Limited, The.....	Oshawa.....	40,000
Gibson and Company, Limited	Toronto.....	100,000
Green, H. C., Limited	Toronto.....	40,000
Glen Boyd, Limited	Toronto.....	230,000
General Builders and Investments, Limited.....	Fort William...	250,000
Gowganda Power Company	Gowganda.....	100,000
Graham Hotel Company, The	Port Arthur ...	50,000
Great Manitou Park Company, Limited.....	North Bay.....	40,000
General Vending Machines, Limited	Windsor.....	25,000
George Taylor Hardware, Limited	New Liskeard .	250,000
Gerard Mines, Limited	Ottawa.....	1,000,000
Great Western Exploration Company, Limited.....	Toronto.....	100,000
Grimsby Specialty Company, Limited	Grimsby.....	50,000
General Adjustment Bureau of Canada, Limited, The.....	Toronto.....	50,000
Georgian Bay Navigation Company, Limited.....	Owen Sound ...	40,000
Grand Valley Commercial Temperance Hotel Company, Limited, The	Grand Valley...	10,000
Galt Wire and Ornamental Iron Company, Limited, The.....	Galt.....	40,000
Guilford, Limited	Toronto.....	160,000
Glen Lake Cobalt Mines, Limited	Toronto.....	1,000,000
Greater Toronto Lands, Limited	Toronto.....	100,000
Gas Accumulator Company (Canada), Limited	Toronto.....	50,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Glass Garden Builders, Limited.....	Toronto.....	50,000
Gardner Mercantile Company, Limited, The	Arnprior.....	35,000
Germerica Mining Company, Limited	Windsor.....	650,000
Gordon Agencies, Limited	Port Arthur....	40,000
H.		
Haldimand Montana, Limited	Toronto.....	40,000
Hepworth Silica Pressed Brick Company, Limited, The.....	Hepworth.....	125,000
Happy Home Medicine Company, Limited	Toronto.....	40,000
Hamilton Molybdenum Alloys Company, Limited	Hamilton.....	500,000
Hill-Willeoc Patents Company, Limited	Windsor.....	40,000
Hubbs and Hubbs, Limited.....	Toronto.....	40,000
Heaton and Meir, Limited	Toronto.....	20,000
Hulbert, The L. R. Company, Limited	St. Catharines..	40,000
Hunton-Kirkland Gold Mines, Limited	Haileybury....	1,500,000
Hebrew Mutual Corporation, Limited	Toronto.....	30,000
Hardie Redmond Company, Limited	Toronto.....	40,000
Hamilton Co-operative Grocery Corporation, Limited.....	Hamilton.....	5,000
Huntsville Woollen Mills Company, Limited, The	Huntsville.....	40,000
Hamilton Sand and Gravel, Limited	Hamilton.....	80,000
Hamilton Baseball Club, Limited, The	Hamilton.....	40,000
Humphrey Bicycle and Motor Company, Limited	Toronto.....	100,000
Hope Manufacturing Company, Limited	Toronto.....	40,000
Harrison, J. A., Coal Company, Limited	Toronto.....	100,000
Honeyford and Vernon, Limited	Collingwood....	40,000
Huron Club, Limited, The	Collingwood....	5,000
Health Milk, Limited	London.....	150,000
Haberdashers, Limited	Ottawa.....	40,000
Henry Morris, Limited	Toronto.....	40,000
Harrison, The T. F. Company, Limited.....	Kingston.....	50,000
Hamilton Gas and Oil, Limited	Hamilton.....	40,000
Hotel-and-Trade Laundries, Limited	Toronto.....	100,000
Hutchinson Woodworker and Contracting Company, The.....	Toronto.....	40,000
Hillcrest Park, Limited, The	Brockville....	40,000
Hoover Electric Cleaning and Service Company, Limited, The	Toronto.....	40,000
Harvey National Supply and Manufacturing Company, Limited,	Toronto.....	50,000
ited, The		
Herkimer Apartments, Limited	Hamilton.....	150,000
Homewood Apartments, Limited	Toronto.....	40,000
Haynes Press, Limited, The.....	Toronto.....	40,000
Honsinger Cigar and Tobacco Company, Limited.....	St. Thomas....	100,000
Hedley Shaw Milling Company, Limited	Toronto.....	1,000,000
Hotel Adelaide, Limited	Toronto.....	40,000
Huntsville and Lake of Bays Telephone Company, Limited,		
The	Dwight.....	4,000
Hydro Vacuum, Limited	Toronto.....	60,000
Henry Davis and Company, Limited	Toronto.....	40,000
Harris and Harris, Limited	Toronto.....	50,000
Hoshal, Limited	Toronto.....	40,000
Harold Hats, Limited	Toronto.....	40,000
Hammell, Ryan and Harris, Limited	Toronto.....	40,000
Hamilton Farm Products Company, Limited, The	Hamilton.....	40,000
Hermann Johnston Motors, Limited	Toronto.....	500,000
Hermans, Limited	Toronto.....	10,000
His Master's Voice, Limited	Toronto.....	100,000
Household Co-operative Stores, Limited.....	Toronto.....	400,000
Hibernian Hall Association, Limited, The.....	Toronto.....	40,000
Hepinstall, C. H. & Sons, Limited.....	St. Thomas....	40,000
Haldimand Realty Company, Limited.....	Hamilton.....	100,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
I.		
Inland Pulp & Paper Company, Limited.....	Thorold.....	200,000
International Capitalists, Limited.....	Toronto.....	500,000
Iberville Realty, Limited.....	Ottawa.....	100,000
Industrial Publishing Company, Limited, The.....	Toronto.....	150,000
Inland Construction Company, Limited, The.....	Toronto.....	200,000
Industrial Organizers, Limited.....	Toronto.....	40,000
Ideal Plumbing and Heating Company, Limited.....	Sault Ste. Marie.....	10,000
Independent Supply Company, Limited.....	Toronto.....	40,000
Ile Import Company, Limited, The.....	Toronto.....	40,000
Interstate Electric Novelty Co. of Canada, Limited.....	Toronto.....	40,000
International Safe & Register Company, Limited.....	Fort Erie.....	100,000
Industrial Co-operative Society of Hamilton, Limited, The.....	Hamilton.....	40,000
International Importers, Limited.....	Toronto.....	40,000
Isabella Mansions, Limited, The.....	Toronto.....	60,000
J.		
John T. Hepburn, Limited.....	Toronto.....	200,000
John A. Marshall Brick Company, Limited, The.....	Mount Dennis..	40,000
John M. Garland, Son & Company, Limited.....	Ottawa.....	500,000
John ver Mehr Engineering Company, Limited.....	Toronto.....	1,900,000
Jeffery and Sons, Limited, F. W.....	Midland.....	50,000
John C. Gilchrist Lumber Company, Limited.....	Toronto.....	200,000
Jaspar Securities Company, Limited.....	Hamilton.....	40,000
James Devonshire, Limited.....	Toronto.....	40,000
Johnson & Ross, Limited.....	Toronto.....	40,000
James Horrigan Company, Limited.....	Port Arthur.....	100,000
K.		
Kemptville Investors, Limited, The.....	Kemptville.....	24,000
Kawneer Manufacturing Company, Limited.....	Toronto.....	100,000
Keves Liverv and Taxi Service, Limited.....	Galt.....	40,000
Kemp Bindery, Limited.....	Toronto.....	40,000
Kingsclere, Limited.....	Toronto.....	240,000
Kel-Kee Cyclecar Company, Limited.....	Toronto.....	40,000
Kingston Construction Company, Limited, The.....	Kingston.....	50,000
Key Registry of Canada, Limited.....	Toronto.....	10,000
Knights of Columbus Club of London, Limited, The.....	London.....	20,000
Kingsville Hotel Company, Limited, The.....	Kingsville.....	10,000
Keelington, Limited.....	Toronto.....	40,000
Kortum Company, Limited.....	London.....	25,000
Kenora Super-Heater Stove Company, Limited.....	Kenora.....	50,000
Krafft, The W. R. Company, Limited.....	Bridgeburg.....	100,000
Kress Shirt Company, Limited, The.....	Toronto.....	50,000
L.		
Long, R. G. and Company, Limited.....	Toronto.....	150,000
Lang Bros. and Company, Limited.....	Berlin.....	100,000
Lakes Timber Company, Limited, The.....	Fort Frances...	50,000
Lodar Non-Animal Casing Company, Limited, The.....	Toronto.....	50,000
Lally Gold Mines, Limited.....	Toronto.....	3,000,000
L'Union Nationale De Cochrane Compagnie, Limited.....	Cochrane.....	40,000
London Baseball Club, Limited, The.....	London.....	40,000
Little River Brick and Tile Company, Limited.....	Windsor.....	100,000
Lillico, R. J. and Company, Limited.....	Toronto.....	40,000
London Investments, Limited.....	London.....	50,000
Lyndhurst Rural Telephone Company, Limited, The.....	Lyndhurst.....	15,000
Lake Shore Mines, Limited.....	Haileybury.....	1,500,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Lion Silverware Company, Limited, The	Galt	40,000
Lake Shore Sand and Gravel Company, Limited, The	Hamilton	40,000
Land Investments, Limited	Toronto	127,000
Lake Simcoe Land Company, The	Toronto	40,000
Luxfer Prism Company, Limited, The	Toronto	90,000
Laurabel Silver Mines, Limited	Toronto	1,000,000
London-Toronto and General Agency	Toronto	40,000
Lane Brothers	St. Catharines	100,000
Levy's	Hamilton	40,000
Lake of the Woods Boom Private Company, Limited	Kenora	12,000
Lloyd-Thomas Company, Limited, The	Toronto	40,000
Lake of the Woods Rod & Gun Club, Limited, The	Kenora	40,000
Lethbridge Brick Company, Limited, The	Steeltown	30,000
Lorne Park Club, Limited	Toronto	40,000
Leasers, Limited	Niagara Falls	100,000
Laura Matilda Tea Rooms, Limited	Toronto	25,000
Lanspearys, Limited	Walkerville	200,000
Leeks & Potts, Limited	Hamilton	40,000
Lime & Agencies, Limited	Toronto	40,000
Lake of the Woods Golf Club, Limited	Keewatin	10,000
Lake Nipissing Shipping & Transportation Co., Limited, The	Toronto	40,000
Leslie, F. J., Limited	Niagara Falls	40,000
Lind Brokerage Company, Limited	Toronto	40,000
M.		
McNaughton-McKay Electric Company, Limited	Windsor	40,000
Matthews & Son, Limited, C. B.	Watford	40,000
Mechanics Building Company, Limited	Windsor	40,000
Marburg Brothers, Limited	Toronto	40,000
Mallagh Bookshop, Limited, The	London	40,000
Marten Lake Mining Company, Limited	Gowganda	2,000,000
McDonald, J. E., Limited	Toronto	40,000
Motor Agencies, Limited	Toronto	100,000
Motor Cars and Supply Company, Limited	Fort William	40,000
Mount McKay Products, Limited	Fort William	600,000
Merchants' Supply Company, Limited	Toronto	40,000
Milton Social Club, Limited, The	Milton	3,000
Muskoka Lakes Supply Company, Limited	Port Sandfield	40,000
Martz, Limited	Hamilton	40,000
Main Realty Company, Limited	Hamilton	40,000
Minaker-Kirkland Gold Mines, Limited	Haileybury	1,500,990
McNeil Cemetery Company, Limited, The	Sonya	1,000
Marbles and Tiles, Limited	Toronto	32,000
Model City Realty Company, Limited, The	Toronto	50,000
Mar Novelty Company, Limited, The	Fort Erie	10,000
McGeough Manufacturing Company, Limited, The	Toronto	150,000
Metropolitan Construction Company, Limited	Toronto	100,000
Mornington and Wellesley Telephone Company, Limited, The	Millbank	12,000
Moyer-Lovelace Company, Limited	St. Catharines	40,000
Mineral Springs Sand & Gravel Company, Limited, The	Hamilton	40,000
Morgan Hardware Company, Limited, The	Peterborough	40,000
Motordromes, Limited	Toronto	125,000
Milk, Farm Products and Supply Company, Limited, The	Hamilton	200,000
McAinsh and Company, Limited	Toronto	50,000
Meadow Gold Butter Company, Limited	Toronto	40,000
Miles Theatre Company of Toronto, Limited, The	Toronto	750,000
Maul and Rigg, Limited	Windsor	10,000
Maple Leaf Lumber Company, Limited	Toronto	40,000
Munder Tungsten Lamp Company, Limited	Guelph	50,000
Malcolm Condensing Company, Limited	St. George	250,000
Multipress Company, Limited	Toronto	60,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Mount Realty Company, Limited	Brantford.....	50,000
McKee's, Limited	Hamilton.....	40,000
McGiffin, W. R. and Company, Limited	Toronto.....	1,000,000
Merchants Syndicate Catalogue Company, Limited	Toronto.....	75,000
Mayflower Medicine Company, Limited, The.....	Windsor.....	40,000
McEachren Tie and Timber Company, Limited, The	Thessalon.....	40,000
McDonald, Burns, Limited	Dresden.....	25,000
Milk Products Company of Canada, Limited, The	Toronto.....	200,000
Monarch Refillable Fuse Company, Limited	Hamilton.....	40,000
Moore Hardware Company, Limited	St. Catharines..	50,000
Morpeth Park, Limited	Toronto.....	240,000
Minnewaska Sanitarium Company, Limited	Cravenhurst...	100,000
Man Store, Limited, The	Sault Ste. Marie.	40,000
Mara, The Wm. Company, Limited	Toronto.....	100,000
Manitoba Creamery Company, Limited	Toronto.....	40,000
Montgomery Crawford Mining Company, Limited	New Liskeard..	400,000
McKinnon, Mather and Hyslop Company, Limited	Toronto.....	40,000
Muskoka Co-operative Society, Limited, The.....	Bracebridge...	10,000
Mildmay Electric Light Company, Limited, The.....	Mildmay.....	10,000
Morris Land Company, Limited	Fort William...	40,000
Maple Leaf Bedding Company, Limited, The	Galt.....	40,000
Monarch Paper Company, Limited	Toronto.....	40,000
Morrisburg and Ottawa Construction Company, Limited	Ottawa.....	40,000
Malt Products Company of Canada, Limited	Toronto.....	40,000
Motor Repairs, Limited	Toronto.....	40,000
Melady and Company, Limited	Toronto.....	200,000
Melville-Davis Touring and Steamship Company, Limited..	Toronto.....	40,000
McWilliam and Everist, Limited	Toronto.....	100,000
McNally, G. A., and Company, Limited	Sault Ste Marie	50,000
Midcity Securities, Limited	Hamilton.....	100,000
N.		
Northern Ontario Trading and Ranching Company, Limited.	Toronto.....	500,000
Non-Nitro Explosives Company, Limited	Toronto.....	130,000
Niagara Investments, Limited	Toronto.....	100,000
Niagara Peninsula Land and Building Company, Limited..	Toronto.....	50,000
National Vending Machine Company, Limited, The	Toronto.....	100,000
New Ontario Pressed Brick Company, Limited	Sudbury.....	150,000
Northern Canada Supply Company, Limited	Cobalt.....	200,000
North Shore Investments, Limited	Toronto.....	40,000
Nipissing Laundry Company, Limited	North Bay.....	40,000
Northern Ontario Pulp and Development Company, Limited.	Toronto.....	150,000
Nickel Masonic Temple, Limited	Sudbury.....	40,000
Northern Ontario Theatres, Limited	Cobalt.....	40,000
North Woods Mines, Limited	Toronto.....	40,000
National Electric Company, Limited	Toronto.....	40,000
Northeast Kirkland Mining and Development Company, Limited.	Toronto.....	750,000
National Agricultural Association	Toronto.....	1,500,000
Niagara Grain and Feed Company, Limited	Toronto.....	50,000
New City Estates, Limited	Toronto.....	775,000
Nature's Creation Company of Canada, Limited	Toronto.....	40,000
National Law Book Company, Limited	Toronto.....	100,000
Niagara Silk Company, Limited	Brantford.....	150,000
National Contracting Company, Limited	Toronto.....	40,000
North Toronto Freehold Estates, Limited	Toronto.....	105,000
Northern Trap Rock Company, Limited	Toronto.....	1,000,000
Northern Development and Construction Company, Limited	Toronto.....	50,000
Neal London Bread Co., Limited	London.....	40,000
New Extension Mines, Limited	Toronto.....	100,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Niagara Spanish Aerocar Company, Limited, The	Niagara Falls..	110,000
National Copper Company, Limited	Toronto.....	1,000,000
Nuca Oil Company, Limited	Ottawa.....	750,000
Noble Air Pump Company, Limited	Toronto.....	25,000
Newaygo Company, Limited	Port Arthur...	200,000
Northern Business College, Limited	Owen Sound...	40,000
National Amusements, Limited	Ottawa.....	50,000
O.		
Ore Extension Mining Company, Limited, The	Hamilton.....	1,500,000
Ontario Furniture Company, Limited	London.....	50,000
Ojibway Subdivisions, Limited	Windsor.....	40,000
Ottawa Valley Trading Company, Limited	Ottawa.....	50,000
Ostrich Manufacturers, Limited	Toronto.....	40,000
Ontario Rand, Limited	Toronto.....	1,500,000
Orme, Limited	Ottawa.....	200,000
Ontario Tire and Rubber Company, Limited, The	Welland.....	750,000
Oliver Rogers Stone Company, Limited, The	Owen Sound...	60,000
Ontario Highway Advertisers, Limited	Toronto.....	40,000
Ocean Securities, Limited, The	Toronto.....	40,000
Ontario Sand Company, Limited	Niagara Falls..	45,000
Ontario Construction and Investments, Limited	Toronto.....	40,000
Ontario Liquor Importers, Limited	Toronto.....	40,000
Ottawa City Cartage Company, Limited	Ottawa.....	40,000
Ottawa Motor Transport, Limited, The	Ottawa.....	40,000
Ontario Northern Construction Company	Toronto.....	300,000
Ore Mountain Mines	Hamilton.....	1,000,000
Ontario Flexotile Products, Limited, The	Toronto.....	50,000
Ontario Storage and Cartage, Limited	Toronto.....	40,000
Oakville Basket and Veneer Company, Limited	Oakville.....	100,000
Oil and Gas Development Syndicate, Limited, The	Hamilton.....	40,000
Ontario Concrete Post Company, Limited, The	Brantford.....	40,000
Orpen Conduit Company, Limited, The	Toronto.....	40,000
Overland Sales Company, Limited, The	Toronto.....	15,000
Ontario Fertilizers, Limited	Toronto.....	100,000
Ottawa Hotel Company, Limited, The	Ottawa.....	40,000
Oddfellows' Temple of Sudbury, Limited	Sudbury.....	50,000
Old Country Furniture Stores, Limited.....	Toronto.....	40,000
Ottawa New Edinburgh Clubhouse Company, Limited, The..	Ottawa.....	50,000
Orme Investments, Limited	Ottawa.....	100,000
P.		
Port Arthur Hardware, Limited.....	Port Arthur....	40,000
Parkhill Investors, Limited	Toronto.....	40,000
Peachland Co-operative Company, Limited, The	Louth.....	1,000
Pneuma Tubes, Limited	Toronto.....	1,000,000
Pollocks, Limited	Arnprior.....	20,000
Patrick Building, Limited	Toronto.....	200,000
Patterson Candy Company, Limited, The.....	Toronto.....	200,000
Palmer Building and Contracting Company, Limited, The...	Toronto.....	100,000
Pickering, The I. G. Company, Limited	Toronto.....	40,000
Pioneer Securities Corporation of Canada, Limited.....	Toronto.....	40,000
Port Sydney Land and Mining Company, Limited.....	Toronto.....	100,000
Peninsular Security Company, Limited	Windsor.....	40,000
Porritt Garage Company, Limited	Kingston.....	25,000
Port Stanley Supply Company, Limited	Port Stanley...	40,000
Port Stanley Manufacturing Company, Limited, The.....	Port Stanley...	40,000
Pay Ore Mines, Limited	Wentworth....	500,000
Penetanguishene Launch House Company, The.....	Penetanguishene	10,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Porcupine Pet Gold Mine, Limited	Toronto.....	1,000,000
Porcupine Porphyry Hill Gold Mines, Limited.....	Toronto.....	1,000,000
Princess Hat Company, Limited	Toronto.....	40,000
Portal Land Company, Limited	Port Arthur.....	100,000
Pneumatic Wheel Company, Limited	Toronto.....	200,000
Phenix Engraving, Limited	Toronto.....	40,000
Port Colborne Tug Company, Limited, The.....	Port Colborne...	40,000
People's 5 and 10 Cent Stores, Limited.....	Toronto.....	150,000
Porcupine Vipond Mines, Limited	Toronto.....	1,500,000
Pleasant View Surveys, Limited	Hamilton.....	40,000
People's Produce Company, Limited, The.....	Toronto.....	100,000
Port Dalhousie 'Co-operative Fruitgrowers' Association, Limited, The	Port Dalhousie..	10,000
Port Colborne Dock and Coal Company, Limited	Toronto.....	50,000
Park Properties, Limited	Toronto.....	200,000
People's Dairy Co., Limited, The.....	Toronto.....	40,000
Prudential Land and Securities Company, Limited.....	Toronto.....	40,000
Patent Products, Limited.....	Toronto.....	40,000
Pollay Aeroplane Company, Limited, The.....	Toronto.....	60,000
Preston, F. C., Limited.....	Haileybury....	40,000
Parry Sound Barrel and Manufacturing Company, Limited..	Parry Sound....	500,000
Port Dover Canning Company, Limited.....	Toronto.....	200,000
Port Colborne Development Company, Limited.....	Port Colborne..	50,000
Peninsular Motor Sales Company, Limited	Petrolea.....	40,000
Penberthy Construction Company, Limited.....	Toronto.....	60,000
Peterborough Fuel and Transfer Company, Limited, The.....	Peterborough...	40,000
Provincial Novelty Company, Limited.....	Toronto.....	40,000
Pembroke Curling Club, Limited.....	Pembroke.....	20,000
Parkhill Lumber and Manufacturing Company, Limited, The..	Parkhill.....	30,000
Photoplays, Limited.....	Toronto.....	40,000
Peters, J. Henry Co., Limited.....	Toronto.....	500,000
People's Restaurant Company of Ontario, Limited.....	Toronto.....	50,000
Q.		
Queen City Driving and Jockey Club, Limited, The.....	Toronto.....	200,000
R.		
Royal Motor Supply Company, Limited, The.....	Toronto.....	50,000
Russell Arena Company, Limited, The.....	Russell.....	10,000
Renfrew Molybdenum Mines, Limited, The.....	Mt. St. Patrick..	1,500,000
River Realty Company, Limited, The.....	Windsor.....	15,000
Regal Men's Wear, Limited	Toronto.....	40,000
Reliance Investments, Limited.....	Toronto.....	40,000
Robert Noble, Limited.....	Norval.....	100,000
Rockliffe Land and Building Company, Limited	Ottawa.....	30,000
Rogerson Coal Company, Limited, The.....	Toronto.....	40,000
Rothschild and Company, Limited.....	Sudbury.....	300,000
Royal Metals Separator Company, Limited.....	Kenora.....	100,000
Royal Hotel, Marmora, Limited.....	Marmora.....	20,000
Roberts Advertising Company, Limited.....	Toronto.....	500,000
Refractory Ore Converters, Limited.....	Hamilton.....	150,000
Revel Security Company, Limited.....	Sarnia.....	40,000
Rotary Amalgamators, Limited.....	Toronto.....	40,000
Russell Land Company, Limited.....	Toronto.....	250,000
Robertson and Sherris.....	Toronto.....	20,000
Rennie, A. S., Limited	Tillsonburg....	40,000
Renfrew and Shamrock Telephone Association, Limited, The..	Renfrew.....	2,000
Raphael's, Limited.....	Hamilton.....	40,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Rolando Fruit Company, Limited, The.....	Toronto.....	40,000.
Robertson, J. S., Company, Limited.....	Toronto.....	40,000
Royal Laundry Company, Limited, The.....	Hamilton.....	40,000
Robert Simpson Drug Company, Limited, The	Toronto.....	25,000
Rameses Temple Company, Limited.....	Toronto.....	100,000
Reliance Moulding Company, Limited.....	Kingston.....	100,000
Rocsand Company, Limited.....	Hamilton.....	100,000
Robinson Cabinet Manufacturing Company, Limited, The....	Walkerville....	40,000
Reid & Brown Structural Steel and Iron Works, Limited.....	Toronto.....	100,000
Rosedale Hotel, Limited.....	Toronto.....	50,000
Royal City Match Company, Limited, The.....	Guelph.....	100,000
Rubberset Company, Limited.....	Toronto.....	40,000
Robert Craig Company, Limited, The.....	Brookville.....	40,000
Ryan and Company, Limited.....	Toronto.....	50,000
S.		
Simplex Sales Company, Limited.....	Toronto.....	50,000
Stewart, A. C., Limited.....	Leamington.....	40,000
Stockbridge, Limited.....	Toronto.....	100,000
Sudbury Furniture Company, Limited, The.....	Sudbury.....	40,000
Solo Player Piano Company, Limited.....	Clinton.....	40,000
Stoddard's, Limited.....	Toronto.....	40,000
Stratford Country Club, Limited, The.....	Stratford.....	40,000
Security Realty Company, Limited	Toronto.....	150,000
Students' Amusement Club, Limited, The	Toronto.....	10,000
Sulphur Products, Limited	Toronto.....	150,000
Standard Cloak Company, Limited, The	Toronto.....	40,000
Scarborough Company of Canada, Limited, The	Hamilton.....	40,000
Schumacher Gold Mines, Limited	Toronto.....	2,000,000
Standard Grain and Hay Company, Limited, The	Sudbury.....	40,000
Scheifele & Fischer, Limited	Waterloo.....	40,000
Sterling Coffee Company, Limited, The	Toronto.....	40,000
Seelye Combination Axe and Tool Company, Limited	Sault Ste. Marie	40,000
Sorley, A. B., Limited	Toronto.....	40,000
Stoness Anglin Gilbert Mica Mining Company, Limited.....	Kingston.....	90,000
Sterling Supply Company, Limited	Ottawa.....	40,000
Standard Smelting and Refining Company, Limited	North Bay	150,000
Stratford Bed Company, Limited, The	Stratford.....	40,000
Sand Mixing Machine Company of Canada, Limited, The	Brantford.....	50,000
St. Clair Development Company, Limited, The	Toronto.....	40,000
Simpson Planing Mill Company, Limited, The	Toronto.....	40,000
Skootamatta Power and Development Company, Limited, The.	Hamilton.....	300,000
Sudbury Club, Limited	Sudbury.....	40,000
Securities Sales Company, Limited	Toronto.....	40,000
Skipper Bros., Limited	Toronto.....	40,000
Smythe, J. F., and Company, Limited	Windsor.....	100,000
St. Thomas Electrical Company, Limited, The	St. Thomas	40,000
Superior Amusements, Limited	Port Arthur	40,000
Standard Welding Company, Limited	Hamilton.....	3,000
Sherman Theatre & Building Company, Limited	Hamilton.....	40,000
St. Mary's Cement, Limited	Toronto.....	1,500,000
Seaman and Sons Company, Limited	Sauble Falls.....	70,000
St. Mary's Milling Company, Limited	St. Mary's	50,000
Simcoe County Development and Irrigation Company	Toronto.....	100,000
Sterling Lumber Company, Limited	Toronto.....	40,000
Solina Supply Company, Limited, The	Solina.....	10,000
St. Williams Fruit Preservers, Limited	St. Williams.....	40,000
Shea's Hippodrome Theatre, Limited	Toronto.....	750,000
S.D.S. Realty Company, Limited, The	Toronto.....	45,000
Sterling Gum Company of Canada, Limited, The	Toronto.....	10,000

List of Companies incorporated for the year 1914, ending October 31st.—*Continued.*

Name.	Address.	Capital.
Sarnia Co-operative Society, Limited, The	Sarnia.....	10,000
Smith, The A. L. Company, Limited	Port Arthur.....	40,000
Stratford Bowling Greens, Limited	Stratford.....	40,000
Strand Hotel, Limited, The	Toronto.....	100,000
Schipper, N.B., Company, Limited	Toronto.....	40,000
Sambro Manufacturing Company, Limited	Toronto.....	5,000
Standard Cleaning Products, Limited	Hamilton.....	100,000
St. Andrew's Realty Company, Limited	Toronto.....	5,000
Shropshire Estates, Limited	Toronto.....	250,000
Smith and Chapple, Limited	Chapleau.....	125,000
Smith, G. T., Limited	Toronto.....	40,000
Stratford Davenport Company, Limited	Stratford.....	25,000
Standard Automobile Supply Company, Limited, The	Toronto.....	40,000
Stewarttown Quarries, Limited, The	Milton.....	80,000
Sterling Construction Company, Limited	Toronto.....	40,000
Simcoe Portrait Company, Limited	Simcoe.....	40,000
South American Products, Limited	Hamilton.....	40,000
St. Vincent Investments, Limited	Toronto.....	100,000
South Kensington Land Company, Limited	Toronto.....	200,000
Shannon, The Wm., Co., Limited	Toronto.....	40,000
St. David's Sand Company, Limited	St. Catharines..	50,000
Swift Current Investments, Limited	Toronto.....	50,000
Sarnia Metal Products Company, Limited, The	Sarnia.....	100,000
Signry, Limited, The	London.....	10,000
Standard Radiating Company, Limited, The	Toronto.....	80,000
St. Clair Conservation Company, Limited, The	Sarnia.....	300,000
St. Catharines Silk Mills, Limited	St. Catharines..	100,000
Sudbury Drug Company, Limited, The	Sudbury.....	40,000
Star Whitewear, Limited	Berlin.....	150,000
Schillers, Limited	Toronto.....	10,000
St. Clement's School, Eglinton, Limited	Toronto.....	40,000
T		
Trent Valley Cannery, Limited	Trenton.....	1,000,000
Toronto Auto Repair and Garage Company, Limited, The	Toronto.....	40,000
Tomack's, Limited	Toronto.....	40,000
Thames Realty Company, Limited	London.....	40,000
Thomson Realty Company, Limited, A. C.	Toronto.....	40,000
Tom, The W. A., Construction Company, Limited	Collingwood....	45,000
Troostwyk, Birkin and Greenfield, Limited	Port Arthur.....	30,000
Todhunters, Limited	Toronto.....	1,000,000
Taylor Portable Steel Derrick, Limited	Toronto.....	40,000
Trenton Cooperage Mills, Limited	Trenton.....	100,000
Theford Celery and Fruit Company, Limited, The	Theford.....	40,000
Tanner Drug Company, Limited	Lakefield.....	40,000
Theta Delta Chi House Corporation of Toronto, Ltd.	Toronto.....	40,000
Toronto Automat Advertisers, Limited, The	Toronto.....	10,000
Toronto Sand and Gravel Company, Limited	Toronto.....	50,000
Tierney Construction Company, Limited, The.....	Ottawa.....	100,000
Temiskaming Development Company, The.....	Hamilton.....	40,000
Toronto and Hamilton Electric Company, Limited, The.....	Hamilton.....	200,000
Taylor Wine and Spirit Company, Limited.....	Hamilton.....	40,000
Toronto European Agencies, Limited, The.....	Toronto.....	40,000
Terrace Lawn Cemetery Company, Limited, The.....	North Bay.....	40,000
Twin Cities Transportation and Amusement Co., Limited....	Fort William...	40,000
Thomas Reinforced Concrete Company, Limited.....	Walkerville....	50,000
Toronto Pharnacal Company, Limited, The.....	Toronto.....	100,000
Tristate Oil and Gas Company, Limited, The.....	Toronto.....	1,000,000
Toronto Automobile Trade Association, Limited, The.....	Toronto.....	10,000
Tanner & Gates, Limited	Toronto.....	100,000
Toronto British Co-operative Society, Limited	Toronto.....	10,000
Templeton's Rheumatic Capsule Corporation, Limited.....	Toronto.....	100,000

List of Companies incorporated for the year 1914, ending October 31st.—*Continued.*

Name.	Address.	Capital.
U.		
United Motion Picture Theatres, Limited.....	Toronto.....	2,750,000
Uranisphere Company, Limited, The	Brantford.....	100,000
Unique Shoe Company, Limited, The.....	Toronto.....	40,000
Uxbridge Piano Company, Limited, The.....	Uxbridge.....	40,000
United Farmers' Co-operative Company, Limited, The.....	Peterborough...	10,000
Union Social Club, Limited.....	Toronto.....	10,000
United Motors, Limited	Toronto.....	50,000
Uffelmann Brothers, Limited	Waterloo.....	40,000
Uplands, Limited	Toronto.....	60,000
Uxbridge Piano Company, Limited, The.....	Uxbridge.....	300,000
Underground Acetylene Company, Limited, The.....	Toronto.....	60,000
Upper Wahnapiatae River Improvement Company, Limited...	Sudbury.....	40,000
Union Cement Company, Limited, The.....	Owen Sound....	200,000
V.		
Vineland Growers' Co-operative, Limited	Vineland Station	10,000
Vaughan Sand and Gravel Company, Limited.....	Toronto.....	100,000
Vitaphone Securities Corporation, Limited.....	Toronto.....	100,000
Victorian Ore Company, Limited	Toronto.....	100,000
Valley Crest Lands, Limited	Toronto.....	40,000
Vanstone-Reade Manufacturing Company, Limited	Oshawa.....	40,000
Victoria Foundry Company, Limited	Ottawa.....	150,000
Vacuum Gas and Oil Company, Limited.....	Toronto.....	60,000
Victor Amusement Company, Limited	London.....	40,000
Vise, J. & Company, Limited	Toronto.....	40,000
Valley Improvement Company, Limited	Toronto.....	220,000
W.		
White Falls Lumber Company, Limited.....	Toronto.....	40,000
Windsor Properties, Limited	Rodney.....	32,000
Wodehouse Invigorator, Limited	Hamilton.....	40,000
Whyte & Son, J. G., Limited.....	Ottawa.....	95,000
Windsor Milling Company, Limited, The.....	Windsor.....	100,000
Woodworkers, Limited	Toronto.....	40,000
Wellesley Securities Corporation, Limited	Toronto.....	200,000
Ward-Price, Limited	Toronto.....	40,000
Willys-Overland of Canada, Limited, The.....	Hamilton.....	500,000
Williamsburg Farmers' Co-operative Association, Limited...	Williamsburg...	4,000
Walter Bentley Company, Limited	Niagara Falls...	20,000
Welland Lumber Company, Limited	Welland.....	100,000
Woodstock Concrete Machinery Company, Limited	Woodstock.....	150,000
Wallace, E. E., Company, Limited	Toronto.....	40,000
William English Canoe Company, Limited, The.....	Peterborough...	40,000
Whitton Company, Limited, The.....	Bracebridge....	30,000
Winters, J. H., and Company, Limited	Toronto.....	200,000
Windsor Power Building Company, Limited	Windsor.....	100,000
Wilson Waldman Costume Company, Limited.....	Toronto.....	100,000
Whyte Foundry Company, Limited	Toronto.....	40,000
William Markus, Limited	Pembroke.....	40,000
Watson Cycle-Car Company, Limited.....	Toronto.....	100,000
Wentworth Motors, Limited	Hamilton.....	40,000
William Beatty Lands and Timber, Limited	Parry Sound...	100,000
Weatherhead Paper Company, Limited, The.....	Toronto.....	40,000
Welland Development Company, Limited	Welland.....	40,000
"Welo" Steam Specialty Company, Limited, The.....	Toronto.....	40,000

List of Companies incorporated for the year 1914, ending October 31st.—Continued.

Name.	Address.	Capital.
Weston Masonic Temple, Limited	Weston.....	40,000
Wallaceburg Lumber Company, Limited	Wallaceburg....	40,000
Walters, Limited	Toronto.....	40,000
White Reserve Mining Company, Limited, The.....	Toronto.....	200,000
William Mitchell Company, Limited, The.....	Kincardine.....	25,000
West Lorne Motors, Limited	West Lorne....	50,000
Western Ontario Natural Gas Company, Limited	Brantford.....	1,000,000
West End Pharmacy, Limited	Ottawa.....	20,000
Willowdale Land Company, Limited	Toronto.....	100,000
Wilson Building Company, Limited	Hamilton.....	40,000
Weston Real Estate Corporation, Limited	Toronto.....	1,250,000
Windsor Lawn Bowling Club, Limited	Windsor.....	40,000
Windsor Abbatoir, Limited	Windsor.....	40,000
Woodbridge Saddlery Supply Company, Limited	Toronto.....	40,000
Washington Burial Company, Limited, The.....	Toronto.....	40,000
Waterdown Stock Farm, Limited	Hamilton.....	40,000
War Novelty Company, Limited	Toronto.....	40,000
Walker, R. E., and Company, Limited.....	Fort William...	150,000
Warwick Wheel Company of Canada, Limited	London.....	100,000
Welland Co-operative Society, Limited	Welland.....	10,000
Waterloo County Grand River Park, Limited.....	Berlin.....	50,000
Western Foundation Company of Canada, Limited.....	Toronto.....	200,000
Westmount Park, Limited	Berlin.....	100,000
West Lake Brick and Products Company, Limited.....	Wellington.....	250,000
Windsor Factories and Real Estate Company, Limited.....	Toronto.....	500,000
Y.		
Ye Craftsman's Shoppe, Limited	Toronto.....	50,000
York Amusement Company, Limited	Toronto.....	40,000
Young's Lunch, Limited	Toronto.....	100,000
York Specialty Company, Limited	Toronto.....	40,000

List of Corporations licensed to do business in Ontario.

Name of Corporation.	Where incorporated.	Attorney.
A.		
Addressograph Company	Illinois	Frank Denton.
Abitibi Power & Paper Co., Limited.....	Dominion	Henry Hague Davis.
Alexander Hamilton Institute.....	New Jersey	Louis LeRoy Fleck.
American Oil Processes, Limited	Dominion	Edward Seybold.
Andrew Wilson & Company, Limited....	Dominion	G. M. Clark.
American Wood Working Machinery Co.	Pennsylvania	Wm. Garlock the Ygr.
Aultman & Taylor Machinery Co., The..	Ohio	Joseph Cushman.
Algoma Timber and Lumber Company..	Michigan	William Eberts Brown.
Anglo-French Exploration Co., Ltd., The	Gr. Britain & Ireland.	John Burr Tyrrell.
American LaFrance Fire Engine Co. of Canada, Limited	Dominion	Alfred Bicknell.
Atlantic Terra Cotta Company	New York	G. M. Clark.
B.		
Burnside Gold Mines, Limited.....	Gr. Britain & Ireland.	Edwin Wilbur Kearney.
British and Colonial Press, Limited	Dominion	A. C. Batten.
Barnett-McQueen Co., Limited, The.....	Dominion	Otto F. Strange.
Bigney, S. O., Company	Rhode Island	John Alex. MacIntosh.
Baker, Smith and Company	New York	Eric N. Armour.
C.		
Confederation Construction Co., Limited.	Dominion	Michael John O'Brien.
Cobourg Dyeing Company, Limited, The.	Dominion	Cornelius Arthur Mas- ten.
Carter's Tested Seeds, Incorporated.....	Delaware	John H. Melady.
Consolidated Stone Company, The.....	Indiana	A. W. Steward.
Canadian Film Company, Limited.....	Alberta	Philip Kauffman.
Cole Buckhorn Machine Company.....	Delaware	W. R. Percival Parker.
Canned Foods, Limited	Dominion	George Chas. Loveys.
Cott-a-Lap Company, Limited.....	Dominion	Thos. Alex. Flockhart.
Canadian Northern Town Properties Co., Limited	Dominion	Gerard Ruel.
Chappell, Allen & Co., Limited	Gr. Britain & Ireland.	Seeley Benedict Brush.
Cedars Rapids Transmission Co., Ltd...	Dominion	Leighton McCarthy.
Canadian Aviation Company, Limited...	Dominion	Wm. Archibald Dean.
Cedars Rapids Manufacturing & Power Company, Limited, The	Dominion	Geo. Chas. Loveys.
Canon Lake Lumber Company, Limited, The	Manitoba	Porter Preston Elliott.
Canadian Laco-Philips Co., Limited.....	Dominion	Clarence C. Bothwell.
Clark, W., Limited	Dominion	R. S. McIndoe.
Cobalt Porcupine Syndicate, Limited....	Dominion	William J. Kidd.
Cleveland Storage Company, The.....	Ohio	William J. Taylor.
Callophone, Limited	British Columbia	John Rudd Rumble.
Canadian General Fire Extinguisher Co., Limited	Dominion	Ed. Warner Wright.
Canada Furniture Manufacturers, Ltd...	Dominion	John R. Shaw.
Canadian Universal Film Co., Limited..	Dominion	James S. Lovell.
Certone Company	New York	Gilbert A. Webster.
Canadian Griscom-Russell Co., Limited..	Dominion	Chas. Gilbert Peterson.
Crystal Oil Co. of Calgary, Limited.....	Alberta	Grant Cooper.
Calgary-Alberta Oils, Limited.....	Alberta	Samuel A. McAllister.
Canadian Mexican Estates, Limited....	Dominion	James Steller Lovell.
Canadian Carbonate Company, Limited.	Dominion	James Jamieson.

List of Corporations licensed to do business in Ontario.—Continued.

Name of Corporation.	Where incorporated.	Attorney.
D.		
Drummond, McCall & Company, Limited.	Dominion	Henry James Hamilton.
Denis Advertising Signs, Limited.....	Dominion	D. A. Reidy.
Dominion Manufacturers, Limited.....	Dominion	Fred W. Coles.
De Laval Manufacturing Co., Ltd., The.	Quebec	William R. Breyfogle.
Dupont Fabrikoid Company	Delaware	W. A. Cotton.
Dominion Wire Rope Co., Limited, The.	Dominion	Clarence Vaughan Osborn.
Dominion Estate & Mining Investment, Limited	Dominion	James Hyland.
Dominion Sanitary Specialty Company, Limited	Dominion	Jas. Arthur Seybold.
Detroit Sulphite Pulp & Paper Company.	Michigan	Alex. Robert Bartlet.
Domestic Vacuum Cleaner Company....	Massachusetts	Gustavus James Gustafson.
Detroit Fuse & Manufacturing Company.	Michigan	Walter G. Bartlet.
E.		
Empire Coal Company, Limited.....	Dominion	Donald F. Potter.
Eastern Terminal Elevator Co., Limited.	Manitoba	F. Hettle Young.
Eagle & Globe Steel Co., Limited, The..	Gr. Britain & Ireland.	Robert Vivian Clarborough.
Exolon Company, The	Massachusetts	Herbert T. Kalmus.
Empire Ring Manufacturing Company, Incorporated	New York	Holton Richard Morwood.
F.		
Federal Stone & Supply Co., Ltd., The..	Dominion	Thomas Sidney Kirby.
Franco-Canadian Land & Development Company, Limited, The	Dominion	Louis Meunier.
Fur Farmers' Bureau and Exchange, Limited, The	Prince Edward Island.	Frank Denton.
Fashion Craft Manufacturers, Limited..	Dominion	Sidney Chilton Mewburn.
Foley Brothers	Minnesota	John H. Moss.
Fraser, Brace & Company, Limited.....	Dominion	Wm. Symon Morlock.
G.		
Grolier Society of London, The.....	New York	Eric Fepler.
Gawne Contracting Company, The	Ohio	William J. Gawne.
George Gale & Sons, Limited	Dominion	Wm. John McWhinney.
Garden City Feeder Company, Limited.	Dominion	Charles Garber.
Grier, G. A. & Sons, Limited	Dominion	H. S. Fergus.
H.		
Hanson-Bellows Company	Illinois	P. D. Palmer.
Heinn Company, The	Wisconsin	Chas. Franz, the Ygr.
Huronian Belt Company, Limited, The..	Gr. Britain & Ireland.	John Mackintosh Bell.
Harry Alexander, Incorporated	New York	James Murray Harry Lindsay.
I.		
Interprovincial Brick Co. of Canada, Limited	Dominion	Alex. Murray Gordon.

List of Corporations licensed to do business in Ontario.—Continued.

Name of Corporation.	Where incorporated.	Attorney.
J.		
James Elgar	New York	John M. Godfrey.
Johnson, B. J. Soap Company, Limited..	Dominion	George M. Clark.
John H. Parker, Canadian, Limited.....	Dominion	J. M. Adam.
Jacob and Joseph Kohn, Incorporated...	New York	William J. Craig.
K.		
Kalmus, Comstock & Wescott, Inc.	Massachusetts	Herbert T. Kalmus.
Kellogg, W. K. Cereal Company	Michigan	John Alex. Macintosh.
Kirkland-Goldfields, Limited	Gr. Britain & Ireland.	W. A. Gordon.
L.		
Lanston Monotype Machine Company...	Virginia	Harry F. McMahon.
M.		
Mining Corporation of Canada, Ltd., The	Dominion	George M. Clark.
Mark, F. W. Construction Company, In-	Alabama	George Therrier.
corporated	Delaware	Thos. Wm. Scandrett.
Maple Leaf Gum Company	New York	William Batten Mc-
Marine Welding Company	-	Pherson.
McDonald Hydro-Electro Heating Com-	Dominion	Harold F. Meech.
pany, Limited		
N.		
National Electric Heating Co., Ltd., The.	Dominion	Leo. Frankel.
Northern Electric Company, Limited....	Dominion	Frederick M. Davis.
National Tube Company, Limited	Dominion	Harry Rooke.
Nash Canadian Syndicate, Limited	Gr. Britain & Ireland.	Charles Herbert Nash.
Nesbitt, Thomson & Company, Limited..	Dominion	Peter A. Thompson.
North American Reference Book Co., Inc.	New York	James R. Roaf.
O.		
Ogden Electric Manufacturing Company,		
Limited, The	Dominion	George J. Ogden.
Oil Processes, Limited	Dominion	Edward Seybold.
Ohio Brass Company, The	New Jersey	Peter Atwood Hinds.
P.		
Porcupine Central Development Syndi-		
cate, Limited, The	Gr. Britain & Ireland.	James R. Roaf.
Pictorial Review Company, The	New York	Nelson William Gil-
		lespie.
Pulp Wood Company	Wisconsin	Hugh Keefer.
Pierson U Bar Company.....	New York	Peter Lyndon Fraser.
Port Arthur Construction Company, Lim-		
ited	Dominion	Robert K. Russell.
Port Arthur (Ontario) Buildings, Lim-		
ited, The	Gr. Britain & Ireland.	Wm. Fitzgerald Lang-
		worthy.
R.		
Reckitts (Over Sea) Limited	Gr. Britain & Ireland.	Whitefield Aston.
Robin Hood Mills, Limited.....	Dominion	James Steller Lovell.

List of Corporations licensed to do business in Ontario.—Continued.

Name of Corporation.	Where incorporated.	Attorney.
Russell Jennings Manufacturing Company, Limited	Dominion	John Samuel Campbell.
Ryan-Agency, Limited	Manitoba	George S. Sherritt.
Roger Miller and Company, (P.E.I.) Limited	Dominion	Roger Miller.
Rauch and Lang Carriage Company, The	Ohio	The Imperial Trusts Co. of Canada.
Richey, Browne and Donald, Incor....	New York	W. R. Percival Parker.
Riker-Hegeman Drug Stores, Limited..	Dominion	George Charles Loveys.
S.		
Steffens and Noelle Aktien-Gesellschaft..	German Empire	Samuel King.
Sasgen Derrick Company.....	Illinois	Mathias T. Sasgen.
St. Thomas Bronze Company, Limited..	Dominion	James Boyd Potts.
Steel Equipment Company, Limited, The	Dominion	John H. Reeves.
Sterling Coal Company, Limited.....	Dominion	Albert R. Gibson.
St. Clair Beach, Limited	Dominion	Sydney Cecil Robinson.
Stephens Engineering Company, The..	Illinois	James R. Roaf.
South America Cabinet Woods, Limited	Dominion	John Hugh Francis Blue.
Stromberg-Carlson Telephone Manufacturing Company	New York	Nathan W. Baldwin.
T.		
Thompson, W. J. Company, Incor.....	New York	Gilbert A Webster.
Thomas Firth and Sons, Limited	Gr. Britain & Ireland.	Alfred Bicknell.
Toronto-Hamilton Home Builders, Ltd.	Gr. Britain & Ireland.	Joseph J. Hoidge.
Triefus, S. and E., and Stripp, Limited	Gr. Britain & Ireland.	Ernest Stripp.
Toronto and Canadian Building, Company, Limited	Gr. Britain & Ireland.	Thomas Howell.
Teck-Label (Kirkland) Syndicate, Ltd..	Gr. Britain & Ireland.	Hamilton Cassels.
U.		
United States Playing Card Co., The..	New Jersey	W. R. P. Parker.
United Cigar Stores, Limited.....	Dominion	George Chas. Loveys.
V.		
Van Buren Excavator Company, Limited. The	Dominion	Gwyn Llewellyn Francis.
Valve, D.G.C. Company of Canada, Ltd.	Dominion	Trafford Jones.
W.		
Walsh, E. H. and Company, Limited....	Dominion	Edmund H. Walsh.
Winnipeg International Securities Corporation, Limited.....	Manitoba	William C. Graham.
William Cowlin and Son, (Canada) Ltd	Gr. Britain & Ireland.	Sydney Victor Kendall.
William Bradley and Son, Canadian, Ltd.	Dominion	George Charles Loveys.
Wolthausen Hat Corporation, Ltd., The	Dominion	Frederick Wolthausen.
Wisconsin Bridge and Iron Company..	Wisconsin	George Charles Loveys.
Welch Co., Limited, The	Dominion	G. F. Peterson.
Wilt Twist Drill Company of Canada, Limited	Dominion	Abraham Darst Wilt.
Wells Higman Company, The.....	Michigan	Wm. Eberts Brown.

List of Corporations to whom supplementary licenses were issued.

Name of Corporation.	Date.
A.	
American Cyanamid Company (authorizing it to use capital in Ontario to the extent of \$2,000,000)	Jan. 14, 1914.
Ashover Mines, Limited (authorizing it to exercise powers granted in the License issued to the corporation under, the name of The Ashover Fluor Spar Mines, Limited)	June 18, 1914.
B.	
Borden Milk Company, Limited (authorizing it to use capital in Ontario to the extent of \$1,000,000)	Mar. 17, 1914.
Bowser, S. F. and Company, Incorporated (authorizing it to use capital in Ontario to the extent of \$250,000)	April 22, 1914.
British Canadian Cannerns, Limited (authorizing it to use capital in Ontario to the extent of \$1,000,000)	May 13, 1914.
C.	
Crown Cork & Seal Company, of Baltimore City, The (authorizing it to use within the Province of Ontario all powers, privileges and rights set forth in License and Supplementary License)	Nov. 7, 1913.
Chicago Bridge and Iron Company (authorizing it to use capital in Ontario to the extent of \$75,000)	Jan. 19, 1914.
Case, J. I., Threshing Machine Company (authorizing it to use capital in Ontario to the extent of \$80,000)	Oct. 16, 1914.
F.	
Farewell Estates, Limited, The (License in Mortmain)	Mar. 20, 1914.
H.	
Huyler's (authorizing the corporation to use in Ontario capital to the extent of \$40,000)	July 9, 1914.
L.	
Linde British Refrigeration Company, Limited, The (authorizing it to use, exercise and enjoy all powers and privileges granted to The Linde Canadian Refrigeration Company, Limited)	Jan. 5, 1914.
N.	
North British Rubber Company, Limited, The (authorizing it to use in Ontario capital to the extent of \$100,000)	June 18, 1914.
National Cash Register Company (authorizing it to use capital in Ontario to the extent of \$600,000)	July 20, 1914.
Niagara & Erie Land Corporation, Limited, The (License in Mortmain)	Jan. 13, 1914.
P.	
Pilkington Brothers (Limited) (extending their powers)	Dec. 23, 1913.
Prest-o-Lite Company, Inc., The (authorizing it to use capital in Ontario to the extent of \$60,000)	June 5, 1914.
S.	
Spalding, A. G. and Brothers (authorizing the company to use in Ontario capital to the extent of \$140,000)	Feb. 23, 1914.
W.	
Wolseley Tool & Motor Car Company, Limited, The (authorizing the company to use capital in Ontario to the extent of \$250,000)	April 27, 1914.
Wolseley Motors, Limited (authorizing exercise of powers given to the corporation under the original name of The Wolseley Tool and Motor Car Company, Limited)	Aug. 26, 1914.

List of Companies whose Capital was Increased.

Name of Company.	From	To	Date
A.			
Arcade, Limited, The	150,000	250,000	December 27, 1913.
Algoma Steam Laundry Company, Limited, The	20,000	100,000	January 14, 1914.
Anderson, C. G., Lumber Company, Limited..	40,000	80,000	May 14, 1914.
American Road Machine Company of Canada, Limited	100,000	500,000	May 29, 1914.
Associated Goldfields Mining Company, Ltd...	2,000,000	5,000,000	June 20, 1914.
B.			
Buntin, Gillies & Company, Limited	75,000	350,000	December 5, 1913.
Bell Fruit Farms, Limited	150,000	200,000	July 6, 1914.
Boase, Limited	60,000	100,000	July 7, 1914.
C.			
Canadian General Securities Company, Ltd...	200,000	400,000	November 3, 1913.
Caulfield, Burns and Gibson, Limited	50,000	125,000	December 31, 1913.
Canadian Dredging Company, Limited	750,000	1,000,000	January 24, 1914.
Chapman and Walker, Limited	50,000	150,000	February 7, 1914.
Columbus Cobalt Silver Company, Ltd., The..	600,000	800,000	February 14, 1914.
Crown Realty, Limited	40,000	100,000	March 12, 1914.
Cook-Fitzgerald Company, Limited, The	50,000	250,000	March 14, 1914.
Cox & Cummings, Limited	40,000	200,000	April 14, 1914.
Carrick, J. J. Company, Limited	40,000	80,000	May 14, 1914.
D.			
Dome Extension Mines Company, Ltd., The..	2,000,000	3,000,000	February 4, 1914.
Dome Lake Mining & Milling Company, Ltd..	750,000	1,000,000	February 11, 1914.
Dominion Stamping Company, Ltd., The.....	250,000	500,000	February 12, 1914.
Ditchburn Pleasure Boats, Limited	40,000	100,000	May 20, 1914.
Dominion Mausoleum Company, Ltd., The ..	40,000	1,000,000	September 12, 1914.
E.			
Electro Metals, Limited	300,000	1,000,000	April 21, 1914.
F.			
Flexible Conduit Company, Limited, The ...	50,000	100,000	April 14, 1914.
G.			
Gunn, Langlois & Company, Limited	250,000	500,000	November 8, 1913.
Getty & Scott, Limited	100,000	1,000,000	November 21, 1913.
Gunns, Limited	750,000	2,000,000	January 2, 1914.
Gloucester Realty Company, Limited	50,000	75,000	February 3, 1914.
Gravenhurst Crushed Granite Company, Ltd..	100,000	135,000	February 18, 1914.
George M. Mason, Limited	100,000	200,000	April 28, 1914.
German Printing & Publishing Company, of Berlin, Limited	10,000	99,900	June 16, 1914.
Gilson Manufacturing Company, Limited ...	50,000	100,000	June 12, 1914.
Galt Brass Company, Limited	40,000	100,000	September 21, 1914.

List of Companies whose Capital was Increased.—Continued.

Name of Company.	From	To	Date
H.			
Hamilton Dairy Company, Limited	40,000	100,000	February 13, 1914.
Hall Zryd Foundry Company, Limited	75,000	150,000	April 11, 1914.
Horn Brothers Woollen Company, Ltd., The..	100,000	195,000	May 19, 1914.
High Park Dairy, Limited, The	40,000	50,000	September 29, 1914.
I.			
International Specialty Manufacturing Com- pany, Limited, The	20,000	100,000	January 24, 1914.
Ives Modern Bedstead Company, Ltd., The ..	100,000	250,000	July 25, 1914.
Irish & Maulson, Limited	250,000	500,000	August 14, 1914.
L.			
La Mine D'Or Huronia, Limited	1,000,000	2,500,000	November 5, 1913.
Lautz-Dunham Company, Limited, The	40,000	250,000	February 21, 1914.
Lake Superior Dry-dock and Construction Com- pany, Limited, The	1,500,000	1,750,000	April 27, 1914.
Lorne Power Company, Limited, The	300,000	1,000,000	July 2, 1914.
Laberge Lumber Company, Limited, The	100,000	200,000	July 6, 1914.
M.			
Murray Shoe Company, Limited, The	50,000	100,000	November 11, 1913.
Mueller, H., Mfg. Company, Limited	300,000	500,000	February 12, 1914.
McKittrick Properties, Limited	1,000,000	3,000,000	March 4, 1914.
Moose Mountain, Limited	2,500,000	3,000,000	July 11, 1914.
N.			
Noble Manufacturing Company, Limited, The	100,000	150,000	November 29, 1913.
O.			
Old Orchard Land Company, Limited	50,000	100,000	February 6, 1914.
Oshawa Golf Club, Limited, The	10,000	40,000	April 1, 1914.
P.			
Petrolia Wagon Company, Limited	100,000	500,000	November 13, 1913.
Price, S., and Sons, Limited	100,000	500,000	December 16, 1913.
Prices, Limited	100,000	200,000	February 12, 1914.
Porcupine Krist-Thompson Mines, Limited ..	1,500,000	2,500,000	June 23, 1914.
R.			
Russell Rural Telephone Company, Limited ..	9,000	24,975	July 2, 1914.
Renfrew Machinery Company Limited, The...	250,000	1,000,000	August 11, 1914.
Riley-Ramsey Company, Limited, The	40,000	200,000	September 1, 1914.
S.			
Sarnia Bridge Company, Limited	50,000	200,000	December 10, 1913.
Sarjeant Company, Limited, The	50,000	200,000	December 24, 1913.
Staunton's, Limited	200,000	500,000	March 3, 1914.
Stroud Telephone Company, Limited, The	4,000	15,000	March 2, 1914.
Steel Trough and Machine Company, Ltd., The	25,000	100,000	March 31, 1914.
Stormont Electric Light and Power Company, Limited, The	50,000	200,000	July 20, 1914.
South Bruce Rural Telephone Company, Ltd., The	10,000	50,000	October 9, 1914.

List of Companies whose Capital was Increased.—*Continued.*

Name of Company.	From	To	Date
T.			
Tillsonburg Electric Car Company, Ltd., The.	40,000	100,000	March 10, 1914.
U.			
Upper Spanish Improvement Company, Ltd., The	20,000	120,000	March 5, 1914.
Union Natural Gas Company of Canada, Ltd., The	3,000,000	6,000,000	May 7, 1914.
United Fuel Supply Company, Limited	1,350,000	2,700,000	June 18, 1914.
United Gas and Fuel Company, of Hamilton, Limited	500,000	1,000,000	October 9, 1914.
V.			
Volcanic Oil and Gas Company, Limited, The.	1,500,000	3,000,000	May 4, 1914.
W.			
Woodbine Hotel Company, Limited, The	100,000	300,000	December 19, 1913.
Wentworth Mineral Water Company, Ltd., The	7,500	40,000	January 6, 1914.
Windsor Truck & Storage Company, Ltd., The	40,000	100,000	January 16, 1914.
Wallaceburg Brass & Iron Manufacturing Com- pany, Limited, The	40,000	250,000	February 5, 1914.
Wells and Gray, Limited	40,000	100,000	April 4, 1914.
Welland County Telephone Company, Limited, The	40,000	100,000	April 6, 1914.
Winnett & Wellinger, Limited	40,000	98,000	June 11, 1914.
Y.			
York-Ontario Silver Mines, Limited	1,000,000	1,500,000	June 16, 1914.

List of Corporations whose Names were Changed.

From.	To.	Date
B.		
British Canadian Securities Corporation, Limited	Upper Canada Securities Corporation, Limited	Nov. 27, 1913.
Bowers, H. L., Limited	Universal Silicates, Limited	Dec. 18, 1913.
Blair Brothers, Limited	B. Blair Company, Limited	May 1, 1914.
Boyd & Tweedie, Limited	Boyd, Limited	July 8, 1914.
C.		
Cockburn & Rea, Limited	Cockburn & Bundy, Limited	Dec. 18, 1913.
Chapleau Cottage Hospital	Lady Minto Hospital at Chapleau, The	Feb. 2, 1914.
Canada Steel Company, Limited ..	Burlington Steel Company, Ltd. ..	March 10, 1914.
Crottie's, Limited	C. Umphrey Company, Limited ..	July 18, 1914.
Canadian Tap & Die Company, Limited, The	Wells Bros. Co., of Canada, Ltd. ..	April 30, 1914.
D.		
Davidson, McBean & Co., Ltd. ...	Davidson Bowles, Limited	Dec. 29, 1913.
Dominion Gasoline Engine Company, Limited	Dominion Gas Tractor Company, Limited	Feb. 23, 1914.
Ditchburn, The H., Boat Manufacturing Company, Limited ...	Ditchburn Pleasure Boats, Ltd. ...	May 20, 1914.
E.		
Essenkay Sales Company of Toronto, Limited The	Tire Import Company, Ltd., The ..	Oct. 31, 1914.
F.		
Freek, Clark & Company, Limited	Hardware Company of Toronto, Ltd.	July 2, 1914.
Fradette, Thomson & McKay, Ltd.	Richard Marshall Co., Ltd.	July 7, 1914.
Ford City Metal Products Company Ltd.	Ontario Pressed Steel Co., Ltd. ..	Sept. 18, 1914.
G.		
Grand Union Hotel Company of Toronto, Limited	Carls-Rite Hotel Company, Ltd. ...	Sept. 12, 1914.
Galt Brass Manufacturing Company, Limited, The	Galt Brass Company, Limited ...	Sept. 21, 1914.
H.		
Hamilton Advertising Agency, Ltd. The	Hamilton Advertisers' Agency, Limited	Feb. 2, 1914.
Hayes Development Company Ltd. The	Brechen Ridge Realty Company, Limited, The	March 13, 1914.
Harley-Kay Knitting Machine Company, Limited	Harley-Kay, Limited	March 31, 1914.
J.		
Jasper Land Company, Ltd., The.	Hay, Limited	Feb. 2, 1914.

List of Corporations whose Names are Changed.—*Continued.*

From.	To.	Date
K.		
Kir-Benn, Limited	Kir-Ben, Limited	Nov. 10, 1913.
Kilmer, Pullen & Burnham, Ltd. . . .	Swedish General Electric, Ltd. . . .	Nov. 13, 1913.
Keystone Underwriting & Brokerage Company, Limited, The. . .	Tudhope-Aletter, Limited	Jan. 24, 1914.
Kerr Addison Mines, Limited	Associated Goldfields Mining Company, Limited	June 20, 1914.
M.		
Moore Print-Shop, Limited, The. . .	Moore-Telford, Limited	Jan. 29, 1914.
Macfarland, G. W., Co., Ltd.	Preston's, Limited	Feb. 21, 1914.
Mendelssohn Choir of Toronto, The	The Toronto Mendelssohn Choir. . .	March, 18, 1914.
Montgomery & Company, Limited	Standard Financial Agency, Ltd. . .	April 22, 1914.
McClelland & Goodchild, Limited. . .	McClelland, Goodchild & Stewart, Limited	May 30, 1914.
Moore, A. E., Floral Co., Ltd.	Georgetown Floral Company, Ltd. . .	July 7, 1914.
O.		
Ontario Pipe Line Co., Ltd., The. . .	United Gas & Fuel Company of Hamilton, Limited	Nov. 27, 1913.
Ottawa Motor Transport, Ltd., The	Ottawa Motor Transport, Limited. . .	April 27, 1914.
Olympia Club	The Iron Duke.....	Aug. 18, 1914.
P.		
Park Feed Milling Company, Ltd. . .	Dairy & Poultry Foods, Limited . .	Jan. 20, 1914.
Parisian Laundry Company of Hamilton, Limited, The	Parisian Sanitary Laundry of Hamilton, Limited	March 24, 1914.
Porcupine Krist (Mines), Limited. . .	Porcupine Krist-Thompson Mines, Limited	June 23, 1914.
R.		
Read, Frankland, Limited	A. H. Read, Limited	May 11, 1914.
Rutherford, Marshall, Limited	Marshalls Co., Limited	June 6, 1914.
Ruby Cigar Company, Limited	National Cigar Company, Ltd. . . .	June 12, 1914.
S.		
Securities Sales Company, Limited	Security Sales Company, Ltd.	April 27, 1914.
Shuttleworth-Carew, Limited	Shuttleworth, J. R., & Sons, Ltd. . .	July 7, 1914.
V.		
Vipond Porcupine Mines, Ltd., The	Ward Porcupine Mines Company, Limited	April 23, 1914.
W.		
Woods-Norris, Limited	Norris-Patterson, Limited	Nov. 5, 1913.
Wells Adjustable Chaplet Company, Limited	Wells Pattern & Machine Works, Limited	Dec. 2, 1913.
Wood-Guthrie Company, Ltd., The	National Construction Co., Ltd. . .	Dec. 15, 1913.
Western Dairy & Provision Company of Saint Thomas, Limited, The	Western Dairy, Limited	Jan. 27, 1914.
Winn Company, Limited	Perth Shoe Company, Limited	April 17, 1914.
Washington Burial Company, Ltd., The	Raper, Washington & Fleury Burial Company, Limited	Sept. 1, 1914.

List of Corporations whose Powers were Extended.

Name.	Date.
A.	
Algoma Steam Laundry Company, Limited, The (extending its powers and re-dividing its capital)	Dec. 14, 1913.
American Road Machine Company of Canada, Limited (redividing its capital stock)	May 29, 1914.
B.	
Brown, The J. F., Company, Limited (extending its powers)	July 27, 1914.
Big Point Company Club, The (extending its powers)	Sept. 16, 1914.
C.	
Canadian Rumely Company, Limited, The (authorizing meetings out of Province)	Nov. 24; 1913.
Chapman & Walker, Limited (authorizing casting vote at meetings of directors)	Feb. 7, 1914.
Columbus Cobalt Silver Company, Limited, The (making the Company subject to the provisions of Part XI of the Act)	Feb. 14, 1914.
Canadian Estates Company, Limited (authorizing meetings out of the Province)	April 3, 1914.
Canadian General Securities Company, Limited (re-dividing its capital stock)	July 17, 1914.
Consumers' Gas Company of Toronto (re-dividing its capital stock, providing for remuneration to directors)	Aug. 28, 1914.
City Estates of Canada, Limited (confirming by-law of the Company).	Oct. 17, 1914.
D.	
Drug Trading Company, Limited (amending Supplementary Letters Patent)	May 30, 1914.
Dominion Lines, Limited (converting common into preference shares)	Aug. 20, 1914.
Dominion Mausoleum Company, Limited, The (changing the Head Office of the Company and authorizing meetings of the directors in the City of Brantford.....)	Sept. 12, 1914.
F.	
Foley-O'Brien, Limited (authorizing meetings within and without the Province)	May 4, 1914.
G.	
Gunn, Langlois & Company, Limited (authorizing meetings out of the Province)	Nov. 8, 1913.
Guardian Realty Company of Canada, Limited (confirming by-laws of the Company and extending powers)	Nov. 26, 1913.
Georgina Houses (changing name of company and extending powers).	Feb. 9, 1914.
Gunn's, Limited (re-dividing its capital stock)	May 7, 1914.
German Printing and Publishing Company of Berlin, Limited (re-dividing its capital stock)	June 16, 1914.
Gilson Manufacturing Company, Limited (authorizing commission on sale of preference stock)	June 12, 1914.
H.	
Householders Co-operative Stores, Limited (re-dividing its capital stock)	Oct. 15, 1914.

List of Corporations whose Powers were Extended.—*Continued.*

Name.	Date.
I.	
International Capitalists, Limited (extending its powers)	July 2, 1914.
International Specialty Manufacturing Company, Limited, The (creating preference shares, and authorizing payment of commission on sale of shares)	Dec. 18, 1913.
Independent Tire Company of Toronto, Limited (converting common into preference shares)	Nov. 17, 1913.
K.	
Kent, Garvin & Company, Limited (deleting special provisions of Letters Patent)	Aug. 26, 1914.
L.	
Lake Simcoe Ice Supply and Cold Storage Company, Limited, The (varying by-laws of the Company, creating preference shares, and authorizing payment of commission on sale of shares)	Dec. 18, 1913.
Lautz-Dunham Company, Limited, The (creating preference shares) ..	Feb. 21, 1914.
Lake Superior Dry-dock and Construction Company, Limited, The (creating preference shares and varying provisions of Letters Patent)	April 27, 1914.
M.	
McKittrick Properties, Limited (re-dividing capital stock)	March 4, 1914.
McIntyre Porcupine Mines, Limited (re-dividing its capital stock) ..	March 6, 1914.
McCormick Manufacturing Company, Limited, The (extending powers)	April 16, 1914.
Medicines, Limited (authorizing commission on sale of shares)	June 12, 1914.
Marathon Tire & Rubber Company, Limited, The (increasing the par value of its shares)	Oct. 20, 1914.
N.	
North Shore Investments, Limited (amending Letters Patent)	March 6, 1914.
O.	
Oshawa Golf Club, Limited, The (amending its Letters Patent and re-dividing its capital stock)	April 1, 1914.
P.	
Petrolia Wagon Company, Limited (re-dividing its capital stock and authorizing commission not exceeding 10% on sale of shares) ..	Nov. 13, 1913.
Price, S., & Sons, Limited (repealing and rescinding by-laws in regard to preference shares)	Dec. 16, 1913.
Porcupine Krist-Thompson Mines, Limited (re-dividing its capital stock)	June 23, 1914.
S.	
Simcoe Club, Limited, The (amending its Supplementary Letters Patent)	Jan. 13, 1914.
Staunton's, Limited (fixing quorum of board)	March 3, 1914.
Steel Trough & Machine Company, Limited, The (creating preference shares)	March 31, 1914.
Stromont Electric Light & Power Company, Limited, The (converting common into preference shares and authorizing meetings out of Ontario)	July 20, 1914.

List of Corporations whose Powers were Extended.—*Continued.*

Name.	Date.
Sturgeon River Improvement Company, Limited, The (extending the period of its existence)	Aug. 13, 1914.
South Bruce Rural Telephone Company, Limited, The (extending its powers)	Oct. 9, 1914.
T.	
Tillsonburg Electric Car Company, Limited, The (authorizing payment of commission)	Mar. 10, 1914.
Tuttle & Bailey Manufacturing Company of Canada, Limited (authorizing company to hold meetings out of Ontario)	July 16, 1914.
U.	
Upper Spanish Improvement Company, Limited, The (authorizing works and approving of the construction thereof, as set forth in a report filed with the Petition for Supplementary Letters Patent)	March 5, 1914.
W.	
Woodbine Hotel Company, Limited, The (authorizing allotment of new shares)	Dec. 19, 1913.
Z.	
Zorra Telephone Company, Limited, The (authorizing it to mortgage its assets and to issue bonds)	June 11, 1914.

List of Corporations without Share Capital.

Name of Corporation.	Place.
A.	
Art Gallery of Hamilton	Hamilton.
Albert Residence for Men	Windsor.
Aberdeen Plummer Centre Line Telephone Association, The	Plummer.
American Aid Society of Canada	Toronto.
B.	
Balmy Beach Gun Club, The	Toronto.
British Empire Club of Guelph, The	Guelph.
Board of Trade of the Village of Tweed	Tweed.
Bow-Wow Minstrel and Social Club	Toronto.
Belleville Golf Club, The	Belleville.
Bureau of Municipal Research	Toronto.
Balmy Beach College	Toronto.
Balmoral Athletic Club	Toronto.
Brant Patriotic and War Relief Association	Brantford.
C.	
Chapleau Cottage Hospital	Chapleau.
Canadian National Trotting and Pacing Harness Horse Association, The	Toronto.
Corinthian Club, The	Toronto.
Canadian Oral Prophylactic Association, The	Toronto.
City Social Club, The	Brantford.
Classic Athletic Club, The	Toronto.
Club Frontenac, Ottawa	Ottawa.
D.	
Dominion Club, The	Ottawa.
Drayton Athletic Club, The	Drayton.
E.	
Eatonia Club, The	Toronto.
Elgin County Honey Producers' Association	St. Thomas.
Elite Social Club, The	Toronto.
F.	
Fashion Bureau of Canada, The	Toronto.
First Narajow Charitable Society	Toronto.
First Russian Congregation of Rodfesolium Ansekiev, The	Toronto.
G.	
Goodyear Club, The	Bowmanville.
Garden Hill Co-operative Fruit Growers' Association, The	Garden Hill.
H.	
Hamilton Football Grounds Association, The	Hamilton.
Hazelwood Hunt Club, The	Toronto.
J.	
Jewish Ladies' Charitable Association	Toronto.

List of Corporations without Share Capital.—*Continued.*

Name of Corporation.	Place.
K.	
Kimberley Poultry Association, The	Kimberley.
Kehillas Jacob Congregation	Toronto.
L.	
Lutheran Club, The	Merlin.
M.	
Master Brewers Association of Canada	Toronto.
Municipal Improvement Association of Toronto, The	Toronto.
Mimico Board of Trade	Mimico.
Midland General and Marine Hospital	Midland.
N.	
Nanking Club	Toronto.
O.	
Ontario Agricultural College Students Co-operative Association	Guelph.
Ontario Motor League, Incorporated	Toronto.
Olympia Club	Hamilton.
Oddfellows' Temple Club, The	Toronto.
Orient Social Club	Eastview.
Olympic Club, The	Guelph.
Ontario Tobacco Growers' Co-operative Association, The	Kingsville.
Ossington Athletic Club	Toronto.
P.	
Plummer, Aberdeen and Galbraith Rural Telephone Association, The.	Havilah.
Polish Falcons Gymnastic Association of Canada	Hamilton.
R.	
Riverdale Settlement	Toronto.
Roncesvalles Bowling and Athletic Club, The	Toronto.
Riverdale Business Men's Association	Toronto.
Rose Mutual Telephone Club	Rydal Bank.
S.	
Sunderland Athletic Association, The	Toronto.
Shuniah Club, The	Port Arthur.
Saint Charles Social Club	Eastview.
St. Augustine's Seminary of Toronto	Toronto.
T.	
Toronto Press Club, The	Toronto.
Toronto Skating Club	Toronto.
Toronto Chauffeurs' Protective Association, The	Toronto.
Tomchei Shabot Congregation	Toronto.
Toronto Mining Exchange, The	Toronto.
Trustees of Willowdale Park Cemetery	Toronto.
W.	
Western Social Club of Ottawa	Ottawa.
Waverley Club, The	Toronto.
Wentworth Athletic Club	Hamilton.
Women's Canadian Club of Hamilton, The	Hamilton.
Workers' Educational Society of Fort William, The	Fort William.

List of Corporations whose Capital has been Decreased.

Name of Company.	From.	To	Date
Industrial Buildings, Limited	400,000	200,000	June 12, 1914.
Marathon Tire & Rubber Company, Limited.....	800,000	400,000	Oct. 20, 1914.

List of Corporations whose Charters were Surrendered.

Name of Corporation.	Date
A.	
Algoma Iron Works, Limited	Nov. 13, 1913.
Algoma Steel Company, Limited, The	Nov. 13, 1913.
Algoma Commercial Company, Limited, The.....	Nov. 13, 1913.
Amherstburg Electric Light, Heat and Power Company, Limited, The.	Nov. 24, 1913.
Applegath, Limited	Feb. 4, 1914.
Aberdeen Brick Works, Limited.....	May 11, 1914.
Armour, Limited	June 15, 1914.
B.	
Booth Copper Company of Toronto, Limited, The	Feb. 4, 1914.
Belleville Fruit and Vinegar Company, Limited, The	June 17, 1914.
C.	
Conger Coal Company of Toronto, Limited, The	Nov. 17, 1913.
Canadian Locomotive Company, Limited	Feb. 17, 1914.
Capital Brewing Company, Limited, The	Apr. 3, 1914.
Carp Milling Company, Limited	Apr. 3, 1914.
Canadian Moloney Electric Company, Limited	Apr. 24, 1914.
Cavendish Lumber Company, Limited, The	Sept. 2, 1914.
Cobalt Townsite Mining Company, Limited	Oct. 17, 1914.
D.	
Dominion Reduction Company, Limited	Jan. 3, 1914.
E.	
Echlin, H. W., Limited	Jan. 24, 1914.
Empire Salt Company, Limited, The	May 11, 1914.
H.	
Hamilton Wine and Spirits Vaults, Limited	Aug. 26, 1914.
I.	
Ivor Match Machine Company, Limited	May 16, 1914.
K.	
Kingsville Electric Light Company, Limited	Nov. 24, 1913.
L.	
Leamington Light and Heat Company, Limited, The	Nov. 24, 1913.

List of Corporations whose Charters were Surrendered.—*Continued.*

Name of Corporation.	Date
M.	
Moore and Browne, Limited	Nov. 10, 1913.
Monarch Knitting Company, Limited, The	July 4, 1914.
Mutual Building and Land Company, Limited, The	Aug. 1, 1914.
Modern Malleable Range Company, Limited	Aug. 28, 1914.
N.	
Napanee Rink, Limited	Dec. 3, 1913.
O.	
Otisse Mining Company, Limited, The	Apr. 11, 1914.
P.	
Paper Bottle and Package Company, Limited	Jan. 30, 1914.
Perrin Plow and Stove Company, Limited, The	Feb. 12, 1914.
S.	
Sault Ste. Marie Pulp and Paper Company, Limited, The	Nov. 13, 1913.
Swansea Smelting and Refining Company, Limited	Dec. 10, 1913.
Saunders and Evans, Limited	Jan. 30, 1914.
Standard Wire Fence Company of Woodstock, Limited	Mar. 16, 1914.
Saint Thomas Brass Company, Limited, The.....	Mar. 17, 1914.
Stewart Company, Limited, The	Mar. 31, 1914.
Sunderland Electric Power Company, Limited, The	May 26, 1914.
T.	
Toronto Indestructible Brick Company, Limited	Dec. 10, 1913.
Tudhope-Knox Company, Limited	Feb. 12, 1914.
Toronto Automobile Trade Association	June 22, 1914.
Townsite Extension Mines, Limited	Oct. 17, 1914.
U.	
United Motors	Jan. 26, 1914.
W.	
Willowdale Rural Telephone Company, Limited	Feb. 5, 1914.

Proclamations Gazetted.

1914.

- Re* Act *re* approaches and avenues in Queen's Park, Toronto, Nov. 1, 8, 1913.
Re An Act to create the Territorial and Provisional Judicial District of Temiskaming, Dec. 27, 1913, Jan. 3, 10, 1914.
Re Blind River Town, *re* Old Wooden Bridge, Feb. 7, 14, 21st, 1914.
Re Canada Temperance Act, *re* County of Huron, Nov. 22, 29, Dec. 6, 1913.
Re Canada Temperance Act, *re* County of Peel, Nov. 22, 29, Dec. 6, 1913.
Re Canada Temperance Act, *re* the County of Welland, Nov. 22, 29, Dec. 6, 1913.
Re Canada Temperance Act, *re* the District of Muskoka, May 30, June 6, 13, 1914.
Re His Honour John Strathearn Hendrie, to be Lieutenant-Governor for Ontario, Oct. 3, 10, 17, 1914.
Re Ingersoll, Town in County of Oxford, August 8, 15, 22, 1914.
Re Legislative Assembly of Ontario to Convene 18th day of February, January 31, February 7, 14, 1914.
Re Murder of Lorne Campbell Moss on 1st May, 1913, at Dunnville, Nov. 8, 15, 22, 1913.
Re Provincial Election for Ontario, June 29th, 1914, May 30, June 6, 13, 1914.
Re Revised Statutes of Ontario, Feb. 14, 21, 28, 1914.
Re Thanksgiving Day, October 12th, 1914, Sept. 19, 26, Oct. 3, 1914.
Re Voters' Lists for Ontario, May 16, 23, 30, 1914.
Re Workmen's Compensation Act, Sept. 26, Oct. 3, Oct. 10, 1914.

APPENDIX A.

Supplementary List of Companies incorporated for the year 1913, ending October 31st.

Name.	Address.	Capital
A.		
Auto-Transportation, Limited	Toronto.....	150,000
B.		
Barton Hotel Company, Limited, The	Hamilton.....	40,000
Blair Bros., Limited	Woodstock.....	100,000
C.		
Centre Gry Realty Company, Limited, The	Thornbury.....	40,000
Cornhill, Limited	Toronto.....	110,000
Canada Bonded Attorney and Legal Directory, Limited	Toronto.....	50,000
G.		
Geo. H. Gillespie and Company, Limited	Madoc.....	150,000
H.		
Hartley Bay Fishing & Hunting Club, Limited	Sudbury.....	10,000
I.		
International Drug Company, Limited, The	Port Arthur....	40,000
J.		
Jackson Manufacturing Company, Limited, The	Clinton.....	150,000
Jamaica Food Products, Limited	Toronto.....	50,000
John A. Hertel Company (Private Company), Limited, The.	Toronto.....	40,000
John Heard & Co., Limited	St. Thomas.....	75,000
Jones, Girouard & Co., Limited	Ottawa.....	50,000
K.		
Kirkland Lake Development Company, Limited (No Personal Liability)	Toronto.....	40,000
L.		
Lake Superior Dry-Dock and Construction Co., Limited, The.	Sault Ste. Marie.	1,500,000
Lawrence Park, Hamilton, Limited	Hamilton.....	40,000
M.		
Murray Sign Company, Limited	Toronto.....	100,000
Mississauga Golf and Country Club, Limited, The	Tp. Toronto....	75,000
N.		
Northern Building-Material and Iron Company, Limited	Sault Ste. Marie.	50,000
Nash Realty Company, Limited, The	St. Catharines.	100,000
P.		
Purifico Company of Canada, Limited, The	Bridgeburg.....	40,000

Supplementary List of Companies Incorporated for the year 1913, ending
October 31st.—*Continued.*

Name.	Address.	Capital.
R.		
Ramsden Sand, Gravel and Brick Company, Limited, The ..	Toronto.....	100,000
S.		
Standard Drug, Limited	London.....	25,000
Sherry-Hunt Enterprises, Limited	Fort Erie.....	40,000
T.		
Temiskaming Automobile & Supplies, Limited	Cobalt.....	40,000
W.		
Weseloh, Goudie, Limited	Berlin.....	200,000

APPENDIX B.

Supplementary List of Corporations Licensed to do Business in Ontario.

Name of Corporation.	Where Incorporated	Attorney.
A.		
Armour Grain Company	New Jersey.....	Mahlon Kitchen Cowan.
L.		
Larned, Carter and Company	Michigan.....	Richard V. LeSueur.
Lewis, W. D., Company	New Jersey.....	James R. Roaf.
M.		
McCutcheon Bros., Limited	Dominion.....	Gordon D. McCutcheon.
O.		
Ontario Steel Products Company, Ltd....	Dominion.....	Walter T. Sampson.
R.		
Ross Realty Company, Limited, The ...	Dominion.....	Philip D. Ross.
Raymond Construction Company, Ltd....	Dominion.....	H. C. Wotherspoon.
V.		
Vermont Marble Company	Vermont.....	Thomas M. Howard.

APPENDIX C.

Supplementary List of Companies Whose Capital was Increased.

Name of Company.	From	To	Date
A.			
American Laundry Machinery Co., Ltd., The..	40,000	150,000	October 11, 1913.
B.			
Boake Manufacturing Company Limited, The.	60,000	300,000	October 22, 1913.
M.			
Monarch Construction and Realty Co., Ltd. ..	40,000	150,000	March 1, 1913.
R.			
Renfrew White Granite Company, Ltd., The..	180,000	250,000	October 30, 1913.

APPENDIX D.

Supplementary List of Corporations whose Names were Changed.

From	To	Date
C.		
Commercial Land Co., Ltd., The..	Commercial Realty Investments, Limited	Oct. 30, 1913.
M.		
Methodist Union, The	Methodist Union of Toronto, The.	Oct. 22, 1913.
Miller, Limited	Dominion Brass Corporation, Ltd., The	Oct. 24, 1913.
N.		
National Boxes, Limited, The ...	National Paper Goods Company, Limited, The	Oct. 30, 1913.
O.		
Ottawa Creamery, Limited	Valley Creamery of Ottawa, Ltd..	Oct. 29, 1913.
S.		
Shuttleworth, J. R., & Sons, Ltd...	Shuttleworth-Carew, Limited	Oct. 30, 1913.
W.		
Weber's, Limited	Moore, B. W., Company, Ltd	Sept. 13, 1913.

Supplementary List of Corporations Whose Powers were Extended.

Name of Company.	Date.
B.	
Boake Manufacturing Company, Limited, The (extending their powers)	Oct. 22, 1913.
F.	
Frontenac Floor and Wall Tile Company, Limited (providing for dividends on preference shares)	Oct. 31, 1913.
N.	
National Gas Company, Limited (authorizing exercise of municipal franchise)	Oct. 31, 1913.
P.	
Preston Car & Coach Company, Limited, The (converting common into preference shares and authorizing commission not over 5% on sale of preference shares)	July 10, 1913.
U.	
United Gas Companies, Limited, The (amending Supplementary Letters Patent)	Oct. 31, 1913.

Supplementary List of Corporations Without Share Capital.

Name.	Place.
B.	
Bar Point Masonic Club	Amherstburg.
H.	
Hungarian Club, The	Crowland.
W.	
Women's College Hospital and Dispensary	Toronto.

REPORT

RELATING TO THE REGISTRATION OF

Births, Marriages and Deaths

IN THE

PROVINCE OF ONTARIO

FOR THE

Year Ending 31st December,

1914

(Being the 45th Annual Report)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF [ONTARIO



TORONTO:

Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty

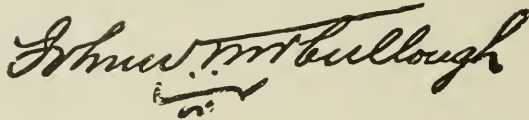
1915

SIR:—

I have the honour to submit for your approval the Forty-Fifth Annual Report made in conformity with and under the provisions of the Act respecting the Registration of Births, Marriages and Deaths in the Province of Ontario, for the year ending December 31st, 1914.

I have the honour to be, Sir,

Your obedient servant,

A handwritten signature in cursive script, reading "John M. Bullough". The signature is written in dark ink and is positioned centrally on the page.

Deputy Registrar-General.

TO HON. W. J. HANNA,

Registrar-General of Ontario.

REPORT UPON

Births, Marriages and Deaths

FOR THE YEAR 1914

This is the Forty-fifth Annual Report of vital statistics for the Province of Ontario, for the year ending December 31st, 1914. It shows an increase in the number of births registered during the year and a decrease in the number of marriages and deaths.

The following table shows the total registrations and makes a comparison between the number of registrations for 1913 and 1914:

—	1914	Ratio.	1913	Ratio.
The whole Province.....	B. 66,225	24.0	64,516	24.0
	M. 24,245	8.8	26,998	10.0
	D. 32,440	11.8	34,317	12.7
City Municipalities.....	B. 28,009	27.9	26,914	28.1
	M. 12,537	12.5	14,089	14.7
	D. 12,853	12.8	13,887	14.4
Town Municipalities	B. 4,611	28.7	4,077	26.4
	M. 1,821	11.3	1,943	7.0
	D. 2,481	15.4	2,485	16.1
Province, excluding Cities and Towns...	B. 33,605	21.1	33,585	26.4
	M. 9,887	6.2	10,966	7.0
	D. 17,106	10.7	17,943	11.4

POPULATION.

The estimated population of Ontario for 1914 was 2,749,840. Of this, the cities contain 1,002,320, or 36.3 per cent. of the total. The towns of over 5,000 population have 160,495 or 5.8 per cent., while rural Ontario contributes 57.8 per cent. of the whole.

It will be noted that the rates per 1,000 of population are considerably higher in the city and town municipalities than in the rural municipalities.

For the sake of comparison with other years the following table showing the total Births and Deaths in Ontario, excluding still-births, for each of eighteen years, and the ratio per 1,000 of population is appended.

—	Births.	Ratio.	Deaths.	Ratio.
1897.....	46,868	20.7	26,508	11.7
1898.....	46,067	20.4	25,409	11.1
1899.....	44,286	19.4	27,747	12.4
1900.....	45,549	19.8	28,543	12.2
1901.....	45,281	21.1	28,500	13.0
1902.....	46,973	21.7	26,713	12.1
1903.....	47,709	22.1	28,399	12.9
1904.....	49,158	22.8	29,600	13.4
1905.....	50,808	23.5	29,748	13.4
1906.....	50,621	23.3	31,244	14.1
1907.....	52,289	24.1	31,756	14.3
1908.....	54,878	25.6	30,947	13.8
1909.....	53,448	24.3	30,792	13.7
1910.....	54,755	24.9	31,332	13.9
1911.....	56,096	22.6	31,878	12.6
1912.....	58,870	22.4	32,150	12.4
1913.....	64,516	24.0	34,317	12.7
1914.....	66,225	24.0	32,440	11.8

BIRTHS.

The births registered during the year were 66,225, a ratio of 24.0 per 1,000 of population. This is the same rate as for 1913.

The cities contributed 42.6 per cent. of all births. The towns of over 5,000 population, 6.9 per cent., and rural Ontario, 50.7 per cent.

ILLEGITIMATE BIRTHS.

The total number of illegitimate births registered was 1,469, an increase of 75 over the preceding year. Of every 1,000 births which occur in Ontario, 22.3 are illegitimate. As usual, the cities contributed the larger number, 1,074, or over 73.1 of the whole, being at the rate of 38.4 per 1,000 births. The towns gave 73 or 4.9 per cent. of the whole, being at the rate of 15.8 per 1,000 births. Rural Ontario gave 322 or 21.9 per cent. of the whole, being at the rate of 9.5 per 1,000 births.

MULTIPLE BIRTHS.

There were 759 pairs of twins born; 805 of these children being males and 713 females. Of these the cities contributed 310 and the towns 52 pairs of twins. Seven sets of triplets were registered; 9 boys and 12 girls. One case occurred in Saulte Ste. Marie; one in Toronto and one in Niagara Falls. One case each occurred in the Counties of Kent, Lincoln, Renfrew and Timiskaming District.

Of all births registered, 34,031 were males and 32,194 females; or 1,050 boys to 1,000 girls.

MARRIAGES.

The number of marriages registered during the year 1914, was 24,245, or 8.8 per 1,000 of population. This number is 2,753 less than that of the preceding year, or 1.2 less per 1,000 of population.

The largest ratio is shown in Welland and Essex Counties where the Cities of Niagara Falls and Windsor respectively, are situated. In spite of the amendment in The Act respecting the Solemnization of Marriages, a considerable number of parties continue to come from the United States to be married in Canada. The Department is very particular in examining all affidavits received in registered licenses and there does not seem to be any direct evidence that the law is being evaded. It must be admitted, however, that a suspicion is prevalent in the Department that there is an indirect evasion in the City of Niagara Falls. In Windsor, however, the law is complied with in all respects.

The following table will show how this amendment to The Marriage Act has affected the ratio of marriages in the cities just referred to during the year 1912, prior to the amendment, in 1913, when the amendment was adopted (May, 1913) and in 1914 when it was in force during the entire year.

	1912 Marriages	Ratio per 1,000	1913 Marriages	Ratio per 1,000	1914 Marriages	Ratio per 1,000
Niagara Falls	839	86.7	492	40.9	291	24.9
Windsor	3,429	176.2	1,423	65.8	622	27.6

The ratio of marriages per 1,000 of population in these cities is still twice as high as the average 12.5, for the city municipalities.

The following table shows the marriages by denominations and the number of men and women claiming adherence to the denominations.

MARRIAGE BY DENOMINATIONS.

Denomination.	Bridegrooms.	Brides.	Total.
Anglican	5,453	5,461	10,914
Presbyterian	5,050	5,118	10,168
Methodist	6,159	6,092	12,251
Roman Catholic	3,836	3,973	7,809
Baptist	1,382	1,431	2,813
Congregationalist	227	232	459
Lutheran	690	682	1,372
Evangelical Association	109	110	219
Hebrew	352	345	697
Salvation Army	98	98	196
Other denominations	838	666	1,504
Not stated	48	37	85

The following table shows the total persons who married at different ages.

MARRIAGE BY AGES.

Ages.	Bridegrooms.	Brides.	Total.
15-19.....	443	4,607	5,050
20-24.....	8,634	10,134	18,768
25-29.....	7,878	5,304	13,182
30-34.....	3,513	2,045	5,558
35-39.....	1,609	943	2,552
40-44.....	807	504	1,311
45-49.....	495	302	797
50-54.....	344	160	504
55-59.....	198	80	278
60-64.....	143	58	201
65-69.....	87	33	120
70 and over.....	66	18	84
Age not stated.....	28	57	85

The following table shows by percentage how members of any one denomination intermarried, in other words, the balance, shown in the second column will be the mixed marriages.

INTER-MARRIAGES AND MIXED MARRIAGES.

	% who Inter-married.	% who contracted mixed marriages.
Hebrew.....	97.55	2.45
Roman Catholic.....	87.96	12.04
Salvation Army.....	81.63	18.37
Lutheran.....	69.37	30.63
Methodist.....	65.85	34.15
Anglican.....	64.22	35.78
Evangelical Association.....	63.01	36.99
Presbyterian.....	60.86	39.14
Baptist.....	50.88	49.12
Congregationalist.....	41.39	58.61

CONJUGAL RELATIONS

The following tables show the conjugal relations of the contracting parties:

PROVINCE	Bachelors	Widowers	Divorced Men	Total Brides
Spinsters.....	21,468	1,294	37	22,799
Widows.....	651	730	10	1,391
Divorced Women.....	31	10	14	55
Total Bridegrooms.....	22,150	2,034	61	24,245

CITIES	Bachelors	Widowers	Divorced Men	Total Brides
Spinsters	11,032	636	34	11,702
Widows	409	364	7	780
Divorced Women.....	32	9	14	55
Total Bridegrooms.....	11,473	1,009	55	12,537

TOWNS	Bachelors	Widowers	Divorced Men	Total Brides
Spinsters.....	1,594	103	3	1,700
Widows	49	69	.....	118
Divorced Women.....	2	1	.....	3
Total Bridegrooms.....	1,645	173	3	1,821

DEATHS.

The total number of deaths registered in the Province for 1914 was 32,440, being a ratio of 11.8 per 1,000 of population. This is a decrease of 1,877 deaths and a decrease of .9 in the ratio.

The ten most active causes, excluding congenital debility and old age, were:

		Per cent. of total deaths.
Organic Heart Diseases	2,972	9.1
Tuberculosis	2,340	7.2
Pneumonia	2,009	6.1
Cancer	1,914	5.9
Apoplexy	1,306	4.0
Infantile Diarrhoea	1,215	3.6
Diseases of the Arteries	1,093	3.3
Bright's Disease	1,022	3.1
Paralysis	558	1.7
Infantile Convulsions	497	1.5

When one is making a comparison of death rates in any rural municipality it should be borne in mind that each county municipality includes any city, town or towns which may be in that county, and to obtain the county rate only, this must be considered, e.g., York County, including Toronto, shows 6,537 deaths with a rate of 11.8 per 1,000; the same county, excluding Toronto, has a ratio of 12.1 per 1,000. Carleton County, including Ottawa, has a death rate of 11.8 per 1,000 of population; excluding Ottawa, the rate is 17.3.

The death rate from organic diseases of the heart is higher than in the preceding year (2,829). The same is true of cancer (1,806).

TUBERCULOSIS.

Tuberculosis continues to occupy a most prominent place as a cause of death.

The number of deaths due to this cause in 1914 was 2,340, being 46 more than for 1913. While there was a slight increase in the number over that of the preceding year, the ratio per 100,000 of population has remained unchanged, being 85.

The following table is of interest in comparing population and deaths from tuberculosis:

	Deaths.	%	Population.	%	Ratio per 100,000 population.
Total	2,340	100	2,749,840	100	85
City Municipalities.....	873	37.30	1,002,320	36.40	87
Town Municipalities	173	7.40	160,495	5.84	107
Rural Municipalities.....	1,294	55.30	1,587,025	57.76	81

Following will be found tables showing deaths from tuberculosis over a period of 10 years:

DEATHS IN ONTARIO FROM TUBERCULOSIS BY AGES, 1905-1914.

Year.	Total.	Ratio per 100,000	Under 5 years.														80 & over.	Not stated.	Total deaths from all causes.
			0-5					5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79			
			0-1	1	2	3	4												
	25,527		700	413	219	137	143	444	602	1,989	6,954	4,965	3,166	2,164	1,507	684	132	308	316,604
1905	2,667	116	...	55	31	21	18	47	85	266	813	509	341	212	144	79	16	30	29,748
1906	2,911	131	251	72	23	14	14	38	74	234	724	604	367	228	169	66	19	14	31,244
1907	2,530	113	74	41	27	20	15	44	62	206	745	499	311	227	173	64	9	13	31,756
1908	2,511	110	68	46	20	13	13	43	67	216	764	479	315	217	136	70	14	30	30,947
1909	2,380	106	47	27	25	9	15	54	54	179	687	487	290	222	163	66	15	40	30,792
1910	2,291	102	38	35	19	15	6	36	55	184	652	463	293	222	160	71	18	24	31,332
1911	2,353	92	63	30	15	10	18	48	64	181	618	476	325	218	156	85	12	34	31,878
1912	2,250	87	53	30	19	9	15	46	42	154	631	500	304	200	134	64	7	42	32,150
1913	2,294	85	53	36	20	10	18	32	41	188	632	479	313	204	156	56	10	47	34,317
1914	2,340	85	54	41	20	16	11	56	58	181	688	469	307	214	116	63	12	34	32,440

DEATHS FROM TUBERCULOSIS IN THE PROVINCE BY CLASSES

	AGES														SEX				
	0-1	1	2	3	4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79	80 and over	Not Stated	Male	Female	
Total....	2,340	54	41	20	16	11	56	58	181	688	469	307	214	116	63	12	34	1,168	1,172
Tuberculosis of the lungs..	1,982	17	9	6	4	2	18	33	163	633	424	276	188	106	60	12	31	993	989
Acute Miliary Tuberculosis	40	5	3	1	1	3	2	6	1	3	8	1	4	3	.....	.....	.....	26	14
Tuberculous Meningitis ..	149	31	24	9	4	4	25	10	7	14	9	8	2	1	.....	.....	2	72	77
Abdominal Tuberculosis ..	105	.....	4	2	1	1	9	5	9	24	13	17	16	3	1	.....	.....	47	58
Pott's Disease.....	10	.....	.....	1	1	.....	1	1	.....	1	3	1	1	.....	.....	.....	.....	4	6
White Swelling.....	10	.....	.....	1	1	.....	1	1	.....	1	1	1	1	1	.....	.....	.....	6	4
Tuberculosis of other organs	37	1	.....	.....	.....	1	1	1	11	6	2	3	1	1	.....	1	.....	16	21
Disseminated Tuberculosis.	7	.....	1	.....	.....	.....	.....	.....	.....	2	4	1	.....	.....	.....	.....	.....	4	3

	NATIVITY			SOCIAL CONDITION			MONTHS											
	Canada	Foreign	Not Stated	Single	Married	Not Stated	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
Total....	1,816	491	33	1,158	1,113	69	197	205	197	252	198	199	177	206	190	165	158	196
Tuberculosis of the Lungs .	1,507	444	31	912	1,009	61	167	172	168	218	163	175	156	183	156	134	122	168
Acute Miliary Tuberculosis	33	6	1	27	11	2	2	4	2	4	4	3	2	1	2	4	8	4
Tuberculous Meningitis ...	136	13	.....	136	12	1	12	17	6	15	16	9	10	10	13	14	12	15
Abdominal Tuberculosis ...	88	17	.....	49	53	3	10	9	8	11	6	5	8	8	15	10	7	3
Pott's Disease.....	9	1	.....	7	3	.....	3	.....	1	.....	1	2	1	.....	.....	.....	3	.....
White Swelling.....	8	2	.....	6	3	1	1	.....	1	.....	1	.....	2	.....	.....	1	1	2
Tuberculosis of other organs	30	6	1	18	18	1	1	3	5	6	3	2	2	2	4	2	4	3
Disseminated Tuberculosis.	5	2	.....	3	4	.....	2	.....	1	.....	.....	1	1	.....	.....	1	1	1

TOTAL NUMBER OF DEATHS FROM TUBERCULOSIS IN EACH COUNTY IN
ONTARIO FOR TEN YEARS, 1905-1914.

	Total.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Totals.....	21,527	2,667	2,911	2,530	2,511	2,380	2,291	2,353	2,250	2,294	2,340
Algoma	429	77	70	45	43	27	34	33	33	39	28
Brant	358	24	50	54	39	32	26	28	38	32	35
Bruce	519	65	48	66	68	43	64	47	36	48	34
Carleton.....	1,526	145	158	155	134	161	127	163	143	178	162
Dufferin.....	111	17	13	11	15	15	10	10	9	4	7
Elgin.....	300	42	38	20	33	28	18	26	26	28	41
Essex.....	628	54	81	66	67	63	62	60	61	54	60
Frontenac.....	572	64	59	72	47	43	58	63	56	58	52
Grey.....	528	73	80	61	43	55	58	32	43	52	31
Haldimand.....	155	26	12	10	13	14	13	18	15	13	21
Haliburton.....	40	4	4	7	4	4	4	3	5	2	3
Halton.....	159	20	29	12	14	13	17	17	16	6	15
Hastings.....	555	73	83	55	53	56	56	51	53	30	45
Huron.....	459	67	49	50	62	44	44	44	14	27	31
Kenora.....	69	.....	.....	.....	.....	13	6	16	7	15	12
Kent.....	574	64	96	59	48	53	52	51	51	52	48
Lambton.....	498	65	78	59	55	55	43	41	30	40	32
Lanark.....	385	46	48	39	49	46	37	30	27	30	33
Leeds and Grenville.....	842	102	109	96	66	86	77	82	96	69	59
Lennox and Addington.....	201	24	26	24	28	24	17	18	11	16	13
Lincoln.....	345	37	46	26	35	30	42	29	28	36	36
Manitoulin.....	22	.....	.....	.....	.....	2	2	3	7	4	4
Middlesex.....	1,057	126	145	103	118	88	85	99	95	96	102
Muskoka.....	376	39	24	33	39	41	34	44	47	43	32
Nipissing.....	315	36	41	38	39	25	24	35	42	20	15
Norfolk.....	198	24	29	13	23	31	15	17	14	20	12
Northumberland and Dur- ham.....	510	56	57	64	63	48	49	45	44	51	33
Ontario.....	353	44	43	37	44	23	40	42	23	33	24
Oxford.....	419	51	47	55	50	37	38	43	36	32	30
Parry Sound.....	150	15	24	16	14	18	6	14	12	17	14
Peel.....	182	29	21	17	17	21	14	21	14	16	12
Perth.....	341	43	38	32	34	41	28	35	35	25	30
Peterboro'.....	424	42	51	44	41	47	39	37	36	51	36
Prescott and Russell.....	523	63	75	59	48	45	34	42	51	46	60
Prince Edward.....	148	19	16	13	18	17	14	11	13	16	11
Rainy River.....	112	25	14	20	18	4	4	6	7	4	10
Renfrew.....	363	38	52	37	28	35	24	31	33	42	43
Simcoe.....	791	89	109	73	82	82	82	67	65	70	72
Stormont, Dundas and Glen- garry.....	792	86	85	100	102	81	66	83	58	59	72
Sudbury.....	117	.....	.....	.....	.....	22	18	10	18	20	29
Thunder Bay.....	378	26	34	38	26	32	44	38	35	47	58
Timiskaming.....	33	.....	.....	.....	.....	.....	.....	.....	.....	12	21
Victoria.....	239	31	23	51	14	23	23	18	13	16	27
Waterloo.....	425	40	35	48	48	43	41	42	46	40	42
Welland.....	340	33	34	29	34	36	31	31	34	43	35
Wellington.....	449	60	52	42	49	41	40	50	39	32	44
Wentworth.....	1,183	111	132	97	122	128	127	107	112	118	129
York.....	5,034	452	553	484	524	464	504	520	496	492	545

INFANT MORTALITY.

The number of children who died during 1914 under the age of 5 years was 8,516, as compared with 9,515 for the preceding year. This is a decrease of 999. The decrease took place in the first three years of age, while increases occurred in the latter two.

	Total	Under 1	1	2	3	4
1913	9,515	7,596	992	447	274	206
1914	8,519	6,835	808	359	305	212

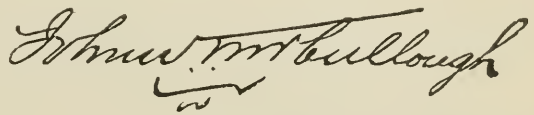
In 1913, the deaths under one year amounted to a ratio of 117.7 per 1,000 births; in 1914, the ratio dropped to 103.2. This is most gratifying.

The following table shows a comparison of the death rates per 1,000 births, between 1913 and 1914.

	1913	1914
Whole Province.....	117.7	103.2
City Municipalities.....	140.3	115.9
Town Municipalities	148.3	129.9
Rural Municipalities	95.7	88.8

Excluding cities and towns

It will be observed that while the death rate in the whole Province falls much below that of cities and towns, the latter carries the highest rate of all, while that of the rural districts is lowest. It seems that the reasons for the higher death rate in towns is due to the fact that in towns less attention is paid to sanitary conditions than is the case in cities. In most cities there is a full-time medical officer of health, the supply of milk is controlled by by-law which provides for inspection of the milk and of the dairies. In some of the cities, notably Toronto, all milk is pasteurized, supplied in bottles and distributed in a most satisfactory manner. In a large number of towns, the medical officer of health is paid but a mere pittance for his services and has little or no incentive to carry out his duties properly. It is a notorious fact that the milk supply of many of our towns is scandalously filthy and consequently about as dangerous a poison as could be given a child. In addition, while cities screen and promptly dispose of manure and garbage, thus preventing the breeding of flies; in most of the smaller towns nothing is done to limit the swarming of these disease-carrying insects. In the rural districts the milk is fed fresh to children, before the disease germs have had time to multiply. The effect of the pasteurization of milk is apparent in the low death rate among infants in cities like Toronto.



Deputy Registrar General.

TABLE No. 1.

Showing the number of Births, Marriages and Deaths, in the Province and in each County Municipality, together with the ratio per 1,000 of population. Also the estimated population for the Province, and for each municipality, 1914.

Counties.	Estimated Population.	Births. Excluding Still-Births.	Ratio per 1,000.	Marriages.	Ratio per 1,000.	Deaths. Excluding Still-Births.	Ratio per 1,000.
Totals.....	2,749,840	66,225	24.0	24,245	8.8	32,440	11.8
Algoma.....	51,400	813	15.8	352	6.8	400	7.7
Brant.....	49,920	1,303	26.1	443	8.8	510	10.2
Bruce.....	46,560	1,059	22.6	311	6.6	540	11.5
Carleton.....	130,220	3,232	24.8	1,224	9.3	2,084	16.0
Dufferin.....	16,110	302	18.7	112	6.9	158	9.8
Elgin.....	45,520	882	19.3	357	7.7	561	12.3
Essex.....	75,320	1,958	25.9	1,050	13.9	867	11.5
Frontenac.....	44,830	962	21.4	366	8.1	657	14.6
Grey.....	64,920	1,192	18.3	441	6.7	679	10.4
Haldimand.....	21,680	421	19.4	150	6.9	255	11.7
Haliburton.....	5,650	273	*48.3	25	4.4	81	14.3
Halton.....	24,550	516	21.0	166	6.7	223	9.0
Hastings.....	55,990	1,358	24.2	452	8.0	754	13.4
Huron.....	50,300	956	19.0	323	6.4	589	11.7
Kenora.....	19,950	326	16.3	71	3.5	143	7.1
Kent.....	58,670	1,270	21.6	451	7.6	700	11.9
Lambton.....	53,140	972	16.4	445	8.3	560	10.5
Lanark.....	34,310	666	19.1	239	6.9	461	13.4
Leeds and Grenville.....	52,120	973	18.6	353	6.7	720	13.8
Lennox and Addington.....	19,820	342	17.3	139	7.0	208	10.4
Lincoln.....	41,380	1,014	24.5	393	9.5	536	12.9
Manitoulin.....	11,680	174	14.8	45	3.8	73	6.2
Middlesex.....	101,450	1,949	19.2	900	8.8	1,267	12.5
Muskoka.....	19,850	528	26.5	142	7.2	188	9.4
Nipissing.....	39,090	900	23.0	273	7.0	296	7.5
Norfolk.....	27,230	566	20.7	228	8.3	322	11.8
Northumberland and Durham.....	58,660	1,132	19.2	379	6.4	704	12.0
Ontario.....	41,530	881	21.2	308	7.4	495	11.9
Oxford.....	47,980	972	20.2	400	8.3	532	11.0
Parry Sound.....	27,370	781	28.5	186	6.7	272	9.9
Peel.....	21,800	438	20.0	137	6.2	243	11.1
Perth.....	50,540	1,036	20.4	368	7.2	522	10.3
Peterborough.....	43,010	982	22.8	354	8.2	459	10.6
Prescott and Russell.....	52,540	1,715	32.4	330	6.2	699	13.3
Prince Edward.....	16,890	294	17.4	117	6.9	225	13.3
Rainy River.....	10,970	319	29.0	125	11.3	115	10.4
Renfrew.....	53,680	1,188	22.1	408	7.6	568	10.5
Simcoe.....	85,850	1,929	22.4	599	6.9	1,069	12.4
Stormont, Dundas and Glengarry...	63,800	1,249	19.5	430	6.7	781	12.2
Sudbury.....	42,690	1,025	24.0	227	5.3	453	10.6
Thunder Bay.....	46,250	1,836	39.6	493	10.6	676	14.6
Timiskaming.....	29,020	1,294	44.5	288	9.9	373	12.8
Victoria.....	30,770	551	17.9	234	7.6	303	9.8
Waterloo.....	69,360	1,819	26.2	632	9.1	727	10.4
Welland.....	53,380	1,326	24.8	743	13.9	610	11.4
Wellington.....	54,860	1,072	19.5	358	6.5	652	11.8
Wentworth.....	136,370	3,602	26.4	1,320	9.6	1,593	11.6
York.....	551,710	15,877	28.7	6,358	11.5	6,537	11.8

*This high rate is due to the registration of a number of births which occurred in 1913, being registered in 1914.

TABLE No. 2.

Showing the total number of Births, Marriages and Deaths, and the ratio per 1,000 of population in each City in Ontario, 1914.

Cities.	Estimated Population.	Births. Excluding Still-Births.	Ratio per 1,000.	Marriages.	Ratio per 1,000.	Deaths. Excluding Still-Births.	Ratio per 1,000.
Totals	1,002,320	28,009	27.9	12,537	12.5	12,853	12.8
Belleville	11,230	240	21.3	130	11.5	149	13.2
Berlin	18,880	531	28.1	222	11.7	211	11.1
Brantford	26,100	808	30.9	296	11.3	281	10.7
Chatham	12,830	250	19.4	194	15.1	230	17.9
Fort William	27,180	956	35.1	254	10.3	311	11.4
Guelph	16,800	353	21.0	145	8.6	209	12.4
Hamilton	101,190	2,845	28.1	1,163	11.5	1,158	11.4
Kingston	21,260	517	24.3	287	13.4	372	17.4
London	54,220	1,200	22.1	607	11.1	802	14.7
Niagara Falls	11,650	294	25.2	291	24.9	140	12.0
Ottawa	97,900	2,592	26.4	1,072	10.9	1,697	17.3
Peterborough	19,650	476	24.2	207	10.5	254	12.9
Port Arthur	18,320	702	38.3	210	11.4	215	11.7
St. Catharines	15,860	500	21.5	238	15.0	243	15.3
St. Thomas	15,490	340	21.9	186	11.9	218	14.0
Sarnia	12,090	270	22.3	179	14.7	156	12.8
Stratford	14,570	357	24.5	139	9.0	165	11.3
Toronto	475,000	13,949	29.3	5,964	12.5	5,602	11.7
Windsor	22,500	626	27.8	622	27.6	316	14.0
Woodstock	9,600	203	21.1	131	13.6	124	12.9

TABLE No. 3.

Showing the total number of Births, Marriages and Deaths in the Towns of 5,000 population in Ontario, together with the ratio per 1,000 of population, 1914.

Towns.	Estimated Population.	Births. Excluding Still-Births.	Ratio per 1,000.	Marriages.	Ratio per 1,000.	Deaths. Excluding Still-Births.	Ratio per 1,000.
Totals	160,495	4,611	28.7	1,821	11.3	2,481	15.4
Barrie	7,215	182	25.0	88	12.1	104	14.4
Brockville	9,275	228	24.5	85	9.1	173	18.6
Cobalt	7,590	292	38.4	109	14.3	111	14.6
Cobourg	5,000	111	22.2	50	10.0	105	21.0
Collingwood	6,200	143	23.0	75	12.0	93	15.0
Cornwall	7,050	165	23.4	90	12.7	158	22.4
Galt	12,020	323	26.8	132	10.9	139	11.5
Ingersoll	5,040	110	21.8	56	11.1	71	14.0
Kenora	6,510	196	30.1	38	5.8	102	15.6
Lindsay	8,140	184	22.6	101	12.4	99	12.1
North Bay	10,980	406	36.9	121	11.0	146	13.2
Orillia	7,760	158	20.3	74	9.5	95	12.2
Oshawa	8,270	277	33.5	83	10.0	92	11.1
Owen Sound	12,560	342	27.2	125	9.9	138	11.0
Pembroke	7,500	229	30.5	75	10.0	152	20.2
Port Hope	5,150	102	19.8	42	8.2	63	12.2
Sault Ste. Marie	13,200	279	21.1	180	13.6	198	15.0
Smith's Falls	6,790	186	27.3	58	8.5	86	12.6
Sudbury	6,770	449	66.3	132	19.5	263	38.7
Welland	7,475	249	33.3	107	14.3	93	13.4

TABLE No. 4.—Showing the number of births registered and birth rate per 1,000 of census population in each County of the Province for each of the ten years, 1905-1914, inclusive.

Counties.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Totals.
Totals.....	51,911 23.5	51,710 23.3	53,584 24.1	56,155 25.6	54,465 24.3	55,871 24.9	57,235 22.6	*58,870 22.4	*64,516 24.0	*66,225 24.0	570,742 23.8
Algoma	1,525 33.2	1,340 24.1	1,370 29.6	1,211 28.3	757 16.3	784 16.8	795 15.8	849 19.1	894 17.4	813 15.8	10,328 22.4
Brant	859 22.2	809 20.9	938 24.1	1,000 25.0	931 23.8	1,048 26.5	1,100 23.9	1,160 24.7	1,202 24.3	1,375 26.1	10,350 54.1
Bruce	1,268 21.2	1,192 19.9	1,187 19.7	1,130 18.7	1,289 21.3	1,195 18.4	1,060 21.1	1,069 21.6	1,061 22.9	1,030 22.0	11,510 20.7
Carleton	2,433 24.8	2,436 24.7	2,567 26.0	1,606 26.3	2,515 25.3	2,568 25.8	2,659 23.8	2,993 25.1	3,127 24.8	3,232 24.8	26,136 25.0
Dufferin	435 20.4	425 15.0	340 15.8	400 18.6	368 17.0	387 17.4	352 19.8	321 18.3	367 22.3	302 18.7	3,697 18.3
Elgin	786 12.8	861 19.4	889 20.0	939 21.1	900 20.1	861 19.1	843 19.0	828 18.6	814 18.2	882 19.3	8,602 18.7
Essex	1,615 27.2	1,549 26.1	1,385 23.2	1,681 28.2	1,528 25.5	1,589 26.4	1,594 23.5	1,579 22.9	1,848 25.0	1,958 25.9	16,336 25.3
Frontenac	878 19.4	926 20.4	837 18.4	893 19.6	974 21.3	901 19.7	861 22.0	872 20.8	1,019 23.2	962 21.4	9,123 20.6
Grey.....	1,512 21.4	1,353 19.1	1,438 20.3	1,400 19.7	1,484 20.8	1,384 19.3	1,390 21.0	1,269 19.2	1,329 20.4	1,192 18.3	13,751 19.9
Haldimand	388 18.0	411 20.4	408 18.7	434 20.0	418 19.2	414 19.0	408 18.9	425 19.6	435 19.9	421 19.4	4,192 19.3
Haliburton	203 30.6	197 29.6	216 32.3	204 30.5	219 32.6	174 25.0	182 28.7	146 20.5	109 19.2	273 48.3	1,923 29.7
Halton	448 22.6	408 20.5	429 21.5	460 23.0	447 22.3	460 22.9	484 21.8	420 18.7	497 21.5	516 21.0	4,569 21.5
Hastings.....	1,148 19.1	1,150 19.1	1,393 23.1	1,289 21.3	1,245 20.5	1,192 19.6	1,229 22.0	1,310 23.0	1,320 23.9	1,356 24.2	12,634 21.6
Huron	1,151 18.4	1,130 18.0	1,166 18.5	1,091 17.3	1,059 16.7	983 15.5	1,065 20.4	974 18.5	984 19.3	956 19.0	10,579 18.1
Kenora.....					285	213	239	246	262	326	1,571 14.2
Kent.....	1,191 20.5	1,223 21.0	1,120 19.1	1,210 20.6	1,093 18.6	1,165 19.7	1,237 22.0	1,187 21.0	1,223 21.4	1,270 21.0	11,919 20.5
Lambton.....	1,194 20.8	1,193 20.7	1,073 18.5	1,107 19.1	942 16.2	943 16.2	942 18.3	957 18.9	945 17.9	975 16.4	10,268 18.3
Lanark.....	682 18.1	702 18.5	697 18.4	714 18.8	670 17.5	695 18.2	668 19.4	683 19.9	724 21.0	666 19.1	6,901 18.8
Leeds and Grenville	1,118 18.7	1,124 18.7	1,162 19.3	1,117 18.5	1,068 17.7	1,073 17.7	959 17.6	1,018 18.7	922 17.4	975 18.6	10,534 18.2
Lennox and Addington	431 18.2	360 15.1	404 17.0	401 16.8	382 16.0	361 15.0	367 18.0	391 17.8	356 17.8	342 17.3	3,795 16.9
Lincoln	680 22.0	669 21.6	652 20.9	704 22.6	687 21.9	715 22.8	735 20.7	806 23.2	920 23.2	1,014 24.5	7,582 22.2
Manitoulin					247	226	186	206	239	174	1,278 17.9
Middlesex	1,839 18.1	1,883 20.0	1,929 20.4	1,997 21.1	1,854 19.5	1,844 19.3	1,820 18.7	1,914 19.5	1,948 19.4	1,949 19.2	18,977 19.5
Muskoka	633 29.8	654 30.7	605 28.3	626 29.2	604 28.1	565 26.2	534 25.1	531 25.2	506 24.8	528 26.5	5,786 27.3
Nipissing	1,608 59.4	1,457 53.7	1,742 64.0	1,607 58.9	1,195 43.7	1,703 62.0	1,688 28.5	1,775 28.3	1,276 36.0	906 23.0	14,951 45.7
Norfolk	579 19.6	538 18.2	572 19.3	536 18.0	562 18.8	586 19.6	571 21.0	517 19.0	475 17.5	566 20.7	5,502 19.1
Northumberland and Durham.....	1,121 17.8	1,110 17.6	1,164 18.4	1,164 18.3	1,134 17.8	1,216 19.1	1,142 19.2	1,142 19.2	1,075 18.1	1,128 19.2	11,400 18.4

*Still-births not included.

TABLE No. 4—*Concluded.*

Counties.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Totals.
Ontario	798 19.5	805 19.6	860 20.9	885 21.4	849 20.5	876 21.1	843 20.5	808 19.5	931 22.6	881 21.2	8,536 20.6
Oxford	1,001 20.4	975 19.8	986 20.0	994 20.1	997 20.1	973 19.6	926 19.5	974 20.4	1,008 21.4	972 20.2	9,806 20.1
Parry Sound	657 26.0	814 32.2	759 29.8	855 33.6	675 26.4	691 27.0	790 29.7	675 26.0	632 23.4	781 28.5	7,329 28.2
Peel	377 17.3	384 17.6	381 17.4	446 20.3	427 19.4	426 19.3	414 18.7	418 18.8	446 20.4	438 20.0	4,157 18.9
Perth	1,033 20.4	1,054 20.8	1,029 20.2	1,004 19.7	1,029 20.1	972 19.0	947 19.2	963 19.6	950 18.8	1,036 20.4	10,017 19.8
Peterborough	850 23.3	870 23.7	870 23.7	986 26.8	866 23.4	930 25.1	925 22.2	977 23.0	969 22.8	982 22.8	9,225 23.6
Prescott and Russell	1,950 40.7	1,819 37.9	1,733 36.0	1,881 38.9	1,760 36.3	1,842 37.0	1,767 34.1	1,659 31.6	1,860 36.7	1,715 32.4	17,986 36.1
Prince Edward	296 16.3	315 17.3	321 17.6	328 17.9	326 17.8	319 17.4	332 19.3	290 16.8	342 20.4	294 17.4	3,163 17.8
Rainy River	356 21.4	382 22.9	441 26.3	457 27.2	240 14.2	234 13.8	215 21.3	254 28.1	334 31.9	319 29.0	3,232 23.6
Renfrew	1,508 28.2	1,381 25.8	1,391 25.9	1,471 27.3	1,291 23.9	1,227 22.7	1,223 23.5	1,179 22.9	1,233 23.3	1,188 22.1	13,082 24.5
Simcoe	1,986 23.8	1,957 23.2	2,032 24.6	2,115 25.2	1,981 23.5	1,851 21.9	1,873 22.0	1,804 21.0	1,964 22.8	1,929 22.4	19,492 23.0
Stormont, Dundas and Glengarry	1,531 21.9	1,469 21.0	1,465 20.9	1,497 21.2	1,460 20.7	1,237 17.5	1,330 20.7	1,135 17.7	1,259 20.0	1,249 19.5	13,632 20.1
Sudbury .....	.....	.....	.....	.....	836	665	818 23.4	779 19.7	873 21.4	1,025 24.0	4,996 29.1
Thunder Bay	501 39.4	628 50.1	784 61.4	962 75.2	871 67.6	1,083 84.1	1,241 81.7	1,353 83.0	1,657 88.2	1,836 40.3	10,926 52.1
Timiskaming .....	.....	.....	.....	.....	.....	.....	.....	.....	876 30.3	1,294 44.5	2,170 37.4
Victoria	685 21.2	727 22.4	686 21.1	774 23.7	661 20.2	691 21.0	584 19.3	648 20.9	607 20.1	551 17.9	6,614 20.7
Waterloo	1,327 24.9	1,250 23.4	1,325 24.7	1,612 30.0	1,347 25.0	1,430 26.5	1,429 22.8	1,515 23.3	1,643 24.0	1,819 26.2	14,697 25.0
Welland	725 22.7	749 23.3	738 22.8	857 26.6	780 24.1	917 28.3	942 22.3	1,044 24.1	1,149 23.6	1,336 24.8	9,230 24.2
Wellington	1,065 18.9	1,076 19.0	1,099 19.4	1,134 19.9	1,111 19.5	1,108 19.4	1,100 20.1	1,085 19.9	1,105 20.3	1,072 19.5	10,955 19.5
Wentworth	1,965 24.4	2,007 24.9	2,280 28.2	2,556 31.5	2,336 28.7	2,622 32.1	2,663 23.8	3,149 26.9	3,372 25.2	3,602 26.4	26,552 27.2
York	7,572 27.4	7,908 28.6	8,721 31.4	10,421 37.4	9,765 35.0	10,532 37.6	11,743 26.4	12,573 26.1	15,439 29.8	15,877 28.7	110,551 30.8

TABLE No. 5.—Showing the number of marriages registered and marriage rate per 1,000 of census population in each County of the Province for each of the ten years (1905-1914), inclusive.

Counties.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Totals.
Totals.....	20,423 9.2	19,846 8.9	21,915 9.8	21,058 9.0	22,366 10.0	24,036 10.7	25,807 10.2	28,845 11.1	26,998 10.0	24,245 8.8	235,542 9.7
Algoma	464 10.1	387 8.4	482 10.4	475 10.2	382 9.2	302 6.4	340 8.0	403 9.0	342 6.6	352 6.8	3,920 8.5
Brant	314 8.0	330 8.5	359 9.2	329 8.4	325 8.3	385 9.0	414 9.0	467 9.9	485 9.8	443 8.8	3,851 8.8
Bruce	389 6.5	374 6.2	369 6.1	299 4.9	355 5.8	352 5.8	311 6.2	344 6.9	372 8.0	311 6.6	3,476 6.3
Carleton	939 9.5	812 8.2	959 9.7	925 9.3	941 9.4	1,047 10.5	1,123 9.6	1,221 10.2	1,194 9.5	1,224 9.3	10,385 9.5
Dufferin	141 6.6	142 6.6	134 5.1	140 6.5	119 5.5	134 5.2	142 8.0	130 7.4	113 6.8	112 6.9	1,307 6.4
Elgin.....	369 8.3	315 7.1	341 7.6	396 8.9	352 7.8	334 7.4	342 7.7	368 8.2	387 8.7	357 7.7	3,561 7.9
Essex	1,911 32.2	1,843 31.0	2,168 36.2	2,120 35.8	2,508 41.9	2,836 47.8	3,426 50.7	4,149 60.2	2,082 28.1	1,050 13.9	24,093 37.7
Frontenac	324 7.1	307 6.8	356 7.8	336 7.3	366 8.0	364 7.9	381 8.9	427 10.2	382 8.7	366 8.1	3,599 8.0
Grey	542 7.7	476 6.7	492 6.8	412 5.8	432 6.0	468 6.5	460 7.1	496 7.5	506 7.7	441 6.7	4,725 6.8
Haldimand	182 8.4	127 5.8	151 6.9	174 8.0	136 6.2	149 6.8	130 6.0	146 6.7	153 7.0	150 6.9	1,498 6.8
Haliburton	27 4.0	41 6.6	32 4.7	37 5.5	26 3.8	30 4.4	31 4.9	22 3.9	35 6.1	25 4.4	306 4.8
Halton	147 7.4	132 6.1	131 6.7	118 5.9	134 6.7	130 6.4	132 5.9	160 7.1	180 7.7	166 6.7	1,433 6.6
Hastings	466 7.7	448 7.4	493 8.1	486 8.0	469 7.7	430 7.0	439 7.8	470 8.4	664 12.0	452 8.0	4,817 8.2
Huron	429 6.8	411 6.5	423 6.7	276 5.9	358 5.6	398 6.2	364 6.8	348 6.6	372 7.3	323 6.4	3,802 6.4
Kenora .....	.....	.....	.....	.....	72	69	72	54	188	71	526
							3.9	3.0	9.9	3.5	5.0
Kent	403 6.9	437 7.5	402 6.9	425 7.2	408 6.9	454 7.7	459 8.1	475 8.4	502 8.8	451 7.0	4,416 7.6
Lambton	485 8.4	466 8.1	509 8.8	483 8.3	466 8.0	486 8.3	523 10.1	518 10.2	450 8.5	445 8.3	4,831 8.7
Lanark	260 6.9	260 6.8	249 6.5	223 5.8	219 5.8	274 7.0	264 7.6	245 7.1	279 8.1	239 6.9	2,512 6.8
Leeds and Grenville	449 7.5	428 7.1	437 7.3	433 7.1	437 7.2	452 7.4	426 7.8	498 9.1	449 8.4	353 6.7	4,362 7.5
Lennox and Addington.....	180 7.6	157 6.6	156 6.5	173 7.2	169 7.0	143 5.0	169 8.2	154 7.0	183 9.1	139 7.0	1,623 7.1
Lincoln	237 7.6	240 7.7	236 7.5	231 7.4	290 9.2	294 9.3	332 9.3	348 9.7	355 8.9	393 9.5	2,956 8.6
Manitoulin .....	.....	.....	.....	.....	67	69	57	56	65	45	359
							5.1	5.2	5.8	3.8	4.9
Middlesex	799 8.5	793 8.4	863 9.1	781 8.2	745 7.8	813 8.5	834 8.5	928 9.4	900 8.9	900 8.8	8,356 8.6
Muskoka	172 8.1	173 8.1	167 7.8	150 7.0	133 6.2	134 6.4	132 6.2	160 7.5	148 7.2	142 7.2	1,511 7.1
Nipissing	312 11.5	321 11.8	455 16.7	378 13.8	344 12.5	423 15.4	428 7.2	473 7.5	254 6.8	273 7.0	3,661 11.0
Norfolk	212 7.2	203 6.8	212 7.7	208 6.9	193 6.4	226 7.5	183 6.7	193 7.1	211 7.8	228 8.3	2,089 7.2
Northumberland and Durham....	453 7.2	451 7.1	449 7.1	395 6.2	401 6.3	415 6.5	404 6.8	390 6.5	431 7.2	379 6.4	4,168 6.7

TABLE No. 5—Concluded.

Counties.	1905	1905	1907	1908	1909	1910	1911	1912	1913	1914	Totals.
Ontario	262 6.4	287 6.9	250 6.0	261 6.3	263 6.3	264 6.3	269 6.5	277 6.7	292 7.0	308 7.4	2,733 6.5
Oxford	370 7.5	303 6.1	381 7.7	332 6.7	372 7.5	336 6.7	352 7.4	382 8.0	358 7.6	400 8.3	3,586 7.3
Parry Sound	171 6.7	203 8.0	225 8.0	193 7.5	174 6.8	160 6.2	194 7.3	167 6.4	179 6.6	186 6.7	1,852 7.0
Peel	144 6.6	144 6.6	129 5.8	153 6.9	163 7.4	136 6.1	133 6.0	142 6.0	134 6.1	137 6.2	1,415 6.3
Perth	406 8.0	402 7.9	394 7.7	349 6.8	349 6.8	337 6.5	369 7.5	403 8.2	372 7.3	368 7.2	3,749 7.3
Peterborough	319 8.7	323 8.8	303 8.2	294 7.9	334 9.5	315 8.5	346 8.2	377 8.8	353 8.3	354 8.2	3,318 8.5
Prescott and Russell	375 7.8	326 6.7	402 8.3	333 6.9	349 7.2	348 7.1	350 6.7	336 6.4	342 6.7	330 6.2	3,491 7.0
Prince Edward	131 7.2	134 7.3	147 8.0	139 7.6	123 6.7	122 6.6	116 6.7	116 6.7	120 7.1	117 6.9	1,265 7.0
Rainy River	132 7.9	144 8.6	161 9.6	196 11.6	81 4.8	91 5.4	74 7.3	96 9.3	104 9.9	125 11.3	1,204 8.5
Renfrew	382 7.1	374 6.9	384 7.1	370 6.8	371 6.8	369 6.8	318 6.1	360 7.0	385 7.3	408 7.6	3,721 6.9
Simcoe	660 7.9	626 7.5	671 8.0	574 6.8	580 6.8	630 7.4	635 7.4	647 7.5	498 5.7	599 6.8	6,120 7.1
Stormont, Dundas and Glengarry	485 6.9	448 6.4	487 6.9	436 6.2	467 6.6	388 5.4	331 5.1	366 5.7	399 6.3	430 6.7	4,237 6.2
Sudbury					181	163	122	183	256	227	1,132
							3.4	4.6	6.2	5.3	4.8
Thunder Bay	196 15.4	212 16.6	276 21.6	305 23.8	354 27.5	386 30.0	418 10.6	461 11.2	595 13.7	493 10.8	3,696 18.1
Timiskaming									261	268	569
									9.7	9.9	9.8
Victoria	218 6.7	237 7.0	211 6.4	183 5.6	240 7.3	217 6.6	199 6.5	213 6.8	220 7.2	234 7.6	2,172 6.7
Waterloo	422 7.9	418 7.8	482 8.9	463 8.6	437 8.1	482 8.9	466 7.7	576 8.8	623 9.1	632 9.1	5,021 8.4
Welland	369 11.5	378 11.8	404 12.5	767 23.7	1,091 33.7	1,375 42.4	1,524 36.1	1,840 42.5	1,108 22.8	743 13.9	9,599 25.0
Wellington	407 7.2	392 6.9	416 7.3	431 7.5	378 6.6	426 7.4	378 6.9	378 6.9	412 7.7	358 6.5	3,976 7.0
Wentworth	840 10.4	850 10.5	951 11.7	887 10.9	919 11.3	1,075 13.1	1,271 11.3	1,464 12.5	1,548 11.6	1,320 9.6	11,125 11.2
York	3,531 12.8	3,571 12.1	4,193 15.1	3,899 14.0	4,293 15.3	4,805 17.1	5,604 12.6	6,418 13.3	6,737 13.0	6,358 11.5	49,409 13.6

TABLE No. 6.—Showing the number of Deaths registered and Death rate per 1,000 of census population in each County of the Province for each of the ten years (1905-1914), inclusive.

Counties.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Totals.
Totals	31,371 14.2	32,782 14.8	33,502 15.0	32,714 14.6	32,628 14.6	33,539 14.9	34,341 13.6	*32,150 12.4	*34,317 12.7	*32,440 11.8	329,784 13.8
Algoma	620 13.5	651 14.1	566 12.2	596 12.8	413 8.8	490 10.5	461 10.9	470 10.6	515 10.0	400 7.7	5,182 11.1
Brant	498 12.9	455 11.7	588 15.4	546 14.0	536 13.8	551 14.0	565 12.3	567 12.1	568 11.4	510 10.2	5,384 12.7
Bruce	742 12.4	796 13.3	776 12.9	718 11.9	706 11.6	650 10.7	648 12.9	621 12.5	603 13.0	540 11.5	6,800 12.2
Carleton	1,734 17.6	1,719 17.2	1,811 18.3	1,830 18.5	1,773 17.8	1,917 19.2	2,147 18.4	1,933 16.3	2,142 17.0	2,084 16.0	19,090 17.6
Dufferin	263 12.3	287 13.4	256 11.9	218 10.1	207 9.6	219 10.1	185 10.4	166 6.6	190 11.5	158 9.8	2,149 10.5
Elgin	489 11.0	575 13.0	550 12.4	562 12.6	527 11.8	488 10.9	505 11.3	539 12.1	526 11.8	561 12.3	5,322 11.9
Essex	727 12.2	893 15.0	774 13.0	849 14.2	830 13.8	800 13.3	881 13.0	808 11.7	919 12.4	867 11.5	8,348 13.0
Frontenac	643 14.2	691 15.3	706 15.5	611 13.4	605 13.2	697 15.2	672 15.7	705 16.8	740 16.9	657 14.6	6,727 15.0
Grey	885 12.5	830 11.7	837 11.8	770 10.8	795 11.1	711 9.9	743 11.2	738 11.2	767 11.7	679 10.4	7,725 11.2
Haldimand	245 11.4	267 12.4	240 11.1	211 9.7	226 10.4	228 10.4	276 12.8	229 10.6	265 12.1	255 11.7	2,442 11.2
Haliburton	74 11.1	77 11.5	84 12.5	78 11.6	80 12.0	68 10.1	74 11.7	62 10.9	40 7.0	81 14.2	718 11.2
Halton ..	264 13.3	309 15.5	263 13.2	258 12.9	249 12.4	254 12.6	258 11.6	229 10.2	234 10.1	222 9.0	2,541 12.0
Hastings	730 12.1	718 11.9	851 14.1	771 12.7	731 12.0	780 12.8	806 14.4	709 12.7	725 13.1	754 13.4	7,575 12.9
Huron	692 11.0	743 11.7	726 11.5	705 11.1	720 11.3	627 9.8	673 12.7	600 11.2	643 12.6	589 11.7	6,718 11.4
Kenora .....	.....	.....	.....	.....	136	114	116	146	128	142	783
	.....	.....	.....	.....	.....	.....	6.4	8.4	6.7	7.1	7.1
Kent	746 12.8	777 13.3	801 14.5	735 12.5	705 12.0	733 12.4	787 14.0	608 10.4	674 11.8	700 11.9	7,266 12.5
Lambton	742 12.6	782 13.6	770 13.3	702 12.1	647 11.1	588 10.1	639 12.4	611 12.0	607 11.5	560 10.5	6,648 11.9
Lanark	516 13.7	466 12.3	480 12.8	484 12.7	435 11.4	479 12.2	434 12.6	428 12.4	402 11.6	461 13.4	4,585 12.5
Leeds and Grenville	892 14.9	843 13.2	877 14.6	742 12.3	785 12.1	798 13.1	764 14.0	896 16.5	759 14.3	720 13.8	8,076 13.8
Lennox and Addington	289 12.2	305 12.8	308 12.1	267 11.2	263 11.0	316 13.2	264 12.9	229 10.4	256 12.8	208 10.4	2,705 11.9
Lincoln	472 15.2	492 15.8	450 14.4	424 13.6	505 16.0	482 15.3	459 12.9	460 12.8	544 13.7	536 12.9	4,824 14.2
Manitowlin .....	.....	.....	.....	.....	90	67	72	69	72	73	413
	.....	.....	.....	.....	.....	.....	6.5	6.3	6.4	6.2	6.3
Middlesex	1,357 14.4	1,348 14.3	1,365 14.4	1,323 13.9	1,260 13.2	1,348 14.1	1,313 13.5	1,191 12.1	1,401 14.0	1,267 12.5	13,173 13.6
Muskoka	334 15.7	294 13.8	238 11.1	275 12.8	279 13.0	257 11.9	243 11.4	209 9.9	210 10.2	168 9.4	2,527 11.9
Nipissing	640 23.6	775 28.5	845 31.0	772 28.3	758 27.7	812 29.5	730 12.3	618 9.8	444 11.9	296 7.5	6,696 21.0
Norfolk	366 12.4	372 12.5	348 11.7	385 12.9	363 12.1	368 12.3	343 12.6	330 12.1	373 13.7	322 11.8	3,570 12.4
Northumberland and Durham....	816 13.0	813 12.9	869 13.7	827 13.0	765 12.0	861 13.5	757 12.7	739 12.4	727 12.2	704 12.0	7,870 12.7

* Still-births excluded.

TABLE No. 6—*Concluded.*

Counties.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Totals.
Ontario	499 12.2	529 12.9	507 12.3	556 13.5	571 13.8	617 14.8	559 13.6	494 11.9	536 13.0	495 11.9	5,363 12.9
Oxford	726 14.8	783 15.9	714 14.5	582 10.7	566 11.4	565 11.3	629 13.2	582 12.2	583 12.4	532 11.0	6,262 12.7
Parry Sound	299 11.8	382 15.1	355 14.0	305 11.9	268 10.5	252 9.8	316 11.9	272 10.4	259 9.5	272 9.9	2,980 11.4
Peel	306 14.0	261 11.9	270 12.3	253 11.5	271 12.3	278 12.6	271 12.2	230 10.3	244 11.1	243 11.1	2,627 11.9
Perth	526 10.4	570 11.2	569 11.2	573 11.2	558 10.9	524 10.2	514 10.4	520 10.6	532 10.5	522 10.3	5,408 10.6
Peterborough	489 13.4	518 14.1	507 13.8	517 14.0	539 14.6	569 15.3	606 14.5	470 11.0	521 12.2	459 10.6	5,195 13.3
Prescott and Russell	758 15.8	713 14.8	811 16.8	739 15.3	764 15.7	692 14.2	771 14.8	613 11.6	697 13.7	699 13.3	7,257 14.6
Prince Edward	243 13.4	244 13.4	268 14.7	281 15.4	262 14.3	278 15.1	244 14.2	236 13.7	231 13.7	225 13.3	2,512 14.1
Rainy River	187 11.2	306 18.3	383 22.8	422 25.1	83 4.9	96 5.6	111 11.0	79 7.6	122 11.6	115 10.4	1,904 12.8
Renfrew	726 13.6	673 12.5	644 12.0	585 10.8	591 10.9	565 10.4	629 12.1	603 11.7	574 10.9	568 10.5	6,158 11.5
Simcoe	1,118 13.4	1,252 15.0	1,113 13.3	1,089 12.9	1,159 13.7	1,083 12.8	1,156 13.5	1,042 12.1	1,048 12.2	1,069 12.4	11,129 13.1
Stormont, Dundas and Glengarry	912 13.0	901 12.8	950 13.5	893 12.7	863 12.2	803 11.3	908 14.1	804 12.5	757 12.0	781 12.2	8,572 12.6
Sudbury .....	.....	.....	.....	.....	359	405	362 10.3	423 10.7	456 11.2	453 10.6	2,458 10.7
Thunder Bay	267 21.0	564 44.3	485 37.9	557 43.5	480 34.7	600 46.6	523 13.3	494 12.0	725 16.7	676 14.8	5,371 38.4
Timiskaming .....	.....	.....	.....	.....	.....	.....	.....	.....	297 10.2	373 12.8	670 11.5
Victoria	393 12.1	372 11.4	449 13.8	406 12.4	352 10.7	377 11.5	370 12.2	338 10.8	338 11.1	303 9.8	2,698 11.5
Waterloo	635 11.9	682 12.7	681 12.7	664 12.1	693 12.8	793 14.7	736 11.7	661 10.1	778 10.4	727 10.4	7,050 11.9
Welland	499 15.6	484 15.1	521 16.2	518 16.0	470 14.5	575 17.7	522 12.3	499 11.0	677 13.9	610 11.4	5,375 14.3
Wellington	701 12.4	746 13.2	664 12.0	674 11.8	721 12.6	668 11.7	720 13.2	681 12.5	731 13.4	652 11.8	6,978 12.4
Wentworth	1,318 16.4	1,388 17.2	1,419 17.5	1,511 18.5	1,467 18.0	1,579 19.3	1,606 14.3	1,654 14.1	1,603 12.0	1,593 11.6	15,138 15.8
York	4,993 18.1	5,136 14.9	5,793 20.8	5,930 21.3	6,202 22.2	6,517 23.3	6,973 15.6	6,545 13.6	7,134 13.7	6,537 11.8	61,760 17.5

TABLE No. 7.
Recapitulation of Causes of Death by Classes in Counties, 1914.

Causes of Death by Classes of Diseases.	Ages.													Sex.		Months.															
	Under 0-1.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70-79.	80 and over.	Not stated.	Male.	Female.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Grand Total	6,835	819	362	305	214	674	531	784	2,069	2,135	2,236	2,727	3,784	4,800	3,761	404	17,247	15,193	2,733	2,771	3,106	2,861	2,865	2,469	2,561	2,656	2,702	2,619	2,432	2,665	
I. General diseases	405	177	129	102	87	318	206	298	959	823	782	936	928	794	244	92	3,513	3,767	601	607	629	668	663	575	562	537	577	617	568	616	
II. Diseases of the nervous system and of the organs of special sense	584	99	51	54	27	64	56	56	107	140	238	359	553	666	418	30	1,790	1,714	300	284	351	322	304	268	269	259	362	277	290	308	
III. Diseases of the circulatory system	6	6	5	10	9	44	54	49	140	183	332	527	963	1213	633	42	2,287	1,929	375	387	429	370	348	341	311	306	354	308	339	348	
IV. Diseases of the respiratory system	758	203	64	50	33	58	47	55	138	216	238	280	427	552	338	26	1,849	1,614	430	37	480	423	364	205	156	129	123	199	227	240	
V. Diseases of the digestive system	1,321	191	39	40	18	73	62	86	140	167	165	165	236	196	86	17	1,614	1,388	165	156	191	186	171	162	339	498	490	309	173	166	
VI. Non-venereal diseases of the genito-urinary system and adnexa	23	10	3	1	4	21	20	38	82	133	166	209	296	330	158	11	814	691	115	142	142	141	144	131	124	89	120	132	110	115	
VII. The puerperal state	329
VIII. Diseases of the skin and cellular tissue	19	4	.....	3	.....	4	.....	2	9	19	11	19	30	72	50	1	141	102	21	27	29	13	17	12	22	23	18	20	17	24
IX. Diseases of the bones and of the organs of locomotion	2	5	.....	.....	1	1	4	2	4	3	3	3	2	1	2	.....	18	15	1	3	3	2	5	2	6	4	1	3	2	2
X. Malformations	176	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	92	84	20	17	27	16	16	9	12	8	15	10	19	7
XI. Diseases of early infancy	3,510	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,012	1,498	259	254	296	292	332	285	271	302	350	339	242	285
XII. Old age	2,787
XIII. Affections produced by external causes	1,896	24	62	53	36	31	79	174	311	262	215	168	122	105	94	82	1,382	1,405	234	289	312	243	237	311	189	179	194	220	246	233	
XIV. Ill-defined diseases	486	7	62	15	9	4	12	5	11	29	52	50	80	42	23	6	79	220	40	42	36	28	45	51	61	35	33	37	35	43	
Still-Births (not incl. in totals)	2,745	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,607	1,138	261	213	269	267	252	220	244	216	191	196	212	204

TABLE No. 9.
Recapitulation of Causes of Death by Classes of Diseases in Towns of 5,000 population, 1914.

Causes of Death by Classes of Diseases.	Ages.													Sex.		Months.																			
	Ages.													Sex.		Months.																			
	Under 0-1.	1.	2.	3.	4.	5-9.	10-14.	15-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70-79.	80 and over.	Not stated.	Male.	Female.	202	215	247	214	231	167	197	228	230	192	October.	November.	193	December.			
Grand Total	599	67	27	19	23	56	37	73	218	198	191	237	236	275	189	36	1,400	1,081	202	215	247	214	231	167	197	228	230	192	October.	November.	193	December.			
I. General diseases.....	333	9	11	2	9	18	16	22	89	81	63	80	56	50	14	8	318	215	84	45	48	51	46	35	46	61	57	36	37	43					
II. Diseases of the nervous system and of the organs of special sense.....	255	50	10	4	5	2	6	2	6	10	14	30	41	28	22	2	127	108	17	31	26	24	19	17	10	20	22	15	15	19					
III. Diseases of the circulatory system.....	260	.....	1	.....	1	3	2	4	13	13	24	46	59	64	28	1	150	110	27	17	30	19	22	21	17	19	23	20	26	19			
IV. Diseases of the respiratory system.....	243	56	17	3	4	3	4	10	15	21	18	25	28	23	12	4	153	90	30	40	32	29	24	14	16	3	11	8	14	22					
V. Diseases of the digestive system.....	284	131	18	1	1	15	8	13	20	13	13	18	11	11	5	2	147	137	13	16	15	15	18	14	24	58	54	32	13	12					
VI. Non-venereal diseases of the genito-urinary system and adnexa.....	92	3	.....	2	.....	1	.....	1	8	11	12	11	20	14	5	1	16	46	2	11	15	11	11	5	8	2	7	9	5	6		
VII. The puerperal state.....	41	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41	3	3	5	1	5	3	3	1	1	4	2	7		
VIII. Diseases of the skin and cellular tissue.....	161	2	.....	1	.....	1	.....	1	.....	1	2	2	1	7	1	.....	8	11	4	2	.....	1	1	1	.....	5	1	5	1	.....				
IX. Diseases of the bones and the organs of locomotion.....	1	1		
X. Malformations.....	12	12	
XI. Diseases of early infancy.....	308	308
XII. Old age.....	175
XIII. Affections produced by external causes.....	214	1	6	3	4	5	8	5	18	45	30	33	19	7	13	4	13	184	30	19	10	17	14	31	19	21	16	10	19	19	20				
XIV. Ill-defined diseases.....	36	3	6	1	1	1	4	3	8	3	2	23	13	4	2	4	1	5	3	7	2	1	3	4		
Still-Births (not included in totals).....	221	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	131	90	21	17	19	18	33	19	19	15	16	13	9		

TABLE
Showing Total Deaths by Individual

CAUSES OF DEATH.	Total.													
		Algora.	Brant.	Bruce.	Carleton.	Dufferin.	Elgin.	Essex.	Frontenac.	Grey.	Haldimand.	Haliburton.	Halton.	Hastings.
V.—DISEASES OF THE DIGESTIVE SYSTEM—CON.														
113. Cirrhosis of the Liver	115	2	5	1	7	.....	2	2	2	3	.....	1	2
114. Biliary Calculi	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
115. Other diseases of the Liver	157	1	6	2	13	.....	1	3	2	1	1	1	4
116. Diseases of the Spleen	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
117. Simple Peritonitis, non-puerperal	245	1	4	22	2	.....	5	2	3	10	2	1	5
118. Other diseases of the digestive system (cancer and tuberculosis excepted).....	9	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.														
Group total	1,505	10	17	34	85	7	34	52	28	30	17	1	10	23
119. Acute Nephritis	177	.....	4	2	15	.....	3	3	2	1	3	1	6
120. Bright's Disease	1,022	7	10	23	52	4	25	41	23	21	7	.....	11
122. Other diseases of the Kidneys and Adnexa ..	73	2	1	2	2	.....	2	1	3	1	.....	.....	1
123. Calculi of the Urinary Passages	30	.....	1	2	1	.....	2	.....	1	1	.....	.....	1
124. Diseases of the Bladder	27	.....	.....	1	1	.....	.....	2	.....	2	1	.....	1
125. Diseases of the Urethra, Urinary Abscess, etc.	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
126. Diseases of the Prostate	102	1	.....	4	3	3	2	2	2	2	3	.....	3
129. Uterine Tumor (non-cancerous)	18	.....	.....	.....	3	.....	.....	1	.....	.....	.....	.....	.....
130. Other diseases of the Uterus	21	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....
131. Cysts and other Tumors of the Ovary	18	.....	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....
132. Salpingitis and other diseases of the Female Genital Organs.....	12	.....	1	.....	3	.....	.....	.....	.....	.....	.....	.....	.....
VII.—THE PUERPERAL STATE.														
Group total.....	339	4	5	3	11	2	1	7	5	10	3	.....	8
134. Accidents of Pregnancy	49	.....	1	1	4	1	.....	2	1	.....	1	.....	1
135. Puerperal Hæmorrhage	17	1	1	.....	.....	.....	.....	.....	.....	1	.....	.....	1
136. Other Accidents of Labor	55	2	1	.....	.....	.....	.....	1	1	3	1	.....	4
137. Puerperal Septicæmia	144	1	2	1	1	1	.....	4	2	2	1	.....	2
138. Puerperal Albuminuria and Convulsions	71	.....	.....	1	1	.....	1	.....	.....	4	.....	.....	.....
139. Puerperal Phlegmasia Alba Dolens, Embolus, Sudden Death.....	2	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
140. Following Childbirth (not otherwise defined)	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE														
Group total.....	243	2	2	1	17	1	4	11	3	8	.....	3	6
142. Gangrene	144	1	1	1	9	1	3	7	3	5	.....	1	5
143. Furuncle	10	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
144. Acute Abscess	72	1	1	.....	7	.....	1	2	.....	.....	.....	.....	1
145. Other diseases of the Skin and Adnexa	17	.....	.....	.....	.....	.....	.....	1	.....	3	.....	.....	1
IX.—DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.														
Group total.....	32	.....	.....	1	7	.....	1	.....	1	.....	.....	.....	1
146. Diseases of the Bones (Tuberculosis excepted)	31	.....	.....	1	7	.....	1	.....	1	.....	.....	.....	1
147. Diseases of the Joints (Tuberculosis and Rheumatism excepted).....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
X.—MALFORMATIONS.														
Group total.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
150. Congenital malformations (still-births not included).....	176	1	1	5	15	.....	4	4	2	5	.....	1	7

TABLE
Showing Total Deaths by Individual

CAUSES OF DEATH.	Total.													
		Algona.	Brant.	Bruce.	Carleton.	Dufferin.	Egin.	Essex.	Frontenac.	Grey.	Haldimand.	Haliburton.	Halton.	Hastings.
XI.—DISEASES OF EARLY INFANCY.														
Group total.....	3,510	54	37	41	319	14	32	111	64	52	24	12	20	52
151. Congenital Debility, Icterus, and Sclerema ..	3,452	52	35	40	314	13	30	111	64	52	23	12	20	52
152. Other Diseases peculiar to Early Infancy	7													
153. Lack of Care.....	50	2	2	1	5	1	2				1			
XII.—OLD AGE.														
154. Group total.....	2,787	38	63	67	112	15	75	72	54	100	31	21	21	114
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.														
Group Total	1,896	41	31	18	85	8	29	47	35	35	15	7	13	56
155. Suicide by poison	60			1	3		1	3		2			1	1
156. Suicide by asphyxia.....	2													1
157. Suicide by hanging or strangulation	31			1	1	1	2		3	1				
158. Suicide by drowning.....	7				1									
159. Suicide by firearms.....	23				2	1		2		2				1
160. Suicide by cutting or piercing instruments..	14				1		1	1						1
163. Other Suicides.....	15		1						1					1
164. Poisoning by food	5			1										
165. Other acute poisonings.....	82	2	2		4		4			2	2		1	5
166. Conflagration	22													
167. Burns (conflagration excepted).....	176	3	1	1	7			3	4	5	1	1	1	8
168. Absorption of Deleterious Gases (conflagration excepted).....	41					1		1	1	1	1			1
169. Accidental Drowning.....	347	19	10	3	20		4	11	4	4	1	4	3	11
170. Traumatism by firearms	63		1	2	5			2		2				1
171. Traumatism by cutting or piercing instruments	4													
172. Traumatism by fall	82		2		2	1		5	2	1				2
173. Traumatism in mines and quarries.....	27		1				1		3					
174. Traumatism by machines.....	22		1	1		1				1				
175. Traumatism by other crushing (vehicles, railroad, landslides, etc.).....	271	4	5	2	14		8	5	3	3	4		3	10
176. Injuries by animals	20				1				1	1	1	2		
177. Starvation	3													1
178. Excessive cold.....	28	1							1					1
179. Effects of heat.....	14				1									2
180. Lightning	4													1
181. Electricity (Lightning excepted).....	35		1		2		1	6	2					1
182. Homicide by firearms	9					2				1				
183. Homicide by cutting or piercing instruments	2													
184. Homicide by other means	7													
185. Fractures (cause not specified).....	265	5	4	4	14	1	2	5	5	4	2		2	3
186. Other external violence.....	211	7	2	2	7		5	3	5	3	3			5
XIV.—ILL-DEFINED DISEASES.														
Group Total	486	8	6	4	35	1	9	13	4	11	4	3		7
187. Ill-defined organic disease.....	14	1			2				1		2			
188. Sudden death.....	103		1	3	15		1	5		1	2			2
189. Cause of death not specified or ill-defined...	369	7	5	1	18	1	8	8	3	10		3		5
STILL-BIRTHS.														
Not included in Totals	2,745	40	38	60	103	7	32	69	25	54	10	14	21	53

No. 10.—Concluded.

Diseases in each County, 1914.—Concluded.

Baron.	Kenora.	Kent.	Lambton.	Lanark.	Leeds and Grenville.	Lennox and Addington.	Lincoln.	Manitoulin.	Middlesex.	Muskoka.	Nipissing.	Norfolk.	Northumberland and Durham.	Ontario.	Oxford.	Parry Sound.	Peel.	Perth.	Peterborough.	Prescott and Russell.	Prince Edward.	Rainy River.	Renfrew.	Simcoe.	Stormont, Dundas and Glengarry.	Sudbury.	Thunder Bay.	Timiskaming.	Victoria.	Waterloo.	Welland.	Wellington.	Wentworth.	York.	Numbers.		
39	17	65	42	40	37	11	55	9	87	18	79	23	48	45	35	32	20	40	46	112	43	17	56	110	61	93	82	100	26	81	74	50	172	843			
39	17	62	41	39	37	10	54	9	87	18	79	19	47	45	31	32	20	40	46	112	43	17	55	109	59	93	82	99	26	77	49	167	831	151			
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	152	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	153	
88	1	56	64	54	74	30	54	8	96	22	15	31	119	46	53	18	30	65	34	63	39	7	68	120	110	10	6	5	33	61	42	90	101	291	154		
21	35	49	40	18	36	13	55	2	49	18	25	17	33	29	26	29	19	19	31	28	7	10	34	56	30	65	82	47	25	30	69	28	73	328	...		
1	1	1	2	...	...	...	1	...	1	...	...	...	...	2	1	1	...	...	...	...	...	...	...	1	...	4	2	1	...	...	...	2	2	26	155		
1	...	...	...	...	2	...	...	...	...	...	2	1	...	1	1	...	...	1	...	...	...	...	...	...	...	3	...	...	1	1	1	4	1	5	157		
1	...	...	1	...	1	...	...	...	2	...	...	1	...	1	1	...	...	...	...	...	...	...	...	1	...	1	1	1	1	1	1	1	1	4	1	158	
...	...	...	1	...	1	2	2	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	1	1	1	1	2	1	1	1	1	4	159
...	...	...	1	...	1	2	2	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	1	1	1	1	1	1	1	1	1	1	160
...	...	...	1	...	1	2	2	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	1	1	1	1	1	1	1	1	1	1	161
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	162
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	163
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	164
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	165
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	166
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	167
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	168
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	169
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	170
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	171
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	172
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	173
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	174
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	175
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	176
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	177
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	178
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	179
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	180
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	181
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	182
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	183
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	184
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	185
...	...	...	1	...	1	1	1	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	1	...	1	1	1	1	1	1	1	1	1	1	186
6	9	2	10	10	1	8	6	14	1	13	7	4	4	4	5	3	7	5	20	4	3	26	11	8	10	65	5	4	5	14	7	20	64	...			
1	...	1	...	...	...	...	1	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	187	
1	2	...	5	2	5	1	1	1	1	1	3	2	3	1	2	3	1	2	3	1	2	4	4	4	18	2	3	2	1	3	2	5	14	188			
4	7	1	5	8	1	3	5	12	13	4	4	2	1	4	1	4	1	4	4	18	2	3	24	7	4	10	65	3	4	4	9	5	15	48	189		
28	6	46	48	22	29	5	55	4	68	28	40	20	56	35	39	31	18	39	45	19	20	10	54	77	27	42	4	66	16	54	49	36	181	812			

TABLE No. 11.

Table Showing Total Deaths by Individual Diseases in each City.—1914.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)																					
	Total.	Belleveille.	Berlin.	Brantford.	Chatham.	Port William.	Quebph.	Hamilton.	Kingston.	London.	Niagara Falls.	Ottawa.	Peterborough.	Port Arthur.	St. Catharines.	St. Thomas.	Sarnia.	Stratford.	Toronto.	Windsor.	Woodstock.
Grand Total	12,853	149	211	281	230	311	209	1,158	372	802	140	1,697	254	215	243	218	156	165	5,602	316	124
I.—GENERAL DISEASES.																					
Group Total	3,970	33	66	50	56	56	42	258	90	218	31	434	70	57	49	61	40	31	1236	63	26
1. Typhoid Fever.....	124	2	2	3	2	5	2	7	9	5	4	17	5	9	1	..	3	1	41	6	..
3. Relapsing fever.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
6. Measles	18	1	..	..	..	..	..	6	1	..	..	..	2	..	..	..	..	..	5	..	..
7. Scarlet Fever	54	..	1	1	..	..	..	..	..	..	..	18	4	..	..	..	..	..	2	..	..
8. Whooping Cough	82	..	..	..	3	1	..	18	..	..	..	3	14	..	1	1	4	3	30	2	..
9. Diphtheria and Croup.....	255	124	..	5	3	1	17	3	24	1	68	7	1	..	4	2	3	12	9	1	..
10. Influenza	38	..	3	1	3	..	1	2	..	2	5	5	..	..	1	1	1	1	17	..	1
13. Cholera Nostras	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..
14. Dysentery	21	1	..	1	1	..	..	..	..	..	..	3	..	..	1	1	..	..	11	..	..
18. Erysipelas	36	..	..	..	2	..	3	..	2	..	8	8	..	..	..	1	1	1	17	..	2
13. Other Epidemic Diseases	2	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
20. Purulent Infection and Septicæmia	4	1	1	3	..	4	..	8	6	8	..	7	3	2	1	3	1	1	40	3	2
24. Tetanus	8	..	1	..	..	..	..	1	1	..	..	1	1	1	..	..	..	..	2	..	..
25. Mycoses	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
26. Pellagra	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
28. Tuberculosis of the Lungs.....	705	11	12	10	9	16	12	84	17	58	5	115	19	16	20	14	9	7	255	15	2
29. Acute Miliary Tuberculosis	17	1	1	..	..	..	1	..	..	2	..	2	1	1	1	..	..	..	6	2	..
30. Tuberculous Meningitis	79	..	2	3	1	2	..	2	2	3	1	10	3	3	..	1	1	1	47	1	..
31. Abdominal Tuberculosis	48	..	1	2	3	2	2	2	2	3	1	7	1	1	1	1	1	1	18	..	2
32. Pott's Disease	4	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	3	..	..
33. White Swelling	5	..	..	..	..	1	1	1	..	1	..	1	..	..	..	..	..	..	3	1	..
34. Tuberculosis of other Organs	13	..	..	..	..	..	1	1	1	1	1	1	..	..	..	..	..	..	1	..	..
35. Disseminated tuberculosis.....	2	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
36. Rickets	19	..	..	..	2	..	1	1	..	..	..	2	..	..	1	..	..	..	3	..	..
37. Syphilis	33	..	..	..	..	..	..	1	..	..	13	..	..	..	..	..	..	..	1	1	..
38. Gonococcus infection.....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
39. Cancer and other Malignant Tumors of the Buccal Cavity	40	..	..	1	..	1	5	..	6	1	3	1	1	1	..	1	1	1	18	1	..
40. Cancer and other Malignant Tumors of the Stomach, Liver	258	4	6	6	6	2	2	19	12	13	..	7	3	3	6	..	5	114	5	4	..
41. Cancer and other Malignant Tumors of the Peritoneum, Intestines, Rectum.....	136	2	1	1	3	3	4	15	3	15	..	18	2	1	2	1	1	1	63	1	..
42. Cancer and other Malignant Tumors of the Female Genital Organs.....	85	1	1	..	4	1	2	4	2	4	2	18	4	..	4	1	..	..	34	1	2
43. Cancer and other Malignant Tumors of the Breast	56	..	..	2	1	..	1	4	1	5	..	4	2	..	1	3	..	..	30	2	..
44. Cancer and other Malignant Tumors of the Skin	11	1	..	..	..	..	..	..	..	3	..	1	..	1	1	..	..	..	3	..	..
45. Cancer and other Malignant Tumors of other organs and of organs not specified.....	234	2	4	7	9	3	3	21	8	26	1	15	9	2	4	7	3	3	101	4	2
46. Other Tumors (tumors of the female genital organs excepted).....	17	..	1	..	..	1	1	1	1	1	..	2	..	..	..	..	..	..	8	..	1
47. Acute Articular Rheumatism	42	..	1	2	..	3	..	1	..	1	..	5	..	1	1	2	1	1	25	..	..
48. Chronic Rheumatism and Gout	39	..	1	2	..	..	..	1	..	8	2	2	..	..	2	..	..	..	19	1	1
49. Scurvy	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..
50. Diabetes	89	1	2	1	2	1	14	6	7	1	6	3	2	1	3	1	1	1	36	1	..
51. Exophthalmic Goitre.....	42	..	1	1	2	2	1	..	1	1	5	..	1	1	2	1	1	1	22	2	..
52. Addison's Disease	8	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..
53. Leucæmia	21	..	1	..	2	..	1	2	2	2	..	1	..	..	..	..	..	..	11	..	1
54. Anæmia Chlorosis	144	4	1	1	1	3	9	9	13	3	12	4	1	7	9	7	2	61	3	3	..
55. Other General Diseases	31	..	1	1	..	1	..	..	..	1	..	5	1	..	1	1	1	1	17	1	1
56. Alcoholism (acute or chronic).....	57	1	..	2	..	1	1	5	1	4	..	3	..	5	1	1	..	..	31	1	1
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																					
Group Total	1,301	22	3	40	23	24	20	125	48	79	15	133	25	12	21	29	11	14	589	29	19
60. Encephalitis.....	14	..	2	1	1	1	..	3	1	..	..	1	..	1	1	..	..	..	3	..	..
61. Simple meningitis.....	189	2	1	6	3	10	1	23	4	14	3	18	2	3	1	5	3	2	77	6	5
62. Locomotor ataxia.....	16	..	1	..	..	..	..	1	5	2	..	3	1	..	1	1	1	1	1	..	..
63. Other diseases of the spinal cord.....	38	..	1	..	..	..	..	2	2	2	..	4	2	1	..	4	..	..	12	..	..
64. Cerebral hæmorrhage, apoplexy	465	7	8	2	7	2	5	48	21	31	8	35	11	3	12	13	5	3	217	6	3
65. Softening of the brain.....	19	..	1	..	..	..	1	2	..	..	..	1	..	..	..	..	..	..	6	..	..
66. Paralysis without specified cause	167	5	1	2	4	1	1	11	9	12	1	24	1	..	3	4	..	2	69	9	8

TABLE No. 11—Continued.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)																					
	Total.	Belleville.	Berlin.	Brantford.	Chatham.	Fort William.	Queb.	Hamilton.	Kingston.	London.	Niagara Falls.	Ottawa.	Peterborough.	Port Arthur.	St. Catharines.	St. Thomas.	Samia.	Stratford.	Toronto.	Windsor.	Woodstock.
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.—Continued.																					
67. General paralysis of the insane	28	1	1	1	1	1	1	1	3	2	2	2	2	1	1	1	1	1	20	1	1
68. Other forms of mental alienation	27	2	1	1	1	3	1	1	1	1	1	2	1	1	1	1	1	1	21	1	1
69. Epilepsy	34	1	1	1	1	1	1	4	5	3	3	3	1	1	1	1	1	1	14	1	1
70. Convulsions (non-Puerperal)	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1	1
71. Convulsions of Infants	232	1	8	7	2	8	4	25	3	6	2	30	5	3	3	1	2	3	111	4	1
72. Chorea	7	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	3	1	1
73. Neuralgia and Neuritis	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
74. Other Diseases of the Nervous System	53	3	2	5	3	3	5	5	3	3	6	1	1	1	1	2	1	1	19	2	1
76. Diseases of the Ears	11	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	5	1	1
III.—DISEASES OF THE CIRCULATORY SYSTEM.																					
Group Total	1,666	27	17	39	34	22	26	159	62	13	20	172	146	14	39	33	13	20	737	41	15
77. Pericarditis	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	1	1
78. Acute Endocarditis	28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	1	1
79. Organic Diseases of the Heart	1,051	22	12	23	27	14	14	116	43	6	13	119	20	12	32	29	5	15	436	23	11
80. Angina Pectoris	41	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	6	1	19	1	1
81. Diseases of the Arteries, Atheroma, Aneurysm, etc.	456	3	2	13	4	1	11	32	14	58	1	44	2	4	2	1	3	2	221	11	3
82. Embolism and Thrombosis	41	1	1	1	1	1	1	5	1	2	1	2	3	1	1	1	1	1	21	1	1
83. Diseases of the Veins (Varices, Hemorrhoids, Phlebitis, etc.)	13	1	1	1	1	1	1	1	1	1	1	2	4	1	1	1	1	1	4	1	1
84. Diseases of the Lymphatic System (Lymphangitis, etc.)	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
85. Hemorrhage; other Diseases of the Circulatory System	16	1	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	8	1	1
IV.—DISEASES OF THE RESPIRATORY SYSTEM.																					
Group Total	1,481	11	17	34	3	47	27	142	33	89	12	169	17	23	17	19	15	12	706	45	13
86. Diseases of the nasal fossae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	2	1
87. Diseases of the Larynx	16	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	6	2
88. Diseases of the thyroid body	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
89. Acute Bronchitis	94	2	1	3	6	11	11	11	2	8	1	12	7	2	1	1	1	1	52	2	2
90. Chronic Bronchitis	116	2	3	1	3	4	15	1	1	8	1	12	1	1	1	1	1	2	57	2	2
91. Broncho-pneumonia	261	1	1	4	1	12	6	28	4	11	2	36	1	3	1	1	1	1	118	11	1
92. Pneumonia	865	11	6	22	20	19	75	26	69	7	102	13	16	12	14	7	7	7	389	22	8
93. Pleurisy	33	2	1	1	1	1	2	1	2	1	2	3	2	1	1	1	1	1	12	2	1
94. Pulmonary Congestion, Pulmonary Apoplexy ..	39	1	1	1	1	1	5	1	2	1	6	1	1	1	3	1	1	1	13	4	1
95. Gangrene of the Lung	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
96. Asthma	32	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	1	1
97. Pulmonary emphysema	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
98. Other Diseases of the Respiratory System (tuberculosis excepted)	16	1	1	1	1	1	3	1	2	1	1	1	1	1	1	1	1	1	9	1	1
V.—DISEASES OF THE DIGESTIVE SYSTEM.																					
Group Total	1,408	10	18	43	29	65	16	120	27	69	9	229	35	35	26	10	12	20	591	33	11
99. Diseases of the Mouth and Adnexa	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1
100. Diseases of the Pharynx	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	6	1
101. Diseases of the Oesophagus	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
102. Ulcer of the Stomach	38	3	3	3	1	5	5	5	5	5	5	5	5	5	5	5	5	5	13	1	1
103. Other Diseases of the Stomach (cancer excepted) ..	98	1	2	9	3	1	1	9	1	4	1	11	5	1	1	1	1	1	1	16	2
104. Diarrhoea and Enteritis (under 2 years)	632	6	3	13	10	49	7	52	11	26	4	134	11	22	7	4	6	5	259	11	1
105. Diarrhoea and Enteritis (2 years and over)	51	2	1	6	2	1	2	1	2	1	1	19	1	1	1	1	1	1	20	2	1
107. Intestinal parasites	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
108. Appendicitis and Typhlitis	124	1	3	1	3	2	1	8	2	6	2	26	1	3	2	2	1	1	48	5	3
109. Hernias, Intestinal Obstructions	123	1	3	3	1	2	19	4	10	1	13	3	1	1	1	3	5	49	3	1	1
110. Diseases of the Intestines	81	1	4	2	1	1	6	1	5	10	3	3	5	1	1	1	1	1	38	1	1
111. Acute yellow atrophy of the liver	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1
113. Cirrhosis of the Liver	50	1	2	1	1	1	2	2	3	1	6	3	2	2	2	2	2	2	21	1	1
114. Biliary Calculi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
115. Other Diseases of the Liver	64	4	5	1	2	1	4	2	2	2	9	2	1	3	1	3	3	3	24	1	3
116. Diseases of the spleen	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
117. Simple Peritonitis (non-Puerperal)	19	1	1	2	3	2	3	11	2	6	1	7	1	1	1	1	1	1	51	4	1
118. Other Diseases of the Digestive System (cancer and tuberculosis excepted)	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1

TABLE No. 11.—Continued.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)		Total.	Belleville.	Berlin.	Brantford.	Chatham.	Fort William.	Guelph.	Hamilton.	Kingston.	London.	Niagara Falls.	Ottawa.	Peterborough.	Port Arthur.	St. Catharines.	St. Thomas.	Sarnia.	Stratford.	Toronto.	Windsor.	Woodstock.
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																						
Group Total		619	4	13	7	10	11	17	59	17	41	4	70	8	13	13	11	15	12	259	22	10
119.	Acute Nephritis	88	..	2	4	1	6	1	6	..	2	2	15	2	1	1	..	1	..	38	2	4
120.	Bright's Disease	402	3	9	2	4	7	10	42	15	29	2	41	4	7	8	11	12	8	168	16	3
122.	Other Diseases of the Kidneys and Adnexa.....	32	..	..	..	..	1	1	3	1	6	..	2	..	3	1	..	..	..	13	1	..
123.	Calculi of the Urinary Passages	8	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	4	..	1
124.	Diseases of the Bladder	1)	..	..	1	..	1	..	1	..	..	..	1	..	..	..	..	..	1	4	..	1
125.	Diseases of the urethra, urinary abscess, etc ..	4	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	2	..	..
126.	Diseases of the Prostate	37	1	2	..	..	4	5	1	2	..	..	3	1	1	..	1	2	14	1	..	..
129.	Uterine Tumor (non-Cancerous)	10	..	..	1	..	..	1	..	..	..	..	2	..	1	..	..	..	1	2	..	..
130.	Other Diseases of the Uterus	12	..	..	3	..	..	..	..	..	..	..	1	..	..	1	..	..	7	1	..	..
131.	Cysts and other Tumors of the Ovary	1)	..	..	..	..	..	1	..	1	..	1	1	1	1	..	..	..	5	5	..	..
132.	Salpingitis and other Diseases of the Female Genital Organs	4	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	1
133.	Non-puerperal disease of the breast (cancer excepted).....	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
VII.—THE PUERPERAL STATE.																						
Group Total.....		147	1	3	4	1	6	2	13	3	6	3	10	1	5	1	..	1	2	81	4	..
134.	Accidents of Pregnancy	24	..	1	1	..	1	3	1	1	..	4	..	..	..	..	1	..	..	10	1	..
135.	Puerperal Hæmorrhage	8	1	..	1	..	1	..	1	..	1	..	..	..	..	..	..	..	..	3	..	..
136.	Other Accidents of Labor	20	..	..	2	..	..	..	2	1	..	..	1	..	1	..	..	..	1	12	1	..
137.	Puerperal Septicæmia	66	..	1	2	..	3	..	6	1	..	1	5	1	4	..	..	..	1	40	2	..
138.	Puerperal Albuminuria and Convulsions	27	..	1	..	1	1	3	..	2	1	1	1	..	1	..	..	1	15	..	..	..
139.	Puerperal Phlegmasia Alba Dolens, Embolus, Sudden Death	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																						
Group Total.....		97	..	2	1	2	1	1	9	3	11	..	15	1	3	1	2	3	1	36	3	2
142.	Gangrene	53	..	2	1	1	..	1	5	3	7	..	7	..	2	..	2	1	..	18	1	2
143.	Furuncle	5	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	2	..	..
144.	Acute Abscess	35	..	..	1	1	..	2	..	3	..	7	1	1	1	..	1	..	15	2	..	..
145.	Other Diseases of the Skin and Adnexa	4	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..
IX.—DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.																						
Group Total.....		21	..	..	..	..	..	1	..	1	..	7	1	..	1	1	..	..	..	8	..	1
146.	Diseases of the Bones (tuberculosis excepted) ..	20	..	..	..	..	..	1	..	1	..	7	1	..	1	1	..	..	..	7	..	1
147.	Diseases of the Joints (tuberculosis and rheumatism excepted)	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
X.—MALFORMATIONS.																						
Group Total.....		74	1	..	..	1	..	12	2	3	..	12	..	3	1	1	..	..	..	37	1	..
150.	Congenital malformations (stillbirths not included).....	74	1	..	..	1	..	12	2	3	..	12	..	3	1	1	..	..	..	37	1	..
XI.—DISEASES OF EARLY INFANCY.																						
Group Total.....		1,606	7	27	20	2	38	18	148	43	59	15	274	35	19	37	16	15	20	757	41	7
151.	Congenital Debility, Icterus and Sclerema.....	1,578	7	26	19	20	38	17	143	43	59	14	269	35	19	36	15	15	20	745	41	7
152.	Other Diseases peculiar to Early Infancy	4	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..
153.	Lack of Care	24	..	1	..	..	1	5	..	..	1	5	..	..	1	1	..	..	..	9	..	..
XII.—OLD AGE.																						
Group Total.....		644	16	17	26	8	2	24	52	18	54	13	71	15	2	12	22	14	17	229	15	17

TABLE No. 11.—Concluded.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)		Total.	Belleville.	Berlin.	Bramford.	Chatham.	Fort William.	Quebph.	Hamilton.	Kingston.	London.	Niagara Falls.	Ottawa.	Peterborough.	Port Arthur.	St. Catharines.	St. Thomas.	Sarnia.	Stratford.	Toronto.	Windsor.	Woodstock.
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																						
Group Total.....		670	12	6	12	14	33	13	47	24	31	17	72	8	29	24	10	16	10	279	13	3
155. Suicide by Poison		36	..	..	..	1	1	1	..	..	1	..	2	1	..	..	2	..	..	56	1	..
156. Suicide by Asphyxia		4	1	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	..
157. Suicide by Hanging or Strangulation		10	..	..	..	..	..	1	3	..	..	..	..	1	..	..	..	..	1	4	..	..
158. Suicide by Drowning		2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..
159. Suicide by Firearms		11	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	7	1	..
160. Suicide by Cutting or Piercing Instruments.....		7	1	..	..	..	1	1	..	..	2	..	..	1	..	..	..	..	..	1	..	..
163. Other Suicides		5	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..
165. Other Acute Poisonings.....		29	1	1	1	1	..	4	..	1	..	3	..	..	..	1	..	1	1	16	..	..
166. Conflagration		1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
167. Burns (conflagration excepted).....		71	2	1	5	7	1	3	1	1	1	6	..	4	1	1	1	1	1	36	2	..
168. Absorption of Deleterious Gases (conflagration excepted)		24	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	1	2	..
169. Accidental Drowning		79	1	2	2	5	2	3	3	3	6	16	..	5	6	..	2	1	2	20	2	..
170. Traumatism by Firearms		18	..	1	1	4	..	1	1	..	..	4	..	2	..	..	..	..	..	3	1	..
171. Traumatism by cutting or piercing instruments		3	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..
172. Traumatism by Fall		29	1	1	1	2	..	2	1	2	1	2	1	1	1	..	..	..	..	1	2	..
173. Traumatism in Mines and Quarries		4	..	..	..	..	..	1	..	..	..	..	..	3	..	..	..	..	..	..	..	..
174. Traumatism by Machines.....		1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
175. Traumatism by other Crushing (vehicles, railroad, landslides, etc.).....		166	5	1	2	1	4	3	7	1	9	4	13	1	5	1	3	3	..	40	1	2
176. Injuries by Animals.....		4	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	1	..	..
178. Excessive Cold		3	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..
179. Effects of Heat		4	..	..	1	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..
181. Electricity (lightning excepted).....		17	..	1	1	..	..	2	2	..	1	2	..	..	..	..	..	..	1	3	2	..
182. Homicide by Firearms.....		1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
184. Homicide by other means		1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
185. Fractures (cause not specified).....		119	1	1	2	5	4	2	7	4	7	2	1	3	2	5	..	4	1	55	1	..
186. Other External Violence		81	..	1	1	..	6	2	9	5	4	1	6	2	1	..	3	3	..	33	..	1
XIV.—ILL-DEFINED DISEASES.																						
Group Total.....		149	2	2	5	3	2	3	13	2	11	1	29	2	..	3	1	1	..	5	6	..
187. Ill-Defined Organic Disease.....		7	..	..	..	..	..	..	1	1	..	2	..	..	..	..	1	..	..	2	..	..
188. Sudden Death		35	1	..	1	1	..	..	4	..	1	..	11	..	3	..	..	1	..	11	1	..
189. Causes of Death not Specified or Ill-defined		107	1	2	4	2	2	3	9	1	9	1	16	2	..	1	3	..	..	44	5	..
STILL-BIRTHS.																						
Not included in totals.....		1,384	14	18	38	19	40	15	144	18	45	11	126	22	25	3	1	17	2	721	23	10

TABLE No. 12.

Table Showing Total Deaths by Individual Diseases in each Town of 5,000 population, 1914.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)																					
	Total.	Barrie.	Brockville.	Cobalt.	Cobourg.	Collingwood.	Cornwall.	Galt.	Ingersoll.	Kenora.	Lindsay.	North Bay.	Orillia.	Oshawa.	Owen Sound.	Pembroke.	Port Hope.	Sault Ste. Marie.	Smith's Falls.	Sudbury	Welland.
Grand Total	2,481	104	173	111	105	93	158	139	71	102	99	146	95	92	138	152	63	198	86	263	93
I.—GENERAL DISEASES.																					
Group Total	563	24	52	12	21	21	31	32	23	33	36	24	20	18	33	37	13	57	21	56	19
1. Typhoid Fever.....	76	7	4	3	2	2	2	2	1	3	3		1	1	2	4	1	11	1	33	3
6. Measles.....	9	1	1	1	1	1	1	1	1	1	1							6			1
7. Scarlet Fever.....	4		1	1	1	1	1	1	1	1	1										
8. Whooping Cough.....	17	1	1	3	1	2	2	2	2	1	1		1	2	3			1	1	2	1
9. Diphtheria and Croup	20	3	1	1	1	1	1	1	2	1	1					3		1	2	3	
10. Influenza.....	3			1	1	1	1	1	1	1	1										
13. Cholera nostras.....	1			1	1	1	1	1	1	1	1										
14. Dysentery.....	7	1								1	2								2		
18. Erysipelas.....	14	1	1	1	1	1	1	1	1	2	1		1		1	1	1	1		2	1
19. Other Epidemic Diseases	1	1						1													
20. Purulent Infection and Septicæmia	20						1	1			2			2		2		2	4	6	
24. Tetanus.....	1		1																		
26. Pellagra.....	1																				
28. Tuberculosis of the Lungs.....	148	6	16	4	6	5	11	4	8	9	9	5	5	3	8	12	3	17	7	7	3
29. Acute Miliary Tuberculosis.....	5				1	1	1	1	1	1	1									1	1
30. Tuberculous Meningitis.....	11					5							1				1			2	2
31. Abdominal Tuberculosis.....	3	1				1												1			
34. Tuberculosis of other Organs	3	1					1	1	2				1							1	
36. Rickets.....	2											1								1	
37. Syphilis.....	2		2																		
39. Cancer and other Malignant Tumors of the Buccal Cavity.....	6	1	2					1						1	1						
40. Cancer and other Malignant Tumors of the Stomach, Liver.....	38	1	4	1	1	3	6	2	1	1	3			2	6	1	3	1	1		1
41. Cancer and other Malignant Tumors of the Peritoneum, Intestines, Rectum.....	24	1	2	1	2	1	1	2					2	1	2	2	1	5			1
42. Cancer and other Malignant Tumors of the Female Genital Organs.....	4										1				1			1			1
43. Cancer and other Malignant Tumors of the Breast.....	6	1			2									1		1					1
44. Cancer and other Malignant Tumors of the Skin.....	2													1		1					
45. Cancer and other Malignant Tumors of other Organs and of Organs not Specified.....	34	2	6	1	1	1	1	1	4	4	5	1			1	1	1		2	1	1
46. Other Tumors (Tumor of the female genital organ excepted).....	6	1			2				1	1											1
47. Acute Articular Rheumatism.....	11	1	1	1	1	1	1	1	1	1	1			1	4		1				
48. Chronic Rheumatism and Gout.....	9	1		1	1	4	1	1							1	1					
50. Diabetes.....	16		3			1	2	2		1	2		1	2	1	1				1	1
51. Exophthalmic Goitre.....	7														2	1		3			1
53. Leucæmia.....	3					1												1			
54. Anæmia, Chlorosis.....	32	2	3	2	4	1	4		3		5	1	3	2	2			2	2		1
55. Other general diseases.....	2	1																1			
56. Alcoholism (Acute or Chronic).....	12	1	3						4											2	1
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																					
Group Total	235	8	21	5	16	10	14	18	5	12	14	13	15	9	13	13	11	13	4	14	7
60. Encephalitis.....	3		1	1			1														
61. Simple Meningitis.....	41	1	1	1	1	5	1	3	1	5	4	4	1	4	1	4		3	1	2	2
62. Locomotor Ataxia.....	2								1											1	
63. Other Diseases of the Spinal Cord.....	11	1		1	1	1			2	1	2									2	
64. Cerebral Hemorrhage, Apoplexy.....	73	2	15	1	9	2	6	6	1	7	4	3	5	1	2	1	4	3	1	1	1
65. Softening of the Brain.....	4	1	1	1					1									1			
66. Paralysis without Specified Cause.....	31	2	5	1	1	1	6	2	1		1		1	2		3	2		1	2	2
67. General Paralysis of the insane.....	1												1								
68. Other forms of Mental Alienation.....	5															2	1	1	1		
69. Epilepsy.....	3						1												1		
70. Convulsions (non-puerperal).....	3			1																	
71. Convulsions of Infants.....	39	3	1	1	1	2	1	2	2	3	1	1	3	1	3	4	1	5	1	6	1
72. Chorea.....	9							1													1
73. Neuralgia and Neuritis.....	5		1	1														2			
74. Other Diseases of the Nervous System	10	1			1				2		2	1	2		2						

TABLE No. 12—Concluded.

OFFICIAL ENGLISH TRANSLATION.
(DISEASES AND CAUSES OF DEATH.)

	Total.	Barrie.	Brockville.	Cobalt.	Cobourg.	Collingwood.	Cornwall.	Galt.	Ingersoll.	Kenora.	Lindsay.	North Bay.	Orillia.	Oshawa.	Owen Sound.	Pembroke.	Port Hope.	Sault Ste. Marie.	Smith's Falls.	Sudbury.	Welland.
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																					
Group Total	19	1			1		2	2	1				2	1	2	1	1	1	2	1	1
142. Gangrene	11	1			1		2		1				2		1				1	1	1
144. Acute Abscess	6								2						1		1				
145. Other diseases of the skin and adnexa.	2														1				1		1
IX.—DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.																					
Group Total	1													1							
146. Diseases of the Bones (tuberculosis excepted)	1													1							
X—MALFORMATIONS.																					
Group Total	12	1	1	1	1					1				1	1		1	1	1		1
150. Congenital malformations (births not included)	12	1	1	1	1					1				1	1		1	1	1		1
XI.—DISEASES OF EARLY INFANCY.																					
Group Total	208	13	15	41	2	9	12	17	2	10	11	24		6	15	16	15	4	27	13	42
151. Congenital Debility, Icterus and Sclerema	304	13	15	41	2	9	12	15	2	10	11	24		6	15	16	15	4	26	13	42
152. Other Diseases Peculiar to Early Infancy	1																				1
153. Lack of care	3							2											1		
XII.—OLD AGE.																					
Group Total	173	12	7	2	19	8	23	16	6		9	4		9	6	12	11	9	12	3	5
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																					
Group Total	214	4	10	8	4	7	5	4	4	21	9	15		6	8	8	14	3	23	2	50
155. Suicide by Poison	6													1		1					4
157. Suicide by Hanging or Strangulation.	2		1													1					
158. Suicide by drowning	1																1				
159. Suicide by Firearms	3				1																1
160. Suicide by cutting or piercing instruments	2		1																		
165. Other Acute Poisonings	7		1		1				1							1	1				2
166. Conflagration	1		1																		
167. Burns (Conflagration Excepted)	13			3					2	4				2	1	2	2				5
168. Absorption of deleterious gases (conflagration excepted)	6														1						5
169. Accidental Drowning	46		1		1	1	1	1	6		8				1	3	1		10		10
170. Traumatism by Firearms	10					1	1	1	4					1			2				
171. Traumatism by cutting or piercing instruments	1														1						
172. Traumatism by Fall	4														2						2
173. Traumatism in mines and quarries ..	6			1																	4
174. Traumatism by machines	1																				1
175. Traumatism by Other Crushing (vehicles, railroad, landslides, etc)	33	1	3		2			1	5	1	2			1			1	2	3	1	9
178. Excessive Cold	4	1									1										1
181. Electricity (lightning excepted)	1															1					
183. Homicide by cutting or piercing instruments	1																1				
185. Fractures (Cause not Specified)	27	1	2	2		2	1	1	3	2	1			1		3			2	1	6
186. Other External Violence	29	1	1		2	3	2	2	2	1	2			1	1		2		5		6
XIV.—ILL-DEFINED DISEASES.																					
Group Total	36	1	2	2		2	2	1	1	3				2	2	4	1	5	3	4	1
187. Ill-defined organic disease	1																		1		
188. Sudden death	8	1				2			1					1		2					1
189. Cause of Death not Specified or Ill-defined	27		2	2			2			1	3			1	2	2	1	4	3	3	1
STILL-BIRTHS.																					
Not included in totals	218	9	10	20	8	4	3	17	5	4	10	22		11	5	16	14	7	17	5	19

TABLE No. 13.

Showing Infant Mortality under 5 years of age in Ontario, 1914.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)	Total.	Under 1 Yr.	1 Year.	2 Years.	3 Years.	4 Years.
Grand Total.....	8,519	6,835	808	359	305	212
I.—GENERAL DISEASES.						
Group Total.....	900	405	177	129	102	87
1. Typhoid Fever.....	15	2	3	2	3	5
5. Smallpox.....	1	1				
6. Measles.....	43	21	12	2	3	5
7. Scarlet Fever.....	57	6	7	18	10	16
8. Whooping Cough.....	195	119	41	12	20	3
9. Diphtheria and Croup.....	206	45	35	57	33	36
10. Influenza.....	22	17	1	1	2	1
13. Cholera Nostras.....	4	2	2			
14. Dysentery.....	36	18	8	3	4	3
18. Erysipelas.....	32	30	1	1		
19. Other epidemic Diseases.....	3	3				
20. Purulent Infection and Septicæmia.....	22	13	5	3	1	
24. Tetanus.....	4	2	1		1	
28. Tuberculosis of the Lungs.....	38	17	9	6	4	2
29. Acute miliary tuberculosis.....	12	5	3	1		3
30. Tuberculous Meningitis.....	76	31	23	9	9	4
31. Abdominal Tuberculosis.....	9		5	2	1	1
32. Pott's Disease.....	2			1	1	
33. White Swelling.....	2			1	1	
34. Tuberculosis of other Organs.....	3	1	1			1
36. Ricketts.....	21	11	8	2		
37. Syphilis.....	33	30	2		1	
38. Gonococcus infection.....	1	1				
41. Cancer and other malignant tumors of the Peritonæum, Intestines, Rectum.....	1				1	
45. Cancer and other malignant tumors of other organs and of organs not specified.....	4	1		2		1
47. Acute Articular Rheumatism.....	3				1	2
49. Scurvy.....	2	2				
50. Diabetes.....	6	1			3	2
53. Leuchæmia.....	3	1			1	1
54. Anæmia Chlorosis.....	23	11	7	5		
55. Other General Diseases.....	21	14	3	1	2	1
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.						
Group Total.....	818	584	99	54	54	27
60. Encephalitis.....	14	9	1	1	2	1
61. Simple Meningitis.....	256	154	41	23	28	10
63. Other Diseases of the Spinal Cord.....	20	3	5	4	6	2
64. Cerebral Hæmorrhage, Apoplexy.....	1	1				
66. Paralysis without specified cause.....	3	1	1		1	
68. Other forms of mental alienation.....	2	1			1	
69. Epilepsy.....	4	2		1		1
71. Convulsions of Infants.....	495	402	47	23	13	10
72. Chorea.....	2	2				
3. Neuralgia and neuritis.....	1					1
74. Other Diseases of the Nervous System.....	17	6	4	2	3	2
75. Diseases of the Eyes and their adnexa.....	2	2				
76. Diseases of the Ears.....	1	1				

TABLE No. 13.—Continued.

Showing Infant Mortality under 5 years of age in Ontario, 1914.—Continued.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)	Total.	Under 1 Yr.	1 Year.	2 Years.	3 Years.	4 Years.
III.—DISEASES OF THE CIRCULATORY SYSTEM.						
Group Total.....	35	6	5	5	10	9
77. Pericarditis	5	3	1	.....	.....	1
78. Acute Endocarditis.....	9	.....	.....	3	4	2
79. Organic Diseases of the Heart.....	11	.....	2	.....	3	6
80. Añgina Pectoris	1	.....	.....	.....	1	.....
82. Embolism and Thrombosis	2	.....	1	1	.....	.....
83. Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.).....	1	.....	.....	1	.....	.....
84. Diseases of the Lymphatic System (Lymphan- gitis, etc.)	4	2	1	.....	1	.....
85. Haemorrhage; other diseases of the circula- tory system	2	1	.....	.....	1	.....
IV.—DISEASES OF THE RESPIRATORY SYSTEM.						
Group Total.....	1,101	758	196	64	50	33
86. Diseases of the nasal fossæ	2	1	.....	.....	.....	1
87. Diseases of the Larynx.....	25	7	4	4	6	4
88. Diseases of the thyroid body.....	1	.....	.....	1	.....	.....
89. Acute Bronchitis.....	192	150	28	9	3	2
90. Chronic Bronchitis.....	9	5	1	1	1	1
91. Broncho-Pneumonia.....	324	222	72	16	13	1
92. Pneumonia.....	509	353	83	31	25	17
93. Pleurisy.....	10	4	2	1	1	2
94. Pulmonary Congestion, Pulmonary Apoplexy.	22	14	3	1	1	3
96. Asthma.....	5	2	1	.....	.....	2
98. Other Diseases of the respiratory system (tu- berculosis excepted)	2	.....	2	.....	.....	.....
V. DISEASES OF THE DIGESTIVE SYSTEM.						
Group Total.....	1,607	1,321	191	39	40	16
99. Diseases of the mouth and adnexa.....	9	7	1	1	.....	.....
100. Diseases of the Pharynx.....	5	.....	1	3	1	.....
101. Diseases of the Oesophagus	1	.....	.....	.....	1	.....
102. Ulcer of the Stomach.....	2	2	.....	.....	.....	.....
103. Other Diseases of the Stomach (Cancer ex- cepted)	135	113	13	3	3	3
104. Diarrhœa and Enteritis (under 2 years).....	1,215	1,075	140	.....	.....	.....
105. Diarrhœa and Enteritis (2 years and over) ...	44	.....	.....	22	15	7
107. Intestinal parasites	2	.....	1	.....	1	.....
108. Appendicitis and Typhlitis	19	.....	5	4	7	3
109. Hernias, Intestinal Obstructions.....	45	27	12	1	4	1
110. Diseases of the Intestines.....	84	67	11	2	4	.....
115. Other Diseases of the Liver.....	14	10	2	.....	2	.....
117. Simple Peritonitis, (non-puerperal)	31	20	5	2	2	2
118. Other Diseases of the digestive system (cancer and tuberculosis excepted).....	1	.....	.....	1	.....	.....
VI. NON-VENEREAL DISEASES OF THE GENITO- URINARY SYSTEM AND ADNEXA.						
Group Total.....	40	23	9	3	1	4
120. Bright's Disease.....	38	22	9	3	1	3
122. Other Diseases of the Kidneys and Adnexa ...	2	1	.....	.....	.....	1

TABLE No. 13.—Concluded.

Showing Infant Mortality under 5 years of age in Ontario, 1914.—Concluded.

OFFICIAL ENGLISH TRANSLATION. (DISEASES AND CAUSES OF DEATH.)	Total.	Under 1 Yr.	1 Year.	2 Years.	3 Years.	4 Years.
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.						
Group Total	26	19	4	.....	3	.....
142. Gangrene	3	2	1	.....	.....	.....
143. Furuncle	1	1	.....	.....	.....	.....
144. Acute Abscess	12	8	2	.....	2	.....
145. Other Diseases of the Skin and Adnexa	10	8	1	.....	1	.....
IX.—DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.						
Group Total	8	2	5	.....	.....	1
146. Diseases of the bones (Tuberculosis excepted).	8	2	5	.....	.....	1
X.—MALFORMATIONS.						
Group Total	176	176	.....	.....	.....	.....
150. Congenital malformations (stillbirths not included)	176	176	.....	.....	.....	.....
XI.—DISEASES OF EARLY INFANCY.						
Group Total.....	3,510	3,510	.....	.....	.....	.....
151. Congenital Debility, Icterus and Sclerema....	3,452	3,452	.....	.....	.....	.....
152. Other Diseases peculiar to early infancy....	8	8	.....	.....	.....	.....
153. Lack of Care.....	50	50	.....	.....	.....	.....
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.						
Group Total	206	24	62	53	36	31
164. Poisoning by food	1	.....	.....	.....	.....	1
165. Other Acute Poisonings.....	33	4	14	8	4	3
166. Conflagration	5	.....	2	1	1	1
167. Burns (Conflagration excepted)	83	10	28	25	11	9
168. Absorption of Deleterious Gases (Conflagration excepted)	3	2	.....	1	.....	.....
169. Accidental Drowning.....	28	2	10	5	8	3
170. Traumatism by Firearms.....	4	.....	.....	2	1	1
171. Traumatism by cutting or piercing instruments	1	.....	.....	.....	.....	1
172. Traumatism by Fall.....	3	.....	1	1	.....	1
175. Traumatism by other crushing (vehicles, railroad, landslides, etc.).....	12	.....	.....	4	5	3
176. Injuries by animals	2	.....	.....	1	1	.....
179. Effects of heat.....	2	1	.....	.....	.....	.....
184. Homicide by other means.....	1	.....	.....	1	.....	.....
185. Fracture (cause not specified)	12	2	4	1	1	4
186. Other External Violence	16	3	3	2	4	4
XIV.—ILL-DEFINED DISEASES.						
Group Total.....	92	7	60	12	9	4
188. Sudden death	2	.....	2	.....	.....	.....
189. Cause of Death not Specified or Ill-defined....	90	7	58	12	9	4
STILL-BIRTHS.						
Not Included in totals	2,745	.....	.....	.....	.....	.....

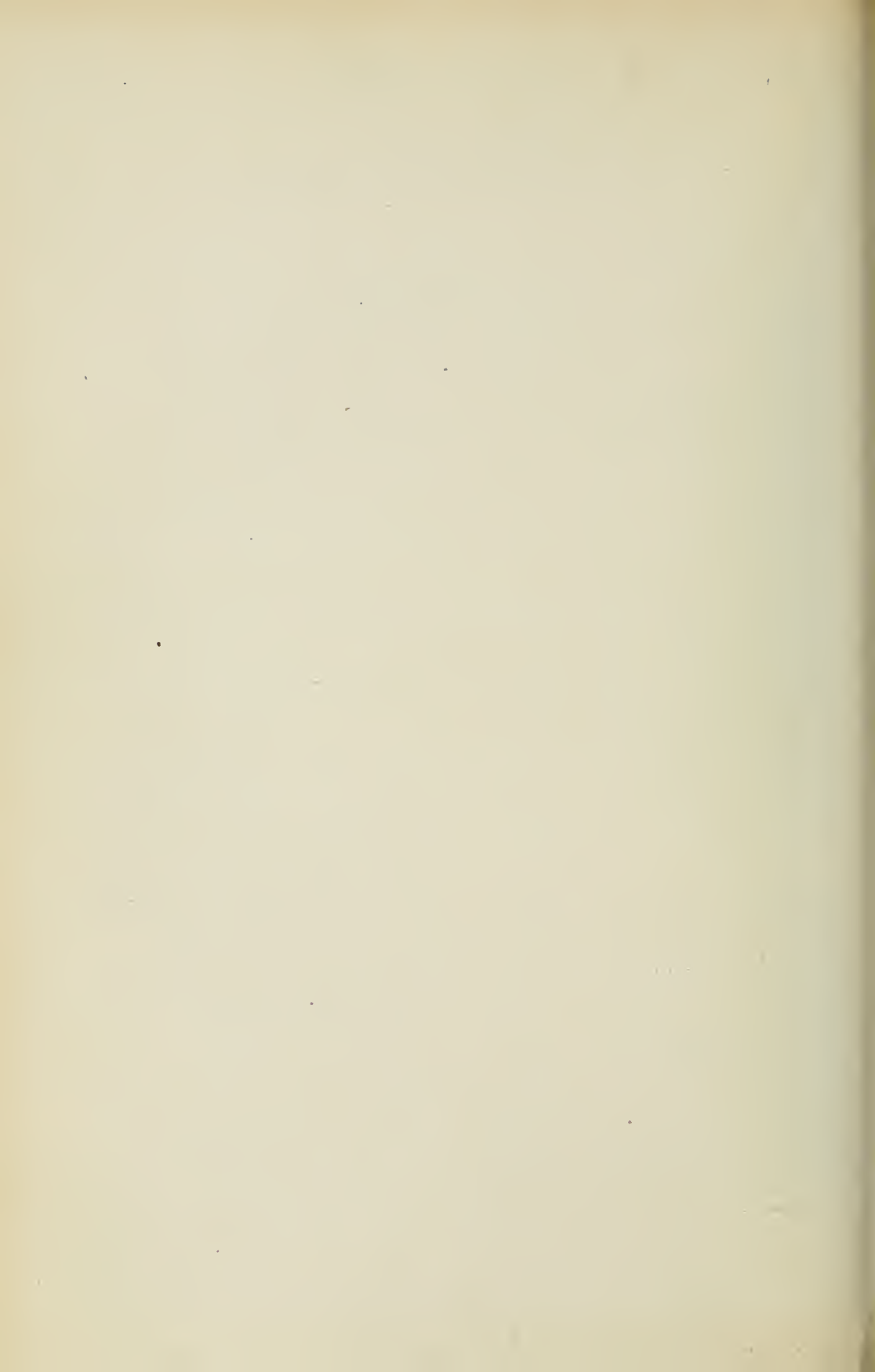
TABLE No. 14.
Deaths by Occupations—Counties, 1914.

Occupations.	Totals.	15-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70-79.	80 and over.	Not stated.
Total males and females.....	32,700	784	2,069	2,135	2,236	2,727	3,784	4,800	3,761	404
Male.										
Total males.....	12,036	447	1,093	1,091	1,191	1,471	2,023	2,554	1,929	231
Agents.....	82		9	14	8	21	20	7	2	1
Architects.....	12			2	2	2	3	2	1	
Artists and Photographers.....	9		2	3			3	1		
Bakers and Confectioners.....	44	1	1	11	8	7	10	4	2	
Bankers.....	8		4		2		1	1		
Barbers.....	45	1	11	13	7	7	2	3		1
Bartenders.....	27		6	12	6	2	1			
Blacksmiths.....	97	2	2	9	10	18	19	24	13	
Boilermakers.....	5		1		2		2			
Bookbinders.....	2									
Bookkeepers and Accountants.....	91	4	22	14	17	12	9	12	1	
Brakemen.....	27	1	13	7	4	2				
Brassfinishers.....	3		1	2						
Brewers and Distillers.....	7			1	1	3	1		1	
Brickmakers.....	8		2	2	1	1	2			
Brokers.....	20			4	3	3	6	3	1	
Builders and Contractors.....	73		1	6	8	16	23	12	6	1
Butchers.....	51		4	8	13	8	9	7	2	
Cabinetmakers.....	27			2	2	10	7	5	1	
Carpenters.....	327	1	21	30	42	45	68	78	36	6
Carriage and Wagonmakers.....	30		1		3	3	7	10	6	
Cement Workers.....	3			1		1	1			
Ohauffeurs.....	6	2	3	1						
Cheese and Buttermakers.....	6			2	1	2		1		
Chemists and Druggists.....	22		5	5	4	2	2	2	2	
Olgamakers.....	17		4	2	4	4	3			
Civil Engineers.....	20		6	3	5	3	1	1	1	
Civil Servants.....	83		5	6	7	16	31	14	4	
Clergymen.....	64		3	5	9	9	20	13		
Olerks.....	203	34	70	34	21	24	12	6	2	
Commercial Travellers.....	63	1	13	10	10	11	11	4	2	1
Cooks and Chefs.....	37			6	9	11	6	2	3	
Coopers.....	15	1	1			5	2	2	5	
Dentists.....	9		1	3	2		1	2		
Drovers and Horse Dealers.....	13			1	1	2	5	4		
Electricians.....	30	3	11	8	3	2	2			1
Engineers, Marine.....	8	1	1	2	2	1	1	2		
" Railway.....	11		2	2	3	3	1			
" Stationary.....	8		4	2	2	1	1			
" Unspecified.....	65		10	14	10	11	10	7	2	1
Factory Hands.....	51	6	14	11	6	5	3	6		
Farmers.....	3,115	90	153	153	198	363	626	848	658	24
Firemen, Civic.....	1			1						
" Marine.....	2			1		1				
" Railroad.....	13	1	7	4	1	1				
" Unspecified.....	30	4	6	4	1	3	2			
Foremen.....	39		1	7	10	12	6	1		2
Furriers.....	2	1		1						
Gardeners and Florists.....	85		5	6	7	12	22	19	14	
Government Officials.....	36				3	5	10	13	5	
Harness Makers.....	19		1			5	4	7	2	
Hotelkeepers.....	47		2	5	12	17	7	1	1	2
Hucksters and Peddlars.....	8		2	3		1	1		1	
Hunters and Fishermen.....	20		3	2	2	3	4	5	1	
Inmates of Institutions.....	505	4	13	28	44	46	85	157	123	5
Inspectors.....	34		1	3	4	13	11	1	1	
Journalists.....	13			2	1	6	2	1	1	
Laborers.....	1,400	70	215	214	216	185	208	175	82	35
Laundrymen.....	19	1	6	6	5	5	1			
Lawyers and Barristers.....	26			1	2	6	9	5	2	1
Linemen.....	24	2	10	8	4					
Liverymen and Hostlers.....	18		2	3	4	6	3			
Lumbermen.....	49	2	7	6	9	6	9	6		4
Machinists.....	105	1	16	19	20	20	21	5	1	2
Managers and Superintendents.....	44		3	8	12	10	8	3		
Manufacturers.....	52		4	5	8	6	13	11	5	
Masons.....	79	1	4	14	14	17	9	12	6	2
Mechanics.....	63	4	6	8	9	12	14	6	4	

TABLE No. 14—Concluded.

Deaths by Occupations—Counties, 1914—Concluded.

Occupations—Male.	Total.	15-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70-79.	80 and over.	Not stated.
Merchants	241	1	12	26	32	42	53	53	17	5
Milkmen	6		1	1		1	1	2		
Millers	34		2	1	4	11	8	5	3	
Mill Hands	22	2	7	3	2	2			3	1
Millwrights	17		1	1	2		5	5	3	
Miners	59	2	17	15	9	7	1	2	1	5
Moulders	43		7	5	6	10	11	2	2	
Music Teachers and Musicians	10			2	2	2	2	1	1	
Painters and Decorators	96	3	7	10	17	17	20	14	6	2
Physicians and Veterinary Surgeons	79		4	10	12	17	11	17	7	1
Plasterers and Lathers	13		2	2	1	2	4	1	1	
Plumbers and Steamfitters	31	3	8	7	7	4	1			1
Policemen	9		2	1	2		3	1		
Polishers and Engravers	9		1	2	5	1				
Printers	53	4	13	7	11	9	7	3		
Public Officials	16					3	6	5	2	
Railroad Employees	108	2	22	16	19	23	16	8	2	
Sailors	65	2	8	10	6	11	7	11	7	3
Salesmen	28	1	5	17	4	3	1	2		
School Teachers	24		6	4	4	3	2	3	2	
Servants, Porters and Stewards	47	4	10	7	8	8	6	3		1
Shippers	16		2	4	4	3	1	1	1	
Shoemakers	68		4	2	4	4	16	24	14	
Soldiers	15	3	5	3	1	1	1	1		1
Steel and Iron Workers	36	1	12	11	5	2	4	1		
Stenographers	3					1				
Stonemasons	12			3	1	3	2	2	1	
Street Railway Employees	19		3	7	8	1				
Students	69	52	15	1	1					
Tailors	53	1	4	11	9	4	8	8	7	1
Tanners and Curriers	10		1	1	1	2	3	1	1	
Teamsters and Drivers	114	5	21	12	21	34	11	8	2	
Telephone and Telegraph Operators	13		5	1	4	2	1			
Tinsmiths	17	1	5	1	3	2	3	2		
Undertakers	2						1	1		
Upholsterers	4	1		1	1		1			
Watchmakers and Jewellers	15	1	1		3	6	4			
Watchmen and Caretakers	57		3	4	6	13	19	10	2	
Weavers	7	1		1	1		1	1	2	
Woodworkers	25	1	4	1	2	3	5	8	1	
Other occupations	104	5	13	13	18	21	16	16	2	
No occupations	2,746	112	127	102	120	174	392	815	837	121
Female.										
Total females	10,663	337	976	1,044	1,045	1,256	1,751	2,250	1,832	173
Artists	5		2		1	1		1		
Bookkeepers and Accountants	12	2	5	2	2					1
Civil Servants	2							1	1	
Clerks	34	8	19	4	2		1			
Cooks	6		1	2	1	1				1
Domestics and Housekeepers	406	27	49	24	44	58	74	87	39	4
Dressmakers	43	1	5	9	11	5	5	5	1	1
Factory Hands	19	7	10	1		1				
Housewives	5,709	38	571	808	754	826	1,009	1,056	601	46
Inmates of Institutions	404	2	14	24	34	48	63	124	90	5
Laundry Hands	2		1		1					
Milliners	15	3	3	3	2	1	3			
Music Teachers and Musicians	12		9	4	2	1				
Nuns and Religious Sisters	32		5	3	1	1	9	4	5	
Nurses	51	1	4	12	7	9	5	5	3	2
Saleswomen	8	1	13	7	2		1			
School Teachers	37		12	7	9	3	2		1	1
Seamstresses	11		2	2	2	3		2		
Stenographers	17		7	6	1					
Students	55	47	8							
Tailoresses	9		2	1	3	1	1			1
Telegraph and Telephone Operators	10	3	7							
Weavers	2							1		
Other occupations	10	1	2	1	2			3		
No occupations	3,753	193	225	131	163	301	577	961	1,081	111



APPENDIX

BIRTHS BY MONTHS, AND SEX—COUNTIES, 1914.

Counties.	Sex.	Total.	Months												No. pairs of twins.	No. cases of triplets.	Illegitimate.
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Grand Total.....	.....	66,225	5,292	5,012	5,839	5,421	5,919	5,534	5,871	5,862	5,632	5,475	5,058	5,310	759	7	1,469
Total Males.....	.....	34,031	2,715	2,585	2,939	2,765	3,036	2,802	3,010	2,996	2,883	2,854	2,604	2,842	805	9	750
Total Females.....	.....	32,194	2,577	2,427	2,900	2,656	2,883	2,732	2,861	2,866	2,749	2,621	2,454	2,468	713	12	719
Algoma.....	M	431	40	34	38	26	40	29	43	40	39	40	31	31	15	.....	8
	F	382	28	36	33	37	36	41	26	34	25	22	35	29	7	.....	4
		813	68	70	71	63	76	70	69	74	64	62	66	60	11	1	12
Brant.....	M	690	58	42	57	59	75	45	68	60	51	53	60	62	17	.....	10
	F	613	54	44	61	56	55	50	51	57	43	51	50	41	13	.....	14
		1,303	112	86	118	115	130	95	119	117	94	104	110	103	15	.....	24
Bruce.....	M	557	54	30	46	54	52	49	48	45	47	45	43	44	17	.....	4
	F	502	34	41	53	39	46	38	34	48	44	45	39	41	19	.....	9
		1,059	88	71	99	93	98	87	82	93	91	90	82	85	18	.....	13
Carleton.....	M	1,635	147	115	136	148	129	137	151	136	127	143	130	136	35	.....	113
	F	1,397	126	121	159	114	132	137	162	134	134	142	118	118	43	.....	111
		3,232	273	236	295	262	261	274	313	270	261	285	248	254	39	.....	224
Dufferin.....	M	145	9	16	13	13	12	14	13	14	17	10	7	7	3	.....	2
	F	157	9	10	10	13	19	12	15	14	14	19	7	15	5	.....	1
		302	18	26	23	26	31	26	28	28	31	29	14	22	4	.....	3

Elgin.....	M	44	24	33	25	55	27	49	42	49	37	36	36	12	5
	F	39	33	34	39	35	40	53	35	36	34	31	36	10	3
Essex.....		882	57	67	64	90	67	82	77	85	71	67	72	11	8
	M	69	67	82	89	105	80	82	94	107	77	77	81	29	5
	F	84	75	82	74	80	75	77	84	81	77	79	80	13	3
Frontenac.....		1,958	142	164	163	185	155	159	178	188	154	156	161	21	8
	M	33	43	51	30	50	37	48	41	34	34	37	45	12	18
	F	44	36	34	34	37	31	45	48	44	42	44	40	14	19
Grey.....		962	79	85	64	87	68	93	89	78	76	81	85	13	37
	M	53	65	56	50	52	43	48	68	44	55	54	48	12	6
	F	556	44	57	45	47	57	57	40	42	52	35	50	8	6
Haldimand.....		1,192	109	113	95	99	100	105	108	86	107	89	98	10	12
	M	207	12	10	16	16	23	25	20	19	16	19	11	9	2
	F	214	19	15	20	15	12	19	21	24	23	10	16	9	2
Haliburton.....		421	31	25	36	31	35	44	41	43	39	29	27	9	4
	M	150	6	15	16	15	13	7	16	13	11	10	7	1	3
	F	123	4	7	12	16	12	11	17	11	11	8	6	3	1
Halton.....		273	10	22	28	31	25	18	33	24	22	18	13	2	4
	M	244	18	26	16	20	29	25	14	17	27	18	18	12	3
	F	272	22	21	19	22	30	21	23	25	21	20	29	10	5
Hastings.....		516	40	47	35	42	59	46	37	42	48	38	47	11	8
	M	691	55	39	50	61	66	60	51	62	64	43	74	16	5
	F	667	55	58	68	59	69	53	51	51	58	41	43	10	9
		1,358	110	97	118	120	135	113	102	113	122	84	117	13	14

BIRTHS BY MONTHS, AND SEX—COUNTIES, 1914.—Continued.

Counties.	Sex.	Total.	Months												No. pairs of twins.	No. cases of triplets.	Illegitimate.
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Huron	M	479	37	31	35	43	43	41	41	36	39	51	86	46	15	.....	7
	F	477	30	45	41	35	36	39	49	51	40	39	40	32	7	.....	3
Kenora	M	163	10	11	15	17	15	14	21	15	9	11	10	15	3	.....	.....
	F	163	14	11	15	16	11	17	11	13	10	18	13	14	3	.....	3
Kent	M	326	24	22	30	33	26	31	32	28	19	29	23	29	3	.....	3
	F	645	53	44	54	42	68	53	53	48	62	58	48	62	24	1	5
Lambton	M	625	39	47	54	52	59	44	59	56	57	57	54	47	10	2	6
	F	1,270	92	91	108	94	127	97	112	104	119	115	102	109	17	1	11
Lanark	M	536	32	34	57	45	45	49	40	58	45	43	41	47	14	.....	3
	F	436	33	28	38	41	45	39	31	34	41	38	36	32	16	.....	1
Lanark	M	972	65	62	95	86	90	88	71	92	86	81	77	79	15	.....	4
	F	329	28	35	32	27	33	21	26	22	35	26	18	26	19	.....	2
Leeds and Grenville	M	337	19	23	29	25	35	26	34	32	37	19	22	36	13	.....	8
	F	666	47	58	61	52	68	47	60	54	72	45	40	62	16	.....	10
Lennox and Addington	M	508	36	28	31	40	54	48	54	51	47	41	41	37	12	.....	9
	F	465	37	26	38	41	40	54	44	46	37	29	40	33	10	.....	8
Lennox and Addington	M	973	73	54	69	81	94	102	98	97	84	70	81	70	11	.....	17
	F	176	9	12	21	13	21	21	14	15	13	17	14	15	.....	.....	2
Lennox and Addington	M	166	15	12	14	15	7	16	17	15	8	15	19	13	2	.....	.....
	F	342	24	24	35	27	20	37	31	30	21	32	33	28	1	.....	2

Lincoln.....	M F	500 514	33 49	42 38	43 44	38 39	48 39	35 47	56 45	40 47	52 44	44 40	30 48	39 34	14 12	3	10 5
Middlesex.....	M F	1,014	82	80	87	77	87	82	101	87	96	84	78	73	13	1	15
Manitoulin.....	M F	1,010 939	76 73	75 82	106 92	67 79	80 84	75 69	96 106	107 88	81 72	83 69	79 70	85 55	22 24	.....	25 25
Muskoka.....	M F	1,949	149	157	198	146	164	144	202	195	153	152	149	140	23	.....	50
Nipissing.....	M F	108 66	16 6	6 3	9 8	9 4	8 4	2 6	10 7	8 7	10 2	10 8	10 6	10 5	3 3	.....	6 5
Norfolk.....	M F	174	22	9	17	13	12	8	17	15	12	18	16	15	3	.....	11
Northumberland and Durham.....	M F	274 254	17 21	20 19	20 26	24 20	26 23	19 21	23 18	27 26	27 25	28 20	20 15	23 20	9 5	.....	6 2
Ontario.....	M F	528	38	39	46	44	49	40	41	53	52	48	35	43	7	.....	8
	M F	450 450	37 35	37 35	34 49	35 34	44 48	39 39	33 38	47 40	38 47	42 30	31 21	33 34	5 11	.....	8 6
	M F	900	72	72	83	69	92	78	71	87	85	72	52	67	8	.....	14
	M F	300 266	18 11	22 14	15 22	25 14	26 24	15 34	31 27	24 28	30 25	35 31	27 17	37 19	1 3	.....	2 2
	M F	566	29	36	37	39	50	49	58	52	55	66	44	51	2	.....	4
	M F	565 567	52 50	34 42	54 52	47 52	47 64	42 51	41 47	54 49	59 47	48 42	38 34	49 37	6 10	.....	8 11
	M F	1,132	102	76	106	99	111	93	88	103	106	90	72	86	8	.....	19
	M F	450 431	38 27	29 38	37 41	40 32	40 39	36 37	47 40	39 36	38 32	34 27	42 37	30 45	12 12	.....	12 6
	M F	881	65	67	78	72	79	73	87	75	70	61	79	75	12	.....	18

BIRTHS BY MONTHS, AND SEX—COUNTIES, 1914—Continued.

Counties.	Sex.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	No. pairs of twins.	No. cases of triplets.	Illegiti- mates.
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Oxford	M	515	49	52	45	46	43	40	28	43	45	42	34	48	7	7	8
	F	457	43	40	47	37	33	33	44	44	32	31	37	36	44	13	7
Parry Sound.....	M	415	35	45	35	32	28	36	30	35	40	28	23	48	7	7	2
	F	366	22	27	37	30	27	33	29	36	28	32	32	33	9	9	2
Peel.....	M	781	57	72	72	62	55	69	59	71	68	60	55	81	8	8	4
	F	236	17	18	22	21	24	21	11	16	25	20	19	22	6	6	4
Perth	M	202	15	19	13	15	13	21	12	12	27	17	15	23	4	4	4
	F	438	32	37	35	36	37	42	23	28	52	37	34	45	5	5	4
Peterborough.....	M	513	39	53	36	35	47	47	39	52	40	42	36	47	13	13	5
	F	523	47	33	52	32	40	44	40	49	54	45	40	47	11	11	5
Peterborough.....	M	1,036	86	86	88	67	87	91	79	101	94	87	76	94	12	12	5
	F	495	36	44	41	45	41	38	45	57	33	42	36	37	4	4	7
Peterborough.....	M	487	55	33	32	37	45	40	44	44	45	45	30	37	10	10	4
	F	982	91	77	73	82	86	78	89	101	78	87	66	74	7	7	11
Prescott and Russell.....	M	898	55	78	90	76	85	88	81	81	64	57	69	74	29	29	1
	F	817	68	54	66	78	73	58	76	66	76	66	62	74	21	21	1
Prince Edward.....	M	1,715	123	132	156	154	158	146	157	147	140	123	131	148	25	25	2
	F	160	11	8	8	13	11	19	18	12	13	16	20	11	2	2	1
Prince Edward.....	M	134	17	8	13	15	9	7	8	8	13	10	14	12	.....	.....	.....
	F	294	28	16	21	28	20	26	26	20	26	26	34	23	1	1	1

Rainy River.....	M	164	13	15	17	11	16	15	14	16	17	10	9	11	1	.....	2
	F	155	13	14	7	9	8	16	17	22	16	10	10	10	13	1	.....	2
Renfrew.....	M	319	26	29	24	20	24	31	31	38	33	20	19	24	1	.....	4
	F	593	51	34	53	58	72	52	53	53	32	40	38	38	57	12	.....	11
	F	595	44	42	68	50	65	48	58	45	49	42	43	41	12	.....	9
Simcoe.....	M	1,188	95	76	121	108	137	100	111	98	81	82	81	98	12	.....	20
	F	933	78	83	80	71	85	68	88	84	64	81	69	82	25	.....	8
	F	996	87	91	81	86	85	83	86	97	96	71	73	60	35	.....	9
Stormont, Dundas and Glengarry.....	M	1,929	165	174	161	157	170	151	174	181	160	152	142	142	30	.....	17
	F	647	45	47	54	64	61	54	55	57	70	48	45	47	9	.....	8
	F	602	43	49	58	61	60	50	41	55	52	40	48	45	9	.....	7
Sudbury.....	M	1,249	88	96	112	125	121	104	96	112	122	88	93	92	9	.....	15
	F	534	43	38	47	56	38	41	43	51	33	51	37	56	4	.....	4
	F	491	35	32	46	44	41	41	44	41	46	35	37	49	8	.....	3
Thunder Bay.....	M	1,025	78	70	93	100	79	82	87	92	79	86	74	105	6	.....	7
	F	968	74	78	101	70	85	89	74	93	91	69	84	60	23	.....	16
	F	868	82	72	86	70	71	72	80	72	60	83	74	46	19	.....	19
Femiskaming.....	M	1,836	156	150	187	140	156	161	154	165	151	152	158	106	21	.....	35
	F	688	58	47	66	46	51	63	71	61	61	51	50	63	25	.....	5
	F	606	38	38	45	48	61	55	61	55	54	59	45	47	11	.....	6
Victoria.....	M	1,294	96	85	111	94	112	118	132	116	115	110	95	110	18	.....	11
	F	278	28	20	20	18	25	19	29	25	24	24	19	27	8	.....	3
	F	273	21	17	24	19	24	34	24	25	23	21	14	27	6	.....	.....
		551	49	37	44	37	49	53	53	50	47	45	33	54	7	.....	3

BIRTHS BY MONTHS, AND SEX—COUNTIES, 1914—Concluded.

Counties.	Sex.	Total.	Months.												No. pairs of twins.	No. cases of triplets.	Illegitimate.
			January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
Waterloo	M	925	79	74	76	81	82	70	97	71	66	88	69	72	24	.....	12
	F	894	70	65	82	61	94	83	68	87	73	77	55	79	14	.....	17
		1,819	149	139	158	142	176	153	165	158	139	165	124	151	19	.....	29
Welland	M	661	57	45	52	54	52	58	47	59	64	49	55	69	18	3	6
	F	665	54	44	53	42	68	48	69	49	51	71	60	56	14	.....	6
		1,326	111	89	105	96	120	106	116	108	115	120	115	125	16	1	12
Wellington	M	552	48	43	59	46	46	43	35	40	45	47	47	53	9	.....	9
	F	520	40	40	55	38	53	44	39	47	44	40	41	39	17	.....	9
		1,072	88	83	114	84	99	87	74	87	89	87	88	92	13	.....	18
Wentworth	M	1,859	152	113	169	149	171	165	166	162	161	155	148	148	40	.....	40
	F	1,743	153	129	169	152	142	131	144	166	156	143	133	125	26	.....	39
		3,602	305	242	338	301	313	296	310	328	317	298	281	273	33	.....	79
York	M	8,168	649	622	680	670	701	674	733	696	684	711	647	661	190	2	315
	F	7,709	622	572	677	667	710	648	700	684	657	598	603	571	168	1	295
		15,877	1,271	1,234	1,357	1,337	1,411	1,322	1,433	1,380	1,341	1,309	1,250	1,232	179	1	610

BIRTHS BY MONTHS, AND SEX—CITIES, 1914.

Cities.	Sex.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	No. pairs of twins.	No. cases of triplets.	Illegal-mates.
Grand Total.....	.....	28,009	2,298	2,202	2,524	2,294	2,480	2,347	2,351	2,385	2,309	2,296	2,189	2,134	310	2	1,074
Total Males.....	.....	14,369	1,133	1,139	1,258	1,163	1,253	1,198	1,206	1,214	1,197	1,209	1,146	1,163	330	5	547
Total Females.....	.....	13,640	1,165	1,063	1,266	1,131	1,227	1,149	1,255	1,171	1,112	1,087	1,043	971	290	1	527
Belleville.....	M	115	7	6	19	5	8	16	10	7	13	12	7	5	2	.....	2
	F	125	15	12	9	16	8	12	14	7	10	11	6	5	.....	.....	2
		240	22	18	28	21	16	28	24	14	23	23	13	10	1	.....	4
Berlin.....	M	269	20	22	25	22	25	22	33	12	18	30	18	22	5	.....	3
	F	262	16	20	31	16	30	24	18	22	26	20	13	26	3	.....	6
		531	36	42	56	38	55	46	51	34	44	50	31	48	4	.....	9
Brantford.....	M	421	40	28	34	33	40	27	44	34	27	36	38	40	6	.....	6
	F	387	38	26	35	38	31	29	34	37	28	36	25	30	8	.....	8
		808	78	54	69	71	71	56	78	71	55	72	63	70	7	.....	14
Chatham.....	M	123	10	10	7	9	6	13	13	5	14	9	10	17	6	.....	2
	F	127	8	8	15	11	10	10	12	12	11	10	11	9	.....	.....	3
		250	18	18	22	20	16	23	25	17	25	19	21	26	3	.....	5
Fort William.....	M	503	40	42	55	41	40	48	30	45	47	40	38	37	10	.....	11
	F	453	42	41	40	32	38	38	38	40	31	42	42	29	10	.....	15
		956	82	83	95	73	78	86	68	85	78	82	80	66	10	.....	26

BIRTHS BY MONTHS, AND SEX—CITIES, 1914—Continued.

Cities.	Sex.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	No. pairs of twins.	No. cases of triplets.	Illegiti- mates.
Guelph	M	171	15	13	18	16	17	9	10	16	10	16	13	18	3	.....	6
	F	182	10	20	21	14	20	18	9	12	12	16	15	15	5	.....	6
		353	25	33	39	30	37	27	19	28	22	32	28	33	4	.....	12
Hamilton	M	1,437	120	89	125	117	132	127	131	125	123	123	118	107	29	.....	39
	F	1,408	129	112	144	117	110	109	115	133	116	112	114	97	21	.....	36
		2,845	249	201	269	234	242	236	246	258	239	235	232	204	25	.....	75
Kingston	M	255	16	29	32	15	28	22	21	24	17	15	16	20	5	.....	15
	F	262	27	26	18	21	17	16	23	25	19	27	23	20	9	.....	15
		517	43	55	50	36	45	38	44	49	36	42	39	40	7	.....	30
London	M	626	47	53	68	46	41	45	54	61	45	54	56	56	14	.....	23
	F	574	51	54	63	44	49	44	68	48	42	36	45	30	10	.....	21
		1,200	98	107	131	90	90	89	122	109	87	90	101	86	12	.....	44
Niagara Falls	M	136	12	9	15	9	10	13	7	11	18	4	14	14	5	3	..
	F	158	11	10	15	9	14	13	22	14	11	12	12	15	7	.....	2
		294	23	19	30	18	24	26	29	25	29	16	26	29	6	1	2
Ottawa.....	M	1,302	104	99	107	122	110	109	124	100	103	107	102	115	32	.....	111
	F	1,290	104	103	129	89	109	110	130	104	104	120	95	93	30	.....	111
		2,592	208	202	236	211	219	219	254	204	207	227	197	208	31	.....	222
Peterborough	M	226	14	22	21	25	18	13	17	24	18	23	18	13	4	.....	6
	F	250	34	16	18	17	21	20	24	28	22	17	17	16	4	.....	3
		476	48	38	39	42	39	33	41	52	40	40	35	29	4	.....	9

Port Arthur	M	381	26	28	38	20	35	32	38	44	39	24	40	17	9	5
	F	321	28	24	39	31	26	27	33	24	21	33	23	12	5	2
		702	54	52	77	51	61	59	71	68	60	57	63	29	7	7
St. Catharines	M	249	15	22	22	16	28	16	29	22	22	24	11	22	8	5
	F	251	19	20	25	18	23	22	24	23	26	19	17	15	6	2
		500	34	42	47	34	51	38	53	45	48	43	28	37	7	7
St. Thomas	M	171	17	9	10	8	15	9	19	13	22	21	21	7	4	3
	F	169	12	15	17	12	15	14	17	15	12	14	14	12	4	.....
		340	29	24	27	26	30	23	36	28	34	35	35	19	4	3
Sarnia	M	156	13	9	18	12	11	14	11	16	16	9	11	16	2	.....
	F	114	12	9	9	8	9	7	10	5	8	15	13	9	4	.....
		270	25	18	27	20	20	21	21	21	24	24	24	25	3	3
Stratford	M	181	15	26	7	11	17	21	16	15	12	15	8	18	9	.....
	F	176	21	14	12	10	17	18	11	21	13	12	11	16	5	3
		357	36	40	19	21	34	39	27	36	25	27	19	34	7	3
Toronto	M	7,188	566	586	600	606	624	603	653	594	585	617	573	581	170	2
	F	6,761	554	507	589	596	642	585	628	580	564	509	512	495	154	1
		13,949	1,120	1,093	1,189	1,202	1,266	1,188	1,281	1,174	1,149	1,126	1,085	1,076	162	1
Windsor	M	351	24	24	25	26	38	31	30	39	38	22	26	28	6	3
	F	275	26	18	25	26	28	24	20	14	24	20	30	20	4	1
		626	50	42	50	52	66	55	50	53	62	42	56	48	5	4
Woodstock	M	108	12	13	12	4	10	8	6	7	10	8	8	10	1	2
	F	95	8	8	12	6	10	9	5	7	12	6	5	7	1	2
		203	20	21	24	10	20	17	11	14	22	14	13	17	1	4

BIRTHS BY MONTHS AND SEX—TOWNS, 1914.

Towns.	Sex.	January.	February.	March.	April.	May.	June.	July.	August.	Septem-ber.	October.	Novem-ber.	Decem-ber.	No. Pairs of Twins.	No. Cases of Triplets.	Illegiti-mates.
Grand Total.....	.....	385	346	406	407	432	390	416	411	365	345	323	385	52	1	73
Total Males.....	.....	212	180	186	195	215	173	217	217	204	182	160	213	51	.....	39
Total Females.....	.....	173	166	220	212	217	217	199	194	161	163	163	172	53	3	34
Barrie.....	M F	2 87	7 7	4 10	7 7	10 4	10 11	13 13	7 7	9 6	10 6	11 4	5 3	2 4	.....	2 1
Brockville.....	M F	11 145	14 7	14 8	14 13	14 11	21 10	26 11	14 9	15 8	16 5	15 11	8 8	3 3	.....	3 5
Cobalt.....	M F	21 153	12 17	20 13	26 11	19 12	21 10	23 14	19 10	16 17	13 10	20 6	18 15	2 8	.....	6 3
Cobourg.....	M F	27 56	29 7	23 8	24 6	29 4	27 5	29 3	20 7	24 3	21 3	14 2	25 0	5 1	.....	5
Collingwood.....	M F	11 76	4 7	3 9	5 5	8 5	4 3	5 8	7 5	5 6	4 9	3 6	8 3	.....	.....	1 1
Cornwall.....	M F	21 92	11 6	12 9	10 10	13 9	7 5	13 4	12 11	11 11	13 5	9 5	11 8	1 3	.....	2 2
Total.....	.....	1055	1015	1166	1184	1258	1219	1292	1251	1118	1074	1010	1155	162	.....	165

Galt.....	M F	163 160	16 18	12 10	8 8	13 16	14 17	15 24	15 14	13 22	18 8	18 7	7 9	14 7	5 5	1 1
Ingersoll.....	M F	323	34	22	16	29	31	39	29	35	26	25	16	21	5	2
		49 61	3 6	2 4	5 7	6 6	5 3	3 4	3 8	7 6	5 3	7 4	1 5	2 5	2 4	1
		110	9	6	12	12	8	7	11	13	8	11	6	7	2	1
		92 104	6 8	7 6	8 10	13 9	8 9	6 14	11 5	10 8	6 7	4 10	5 7	8 11	3 3	..... 1
Kenora	M F	196	14	13	18	22	17	20	16	18	13	14	12	19	3	1
		102 82	12 13	6 5	7 10	4 3	9 4	5 8	14 6	9 7	11 6	10 6	3 5	12 9	3 1	1
Lindsay.....	M F	184	25	11	17	7	13	13	20	16	17	16	8	21	2	1
		219 187	17 12	16 19	16 23	17 15	17 15	22 20	18 15	25 19	18 13	15 12	19 10	19 14	1 3	5 3
North Bay.....	M F	406	29	35	39	32	32	42	33	44	31	27	29	33	2	8
		73 85	7 4	10 6	2 10	4 9	5 8	4 10	11 8	6 7	4 11	8 6	5 5	7 1	2 2	1 2
Orillia	M F	158	11	16	12	13	13	14	19	13	15	14	10	8	2	3
		138 139	11 6	11 14	10 9	11 15	13 11	13 14	16 12	8 16	14 8	8 4	14 18	9 12	2 2	3 2
Oshawa	M F	277	17	25	19	26	24	27	28	24	22	12	32	21	2	5
		191 151	20 7	16 12	16 18	14 14	17 14	10 14	18 13	19 10	14 8	19 15	14 15	14 11	2	2 4
Owen Sound.....	M F	342	27	28	34	28	31	24	31	29	22	34	29	25	1	6

BIRTHS BY MONTHS AND SEX—TOWNS, 1914.—Concluded.

Towns.	Sex.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	Septem-ber.	October.	Novem-ber.	Decem-ber.	No. Pairs of Twins.	No. Cases of Triplets.	Illigit-imate.
Pembroke.....	M	118	9	7	13	10	20	6	10	11	5	7	9	11	1	1	2
	F	111	9	8	14	10	18	8	10	9	6	7	7	5	3	3	2
Port Hope.....	M	48	5	2	1	2	5	1	5	5	7	4	7	4	.....	.....	3
	F	54	3	3	8	5	6	6	4	7	4	2	1	5	2	2	1
Sault St. Marie.....	M	153	12	13	15	9	14	12	14	18	10	12	11	13	5	.....	2
	F	126	13	6	13	12	16	15	7	7	9	9	12	7	3	3	1
Smith's Falls.....	M	83	7	9	14	6	5	6	7	5	11	1	2	10	4	.....	1
	F	103	5	7	9	11	12	7	9	10	11	6	5	11	8	.....	3
Sudbury.....	M	186	12	16	23	17	17	13	16	15	22	7	7	21	6	.....	4
	F	225	19	14	20	24	16	18	16	21	17	19	16	25	3	3	2
Welland.....	M	122	11	11	8	8	13	8	9	9	11	12	9	13	3	.....	2
	F	127	9	11	8	13	19	6	8	10	10	13	12	8	1	.....	2
		249	20	22	16	21	32	14	17	19	21	25	21	21	2	.....	4

MARRIAGES BY MONTHS—COUNTIES, 1914.—Continued.

Counties.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Lincoln.....	393	26	24	26	28	20	62	26	32	42	43	29	35
Manitoulin	45	5	3	3	.....	3	5	4	5	4	5	3	5
Middlesex.....	900	67	45	64	80	38	125	66	67	98	78	75	97
Muskoka	142	3	5	6	14	5	14	13	8	23	20	15	16
Nipissing.....	273	25	19	15	24	28	23	27	28	34	23	21	6
Norfolk.....	228	23	24	16	18	13	25	11	13	27	14	16	28
Northumberland and Durham.....	379	27	27	20	31	16	54	24	20	50	34	30	46
Ontario.....	308	26	18	19	31	13	50	10	20	33	24	22	42
Oxford.....	400	27	40	36	32	19	40	35	24	60	29	25	33
Parry Sound.....	186	9	12	9	19	10	30	14	14	25	16	12	16
Peel.....	137	15	10	6	12	9	21	5	5	15	13	9	17
Perth.....	368	27	25	30	30	25	52	24	14	36	30	31	44
Peterborough.....	354	26	18	18	29	16	61	24	22	42	37	27	34
Prescott and Russell.....	330	37	19	6	20	30	48	33	30	45	38	21	3
Prince Edward.....	117	4	13	8	12	2	11	6	7	17	11	8	18
Rainy River.....	125	12	8	9	7	8	23	7	6	10	12	10	13
Renfrew.....	408	33	30	19	50	14	66	28	32	55	43	22	16
Simcoe	599	58	42	42	48	40	74	35	39	75	53	25	68
Stormont, Dundas and Glengarry.....	430	24	25	21	36	17	56	26	41	64	43	38	39

Sudbury.....	227	21	22	13	20	18	24	21	10	17	20	27	14
Thunder Bay.....	493	40	30	30	24	39	57	35	52	42	43	54	47
Timiskaming.....	288	19	28	17	17	19	27	25	28	33	29	22	24
Victoria.....	234	14	16	16	24	15	34	13	14	18	25	16	29
Waterloo.....	632	32	51	34	49	45	102	45	52	67	62	54	39
Welland.....	743	46	52	44	63	45	116	67	61	78	65	53	53
Wellington.....	358	42	32	29	29	9	64	24	18	29	31	14	37
Wentworth.....	1,320	103	74	76	133	86	232	104	89	114	117	83	109
York.....	6,358	466	379	334	570	418	966	506	573	697	549	423	477

MARRIAGES BY MONTHS—CITIES, 1914.

Cities.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
		917	773	680	1,076	865	1,858	989	1,074	1,348	1,120	890	947
Grand Total.....	12,537												
Belleville	130	5	8	6	13	4	18	12	10	19	8	15	12
Berlin.....	222	10	11	14	14	20	34	20	31	20	24	14	10
Brantford	296	29	23	10	29	29	40	22	17	28	22	21	26
Chatham.....	194	16	17	16	22	8	24	15	13	19	16	14	14
Fort William.....	254	21	25	10	13	20	26	21	27	21	26	26	18
Guelph	145	19	12	10	12	3	21	6	11	14	19	8	10
Hamilton	1,163	90	72	62	114	76	203	93	79	106	104	72	92
Kingston	287	26	22	17	16	18	26	23	33	31	25	22	28
London.....	607	43	27	41	61	26	91	54	49	58	47	41	69
Niagara Falls.....	291	20	13	14	22	25	43	26	29	30	26	22	21
Ottawa.....	1,072	80	82	45	86	85	143	67	64	134	122	94	70
Peterborough	207	10	13	14	14	15	32	13	14	30	20	13	19
Port Arthur.....	210	17	6	18	12	14	30	14	23	18	15	20	23
St. Catharines	238	16	12	12	12	17	38	19	25	26	30	19	12
St. Thomas.....	186	11	10	14	18	17	36	17	17	11	12	9	14
Sarnia.....	179	6	8	8	13	14	24	20	14	25	22	11	14
Stratford.....	139	11	8	9	11	12	23	8	9	15	10	11	12
Toronto.....	5,964	433	357	312	538	400	914	474	540	653	507	400	434
Windsor.....	622	42	40	43	49	54	77	56	53	65	57	48	38
Woodstock.....	131	12	7	5	7	8	15	9	16	23	8	10	11

MARRIAGES BY MONTHS—TOWNS, 1914.

Towns.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
		117	131	114	156	105	230	129	134	212	178	151	164
Grand Total.....	1,821												
Barrie.....	88	11	5	8	3	5	9	7	7	9	6	9	9
Brockville.....	85	5	4	9	3	5	9	6	6	9	10	9	10
Cobalt.....	109	10	12	6	9	5	14	9	13	9	6	11	5
Cobourg.....	50	1	4	2	7	.....	5	.....	4	11	5	4	7
Collingwood.....	75	10	2	6	7	5	4	5	5	14	4	3	10
Cornwall.....	90	4	5	4	6	1	8	4	8	21	12	13	4
Galt.....	132	7	9	8	11	8	31	11	7	17	8	7	8
Ingersoll.....	56	2	6	4	3	4	7	6	2	9	5	7	1
Kenora.....	38	1	.....	2	2	2	2	3	4	5	12	2	3
Lindsay.....	101	6	6	6	12	38	14	7	8	8	13	5	8
North Bay.....	121	9	9	11	9	11	7	11	6	19	13	10	6
Orillia.....	74	4	4	2	7	7	11	5	7	10	6	2	9
Oshawa.....	83	5	6	3	10	3	19	2	9	8	9	2	7
Owen Sound.....	125	7	4	11	14	10	17	4	6	8	14	9	21
Penbrooke.....	75	7	8	3	6	4	10	8	7	4	6	3	9
Port Hope.....	42	.....	3	1	4	3	7	5	3	2	5	6	3
Sault Ste. Marie.....	180	12	14	9	14	10	19	15	17	20	18	16	16
Smith's Falls.....	58	3	5	5	4	2	9	4	4	9	4	2	7
Sudbury.....	132	8	10	7	11	10	17	13	6	11	14	18	7
Welland.....	107	5	15	7	14	2	11	4	5	9	8	13	14

Marriages by Denominations in the Province of Ontario, 1914.

GROOMS.	BRIDES.												
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	TOTAL BRIDES.
Anglican	3,550	699	740	129	168	40	43	3	1	.....	79	9	5,401
Presbyterian.....	716	3,092	849	101	166	59	49	15	2	8	74	9	5,118
Methodist	690	899	4,043	96	258	39	58	7	2	8	99	1	6,092
Roman Catholic	207	110	104	3,435	23	1	29	5	3	.....	47	9	3,923
Baptist	160	206	258	22	713	6	29	3	.....	.....	36	4	1,431
Congregationalist	32	34	44	8	11	95	1	.....	.....	.....	6	1	232
Lutheran.....	49	43	59	29	13	2	476	5	.....	.....	14	.....	682
Evangelical Association..	3	9	10	1	7	.....	7	69	1	1	2	.....	110
Hebrew	1	1	1	2	.....	.....	.....	.....	349	.....	.....	.....	345
Salvation Army	8	.....	6	1	2	.....	.....	.....	.....	80	.....	1	98
Others	25	43	51	17	17	4	5	4	1	.....	489	1	606
No Denomination.....	5	4	4	4	1	.....	2	.....	2	.....	1	14	27
TOTAL GROOMS.....	5,456	5,056	6,159	3,836	1,382	227	631	109	352	98	838	48	24,245

Licenses, 21,351.

Banns, 2,575.

Marriages by Ages in the Province of Ontario, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 and over		Not stated
15	316	2,881	1,079	198	82	29	10	7	3	1	.....	1	.....	4,697
20	116	4,866	3,060	1,056	306	81	37	9	.....	.....	2	.....	1	10,134
25	8	767	2,613	1,222	473	137	38	22	6	3	3	1	1	5,334
30	1	92	434	771	385	194	194	43	12	9	.....	.....	.....	2,045
35	1	17	67	187	216	129	119	55	17	16	6	3	.....	443
40	.....	5	12	44	65	136	89	78	46	23	5	1	.....	314
45	.....	1	3	12	19	40	80	63	44	28	8	4	.....	292
50	.....	.....	.....	3	1	8	9	52	41	23	15	8	.....	160
55	.....	.....	1	.....	.....	2	3	10	21	19	11	13	.....	80
60	.....	.....	.....	.....	.....	.....	3	3	4	13	23	12	.....	58
65	.....	.....	.....	.....	.....	1	.....	.....	1	7	11	13	.....	23
70	.....	.....	.....	.....	.....	.....	3	.....	2	1	2	9	1	18
Age not stated.	1	5	9	10	2	.....	.....	2	1	.....	1	1	25	57
TOTALS	442	8,654	7,818	3,513	1,609	807	495	341	198	143	87	66	28	24,215

Marriages by Denominations in the District of Algoma, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	28	6	7	1	2	.....	1	.....	.....	.....	.....	.....	.....	45
Presbyterian.....	5	73	14	2	2	.....	2	.....	.....	.....	.....	.....	.....	96
Methodist.....	4	11	33	.....	1	.....	.....	.....	.....	.....	1	.....	.....	55
Roman Catholic	2	2	1	104	.....	.....	.....	.....	.....	.....	.....	.....	.....	109
Baptist .....	.....	3	4	1	8	.....	1	.....	.....	.....	.....	.....	.....	17
Congregationalist.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	.....	2	1	.....	.....	22	.....	.....	.....	.....	.....	.....	25
Evangelical Association..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	39	95	66	110	13	.....	26	.....	1	.....	2	.....	.....	352

Licenses, 317.

Banns, 35.

Marriages by Ages in the District of Algoma, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 and over.	Not stated	TOTAL.
	15	4	49	33	7	4
20	2	64	44	15	5	2	1	.....	.....	.....	.....	.....	.....	.....	132
25	.....	10	27	11	10	.....	1	.....	1	.....	.....	.....	.....	.....	60
30	.....	3	3	7	4	1	1	.....	.....	.....	.....	.....	.....	.....	25
35	.....	.....	4	3	5	6	.....	1	.....	.....	.....	.....	.....	.....	19
40	.....	.....	.....	.....	.....	3	1	1	.....	.....	.....	.....	.....	.....	5
45	.....	.....	1	.....	.....	.....	3	1	1	.....	.....	.....	.....	.....	6
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	.....	.....	.....	3
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	1	.....	.....	3
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS.	6	126	112	43	31	15	7	4	4	2	2	.....	.....	.....	352

Marriages by Denominations in the County of Brant, 1914.

GROOMS.	BRIDES.												
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	TOTAL BRIDES.
Anglican	67	10	13	2	6	3	1				1		103
Presbyterian.....	8	41	13		3	3					2		70
Methodist	10	10	63		11	3							97
Roman Catholic	1	1		44	2						2		50
Baptist	6	7	11	1	49	1	1				2		78
Congregationalist.....	5	2	8			11					1		27
Lutheran.....			1				2						3
Evangelical Association..													
Hebrew									1				1
Salvation Army.....										4			4
Others			1		1						8		10
No denomination.....													
TOTAL GROOMS.....	97	71	110	47	73	21	4		1	4	16		443

Licenses, 402.

Banns, 41.

Marriages by Ages in the County of Brant, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 and over	Not stated	TOTAL
	15	7	56	19	1										
20	4	107	76	17	3	1									208
25		16	37	17	4	2									76
30		1	8	17	8	6	1	1							42
35		1	1	1	3	1	4								11
40					1	2	2	1	1	1	1				9
45				2		1	1		3						7
50								1			1				2
55										2			1		3
60															
65															
70															
Age not stated.												1		1	2
TOTALS	11	181	141	55	19	13	9	2	6	2	2	1	1	1	443

Marriages by Denominations in the County of Bruce, 1914.

GROOMS.	BRIDES.										TOTAL BARRS.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.		Others.	No Denomination.
Anglican	12	12	2	.....	2	.....	2	.....	.....	.....	1	.....	31
Presbyterian	9	67	17	1	4	1	1	1	.....	.....	2	.....	103
Methodist	8	16	53	.....	6	.....	.....	.....	.....	.....	.....	.....	83
Roman Catholic .....	.....	.....	2	47	.....	.....	1	.....	.....	.....	.....	.....	50
Baptist	1	5	1	.....	6	.....	.....	.....	.....	.....	.....	.....	13
Congregationalist .....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	3
Lutheran .....	.....	2	.....	1	.....	.....	9	.....	.....	.....	1	.....	13
Evangelical Association .....	.....	.....	1	.....	.....	.....	.....	3	.....	.....	.....	.....	4
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others	2	.....	2	.....	.....	.....	.....	.....	.....	.....	6	.....	10
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	32	102	78	49	18	4	13	4	1	.....	10	.....	311

Licenses, 268.

Banns, 43.

Marriages by Ages in the County of Bruce, 1914.

GROOMS.

BRIDES.	AoE.	15	20	25	30	35	40	45	50	55	60	65	70 and over	Not stated	TOTAL.
	15	4	36	8	4	1	1	1	1
20	1	44	45	14	9	1	.....	.....	.....	.....	.....	.....	.....	.....	114
25	.....	8	37	28	8	3	2	.....	.....	.....	.....	.....	.....	.....	86
30	.....	1	3	6	3	3	2	1	.....	.....	.....	.....	.....	.....	19
35	.....	.....	1	2	4	2	1	.....	1	1	.....	.....	.....	.....	12
40	.....	.....	.....	.....	2	2	2	2	1	.....	.....	.....	.....	.....	9
45	.....	.....	.....	.....	.....	1	.....	1	1	.....	.....	.....	.....	.....	3
50	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	1	.....	3
55	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	.....	.....	5
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	2
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Age not stated.	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
TOTALS.	5	89	94	55	27	13	7	6	6	3	2	4	.....	.....	311

Marriages by Denominations in the County of Carleton, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	165	52	33	4	4	2	3					2	265
Presbyterian.....	45	136	20	9	9	1	2					3	225
Methodist	22	20	83		4	1	1					1	138
Roman Catholic	38	9	6	398	1		1					6	459
Baptist	9	8	2	2	14							1	36
Congregationalist.....	1	1	2	1		5							10
Lutheran	2		1	1			14						18
Evangelical Association.....													
Hebrew				1					30				31
Salvation Army.....										5			5
Others		2										35	35
No Denomination.....													
TOTAL GROOMS.....	282	228	147	422	2	9	21		30	5	48		1,224

Licenses, 1,030.

Banns, 194.

Marriages by Ages in the County of Carleton, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 and over	Not stated	TOTAL.
	15	14	100	47	8	5	1	3	2						
20	9	254	191	41	19	5	2	1							529
25		39	137	86	25	9	3	2				1			302
30		2	25	52	19	13	7	2	1						121
35		1		10	20	11	1	4		1	1				49
40			1	2	2	5	6	6	3						25
45							1	5	3	4	2	1			16
50									2	1					3
55								1			3				4
60												1			1
65												1			1
70 & over															
Age not stated.															
TOTALS.	23	396	401	199	90	45	28	22	9	6	5				1,224

Marriages by Denominations in the County of Dufferin, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomin- ation.
Anglican	11	4	2										17
Presbyterian	5	27	9			1					2		44
Methodist	7	11	26								1		46
Roman Catholic.....													
Baptist		1			1						1		3
Congregationalist						1							1
Lutheran.....		1											1
Evangelical Association.....													
Hebrew													
Salvation Army.....										1			1
Others													
No Denomination.....													
TOTAL GROOMS	23	44	38		1	2				1	4		112

Licenses, 112.

Banns.

Marriage by Ages in the County of Dufferin, 1914:

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15		11	3			1							
20		24	27	8	2	2	1							64
25		2	11	4	1									18
30		1	1	4	2	1								9
35														1
40				1			1	1						3
45						1								1
50														
55														
60														
65												1		1
70 & over														
Age not stated														
TOTALS		38	42	17	5	5	3	1				1		112

Marriages by Denominations in the County of Elgin, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	27	6	8	2	8	1						1	53
Presbyterian	6	47	11		7	1	1	1				4	78
Methodist.....	15	9	103	2	15		1					2	147
Roman Catholic.....	1	1		7									9
Baptist	4	6	13		26							2	51
Congregationalist.....													
Lutheran												1	1
Evangelical Association..								1					1
Hebrew									1				1
Salvation Army.....										3			3
Others			1	1								11	13
No Denomination.....													
TOTAL GROOMS.....	53	69	136	12	56	2	2	2	1	3	21		357

Licenses, 349.

Banns, 8.

Marriages by Ages in the County of Elgin, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	9	39	12	2	1	2					1			
20		70	39	16	4		1	1					1		132
25		13	40	23	10	2	2								90
30		3	6	8	6	4	3	1		1					32
35			1	2	3	1		2							9
40				1		3	1	3			1				9
45					1	1	2	2	1			1			8
50								1		1					2
55							1								1
60								2							3
65												1	2		3
70 & over												1			1
Age not stated.		1													1
TOTALS	9	126	98	52	25	14	9	12	1	3	3	5			357

Marriages by Denominations in the County of Essex, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	155	14	22	4	7	3	5	.....	.....	.....	5	.....	215
Presbyterian	8	56	29	5	4	3	2	.....	.....	.....	3	.....	110
Methodist.....	19	26	208	9	23	4	7	.....	1	.....	9	.....	306
Roman Catholic.....	6	9	11	198	1	.....	7	.....	1	.....	2	.....	235
Baptist	5	10	17	2	46	2	2	.....	.....	.....	6	.....	90
Congregationalist.....	.....	1	2	3	.....	4	.....	.....	.....	.....	2	.....	12
Lutheran	5	1	6	4	3	.....	17	1	.....	.....	3	.....	40
Evangelical Association.....	.....	.....	.....	.....	3	.....	1	.....	.....	.....	.....	.....	4
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	6
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others	2	2	3	1	3	1	1	2	.....	.....	16	1	32
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	200	119	298	226	90	17	42	3	8	.....	46	1	1,050

Licenses, 894.

Banns, 156.

Marriages by Ages in the County of Essex, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	28	181	56	5	2	1
20	3	226	107	43	14	4	3	.....	.....	.....	.....	.....	.....	.....	400
25	1	29	83	41	26	5	3	2	1	.....	.....	.....	.....	.....	191
30	.....	3	11	43	20	8	2	3	1	.....	.....	.....	.....	.....	91
35	.....	.....	4	8	6	11	4	.....	.....	2	.....	.....	.....	.....	39
40	.....	.....	.....	3	7	7	6	1	2	2	.....	.....	.....	.....	28
45	.....	.....	.....	.....	1	1	5	4	.....	3	.....	.....	.....	.....	14
50	.....	.....	.....	.....	.....	1	.....	.....	1	.....	1	.....	.....	.....	7
55	.....	.....	.....	.....	.....	.....	.....	1	2	1	.....	.....	1	.....	5
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS.	32	439	261	143	76	38	24	20	6	7	3	1	.....	.....	1,050

Marriages by Denominations in the County of Frontenac, 1914.

GROOMS.	Banns.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	53	11	16	2	2	2					2		86
Presbyterian	10	33	10	1	1	1	1						56
Methodist	13	12	105	1	2	1							124
Roman Catholic	2			69	1	1					1		65
Baptist	2	2	1		2								7
Congregationalist	3	1	1		1	1							7
Lutheran			1										1
Evangelical Association													
Hebrew													
Salvation Army	1		1							1			2
Others		1	1	1							4		7
No Denomination													
TOTAL GROOMS	84	59	136	75	6	5	2			1	7		366

Licenses 341.

Banns, 25.

Marriages by Ages in the County of Frontenac, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
		15	9	50	18	4	6	2			1				
	20	1	70	52	19	6									129
	25	1	8	28	14	10	5	3							69
	30		1	6	8	11	3	1	1						31
	35				6	5	1	1	1	1					15
	40					2	3	1	2	1	1	1			11
	45					1	1	1	2						5
	50									1		1			2
	55										1				1
	60														
	65														
	70														
	Age not stated.			1										2	3
	TOTALS.	11	129	105	42	41	15	7	6	4	2	2		2	366

Marriages by Denominations in the County of Grey, 1914.

Grooms.	Brides.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	25	6	9	4	3						4		51	
Presbyterian	12	82	25	1	5		1				1		130	
Methodist.....	18	32	96	1	4		1			1	3		156	
Roman Catholic				23									23	
Baptist	3	8	9		12								34	
Congregationalist														
Lutheran		1	1		2		17	1			1		23	
Evangelical Association	1	2	1					7					11	
Hebrew														
Salvation Army.....										1			1	
Others			1		1						10		12	
No Denomination.....														
TOTAL GROOMS.....	59	131	145	29	27		19	8		2	21		441	

Licenses, 415.

Banns, 26.

Marriages by Ages in the County of Grey, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	5	24	32	9	2									
20		74	55	27	11	2		1							170
25		14	45	25	13	1	1								99
30		1	4	16	3	6	2	1							38
35	1		1	4	6	2	5	2		1					22
40					2	4	3	4	1	1					15
45						1		1	2		1				5
50							1		2	1		1			5
55										1		1			2
60								1				1			2
65											1				1
70 & over.															
Age not stated.															
TOTALS.	6	123	137	81	43	16	13	12	3	4	3				441

Marriages by Denominations in the County of Haldimand, 1914.

GROOMS.	Brides.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	15	4	3	.....	1	1	1	.....	.....	.....	2	.....	30
Presbyterian	6	17	3	.....	1	.....	.....	.....	.....	.....	.....	.....	27
Methodist	2	7	32	.....	3	.....	2	.....	.....	.....	1	.....	47
Roman Catholic.....	1	1	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	8
Baptist.....	.....	1	5	.....	13	.....	.....	.....	.....	.....	1	.....	20
Congregationalist .....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	5
Evangelical Association	1	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	3
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Others .....	.....	.....	2	.....	1	.....	.....	.....	.....	.....	4	.....	7
No Denomination .....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
TOTAL GROOMS	28	31	45	6	19	1	9	2	.....	1	8	.....	150

Licenses, 143.

Banns, 7.

Marriages by Ages in the County of Haldimand, 1914.

GROOMS

BRIDES.	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	3	17	10	3
20	33	24	7	6	2	.....	.....	.....	.....	.....	.....	.....	.....	72
25	4	8	6	3	1	.....	.....	.....	.....	.....	.....	.....	.....	22
30	1	5	1	1	2	.....	.....	.....	.....	.....	.....	.....	10
35	2	3	.....	2	.....	.....	.....	.....	.....	.....	.....	7
40	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	2
45	1	.....	.....	.....	.....	.....	2
50
55
60	1	.....	.....	.....	1
65	1	.....	.....	.....	1
70 & over
Age not stated
TOTALS	3	54	44	23	13	4	.....	1	.....	.....	2	1	.....	.....	150

Marriages by Denominations in the County of Haliburton, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	4	3	1	1									9
Presbyterian		2	2										4
Methodist	1	1	10										12
Roman Catholic													
Baptist													
Congregationalist													
Lutheran													
Evangelical Association													
Hebrew													
Salvation Army													
Others													
No Denomination													
TOTAL GROOMS	5	6	13	1									25

Licenses, 25.

Banns,

Marriages by Ages in the County of Haliburton, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	5	5	1										
20	1	3	1			1	1							7
25	1	2												3
30					1		1							2
35						1								1
40														
45														
50														
55														
60														
65														
70 & over												1		1
Age not stated.														
TOTALS	7	10	2		1	2	2					1		25

Mariages by Denominations in the County of Halton, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	21	9	9	1	.....	.....	.....	.....	.....	.....	.....	.....	40
Presbyterian	6	36	14	.....	1	1	.....	2	.....	.....	.....	.....	60
Methodist.....	3	13	28	.....	2	.....	.....	.....	.....	.....	.....	.....	46
Roman Catholic.....	2	1	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	7
Baptist.....	.....	1	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	11
Congregationalist.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Lutheran.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	32	61	51	5	13	1	1	2	.....	.....	.....	.....	166

Licenses, 161.

Banns, 5.

Mariages by Ages in the County of Halton, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	14	4	2
20	1	35	29	4	2	71
25 .....	.....	5	22	4	2	1	.....	.....	1	.....	1	.....	.....	.....	36
30 .....	.....	2	4	8	3	4	4	.....	.....	.....	.....	.....	.....	.....	25
35 .....	.....	.....	.....	2	1	1	2	.....	.....	.....	.....	.....	.....	.....	6
40 .....	.....	.....	1	.....	1	1	.....	1	.....	.....	.....	.....	.....	.....	4
45 .....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
50 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
60 .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
65 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Age not stated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	1	56	60	20	9	7	7	2	1	1	1	1	.....	.....	166

Marriages by Denominations in the County of Hastings, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican.....	19	11	28	3	1						4		96
Presbyterian	6	22	11	1									40
Methodist	29	17	203	6	1		1				4		262
Roman Catholic	1		3	31									35
Baptist	1		1	1	4								7
Congregationalist													
Lutheran							3						3
Evangelical Association													
Hebrew													
Salvation Army.....					1					1			2
Others			1								6		7
No Denomination.....													
TOTAL GROOMS	87	50	247	42	7		4			1	14		452

Licenses, 418.

Banns, 34.

Marriages by Ages in the County of Hastings, 1914.

GROOMS.

BRIDES.	GROOMS.												TOTAL		
	AGE.	15	20	25	30	35	40	45	50	55	60	65		70 & over	Not stated
15	6	79	33	5	3	2									128
20	3	93	53	24	6	1	1	1							182
25		18	37	15	4	1		1							76
30		2	11	11	6	1		1							32
35		1	1	1	2	5	2				1				13
40						1	3	1			1				6
45								3			1	1			5
50						1			1	1					3
55										2	1	1			4
60											1	2			3
65															
70 & over															
Age not stated.															
TOTALS	9	193	135	56	23	13	7	1	3	5	4				452

Marriages by Denominations in the County of Huron, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	24	6	10		3							1		44
Presbyterian	12	71	24		1		2							110
Methodist.....	15	19	83	1	2									120
Roman Catholic				19										19
Baptist		5	1		3			1						10
Congregationalist														
Lutheran		1	2				4							7
Evangelical Association		1	3					3						7
Hebrew														
Salvation Army.....														
Others		1	1									2		4
No Denomination.....		1	1											2
TOTAL GROOMS.....	51	105	125	20	9		6	4				3		323

Licenses, 309.

Banns, 14.

Marriages by Ages in the County of Huron, 1914.

GROOMS.

BRIDES	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	1	27	13	1	1									
20		61	48	13	6		1								129
25		7	34	22	6	9	1								79
30		2	7	11	5	7	4	1	1						38
35		2				5	6	1		1					15
40			1			1	1	1	2	2					8
45							2	1		1	1	1			6
50										1		1			2
55															
60															
65															
70 & over															
Age not stated.....		1	1	1											3
TOTALS.	1	100	104	48	24	25	9	3	6	1	2				323

Marriages by Denominations in the County of Kenora, 1914.

GROOMS	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian	Methodist.	Roman Catholic.	Baptist.	Congregationalist	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	6	2		1		1							10
Presbyterian	5	12		1	1								19
Methodist.....	1	2	4				1						8
Roman Catholic	1	1	2	9									13
Baptist.....					1						1		2
Congregationalist.....													
Lutheran	2	2	1				8						13
Evangelical Association													
Hebrew													
Salvation Army.....													
Others											6		6
No Denomination.....													
TOTAL GROOMS	15	19	7	11	2	1	9				7		71

Licenses, 62.

Banns, 9.

Marriages by Ages in the County of Kenora, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	1	12	7												20
20		7	17	5	2										31
25		1	6	4	1										12
30			1	2	2		1								6
35															
40															
45							2								2
50															
55															
60															
65															
70 & over															
Age not stated.															
TOTALS	1	20	31	11	5		3								71

Marriages by Denominations in the County of Kent, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others	No Denomination.		
Anglican	37	6	14	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	61
Presbyterian	4	56	19	3	3	.....	.....	1	.....	.....	.....	1	.....	87
Methodist.....	17	19	115	.....	9	.....	1	.....	.....	.....	.....	2	.....	163
Roman Catholic	2	3	5	77	.....	.....	.....	.....	.....	.....	.....	.....	.....	87
Baptist	6	5	6	1	22	.....	.....	.....	.....	.....	.....	1	.....	41
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	3
Others .....	.....	.....	3	1	.....	.....	.....	.....	.....	.....	.....	5	.....	9
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	66	89	162	82	36	.....	1	1	.....	3	11	.....	.....	451

Licenses, 396.

Banns, 55.

Marriages by Ages in the County of Kent, 1914.

GROOMS.

BRIDES.	AGES.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	12	90	18	4	2	1
20	5	99	49	17	3	2	2	.....	.....	.....	.....	.....	.....	.....	177
25	.....	16	29	19	7	5	.....	.....	.....	.....	.....	.....	.....	.....	76
30	.....	.....	9	4	7	5	3	1	.....	.....	.....	.....	.....	.....	29
35	.....	.....	1	1	4	5	4	1	.....	.....	.....	.....	.....	.....	17
40	.....	.....	.....	.....	1	2	2	3	1	.....	.....	.....	.....	.....	9
45	.....	.....	.....	.....	.....	.....	2	2	4	1	.....	.....	.....	.....	9
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
55	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	1	.....	.....	3
60	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	.....	.....	2
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS.	17	205	106	45	24	20	14	9	6	2	2	1	.....	.....	451

Marriages by Denominations in the County of Lambton, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	34	9	9	.....	4	.....	2	.....	.....	.....	2	.....	60
Presbyterian.....	11	56	22	1	4	1	1	1	.....	.....	2	.....	1
Methodist	17	25	110	.....	8	2	.....	1	.....	.....	2	.....	175
Roman Catholic	2	3	5	22	.....	.....	.....	.....	.....	.....	1	.....	33
Baptist	7	10	5	.....	26	1	1	.....	.....	.....	2	.....	52
Congregationalist.....	2	2	3	.....	.....	3	.....	.....	.....	.....	.....	.....	10
Lutheran	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
Others .....	.....	2	2	.....	1	.....	.....	.....	.....	.....	5	.....	10
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
TOTAL GROOMS	74	117	157	23	43	7	4	2	1	2	14	1	445

Licenses, 439.

Banns, 15.

Marriages by Ages in the County of Lambton, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
		15	9	50	18	2	2
	20	3	91	63	19	3	1	1	.....	.....	.....	.....	.....	.....	181
	25	.....	15	52	17	9	2	2	3	.....	.....	.....	.....	.....	100
	30	.....	2	8	13	2	4	.....	.....	.....	1	.....	.....	.....	50
	35	.....	.....	.....	5	7	4	.....	3	2	.....	.....	.....	.....	21
	40	.....	.....	.....	1	1	3	2	1	.....	.....	.....	.....	.....	8
	45	.....	.....	.....	2	.....	.....	2	1	1	1	1	.....	.....	8
	50	.....	.....	.....	.....	.....	.....	.....	4	.....	1	.....	1	.....	6
	55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
	60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
	65	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	2
	70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
	Age not stated.	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	2	4
	TOTALS	12	158	142	59	25	14	7	12	4	4	3	3	.....	445

Marriages by Denominations in the County of Lanark, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	35	12	11	.....	3	.....	.....	.....	.....	.....	1	.....	62
Presbyterian	18	42	5	2	2	4	.....	.....	.....	.....	.....	.....	73
Methodist.....	9	11	26	1	1	.....	.....	.....	.....	.....	.....	.....	48
Roman Catholic.....	.....	2	3	37	.....	.....	.....	.....	.....	.....	.....	.....	42
Baptist	2	.....	4	.....	3	.....	.....	.....	.....	.....	.....	.....	9
Congregationalist.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	3
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	65	68	41	40	9	5	.....	.....	.....	.....	3	.....	239

Licenses, 214.

Banns, 25.

Marriages by Ages in the County of Lanark, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTALS	
	AGES.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	2	25	7	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	35
20	2	45	34	16	2	.....	1	.....	.....	.....	.....	.....	.....	.....	100
25	.....	3	24	19	3	1	.....	.....	.....	.....	1	.....	.....	.....	51
30	.....	1	3	9	10	5	1	.....	.....	.....	.....	.....	.....	.....	29
35	.....	1	.....	.....	4	2	1	.....	.....	1	1	.....	.....	.....	10
40	.....	.....	.....	2	.....	1	1	.....	.....	1	.....	.....	.....	.....	5
45	.....	.....	.....	.....	.....	.....	1	2	1	1	.....	.....	.....	.....	5
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	2
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
TOTALS.	4	75	68	46	20	9	5	2	2	4	3	.....	.....	1	239

Marriages by Denominations in the Counties of Leeds and Grenville, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	37	13	23	3	1	.....	1	.....	.....	.....	.....	.....	78
Presbyterian	11	33	15	4	1	.....	.....	.....	.....	.....	.....	.....	64
Methodist	16	23	101	1	5	.....	.....	.....	.....	1	3	.....	150
Roman Catholic	8	1	2	33	.....	.....	.....	.....	.....	.....	1	.....	45
Baptist	2	1	2	.....	5	.....	.....	.....	.....	.....	.....	.....	10
Congregationalist .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....	4
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	74	71	145	41	12	.....	1	.....	1	1	7	.....	853

Licenses, 327.

Banns, 26.

Marriages by Ages in the Counties of Leeds and Grenville, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	3	49	12	1	1	1	.....	67
20	2	65	42	23	5	1	.....	1	.....	.....	.....	.....	.....	.....	139
25	.....	9	27	16	7	2	2	1	.....	.....	.....	.....	.....	.....	64
30	.....	4	5	17	11	5	.....	1	.....	.....	.....	.....	.....	.....	43
35	.....	.....	2	5	7	5	1	.....	.....	.....	.....	.....	.....	.....	20
40	.....	.....	2	.....	.....	.....	1	2	1	2	1	.....	.....	.....	9
45	.....	.....	.....	.....	.....	.....	.....	3	1	1	1	.....	.....	.....	6
50	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	3
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS.	5	127	90	62	31	14	8	6	3	3	3	1	3	.....	253

Marriages by Denominations in the Counties of Lennox and Addington, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	9	1	6	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	17
Presbyterian.....	1	2	2	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	6
Methodist	9	5	76	.....	2	.....	.....	.....	.....	.....	4	.....	.....	96
Roman Catholic	1	1	1	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	17
Baptist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Congregationalist.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	21	9	85	14	3	1	1	1	.....	1	4	.....	.....	139

Licenses, 121.

Banns, 18.

Marriages by Ages in the Counties of Lennox and Addington, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	2	25	11	3
20	24	13	4	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
25	6	8	4	1	1	.....	.....	.....	.....	.....	.....	.....	20
30	1	3	1	1	1	1	.....	.....	.....	.....	.....	.....	8
35	1	.....	.....	.....	.....	3	2	1	.....	.....	.....	.....	.....	7
40
45	1	.....	.....	1	.....	.....	.....	.....	2
50	1	1	.....	.....	.....	.....	2
55	1	1	.....	2
60
65	1	1	.....	1	.....	3
70 & over
Age not stated.
TOTALS	2	60	31	15	11	6	4	3	3	1	1	2	1	.....	139

Marriages by Denominations in the County of Lincoln, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	70	10	18	5	4	1					2		110	
Presbyterian	16	32	6	1	1						2		58	
Methodist.....	7	13	69	1	3		2				1		96	
Roman Catholic.....	6	4	1	54			1		1		2		69	
Baptist.....	4	4	7		16						2		33	
Congregationalist.....			2	1	1								4	
Lutheran.....			1				1						2	
Evangelical Association.....								1					1	
Hebrew.....														
Salvation Army.....	2												2	
Others.....			2	1	1						13		17	
No Denomination.....												1	1	
TOTAL GROOMS.....	195	63	106	63	26	1	4	1	1		22	1	393	

Licenses, 359.

Banns, 31.

Marriages by Ages in the County of Lincoln, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	9	59	15	1		1								
20	3	86	59	22	2	2		1							175
25		12	39	19	13	1		1							85
30	1	1	5	9	6	3	1	1							27
35		1		1	3	1	2	1							9
40				1	1	2	1	2		2					9
45								1	2	1			1		5
50									3						3
55											1	1			2
60												1			1
65												1			1
70 & over															
Age not stated.															
TOTALS.	13	150	118	53	25	10	5	11	1	3	3	1			393

Marriages by Denominations in the County of Manitoulin, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	9		1											10
Presbyterian	2	13					1					1		17
Methodist.....	1	1	7		1									10
Roman Catholic.....				4										4
Baptist		1			2									3
Congregationalist.....														
Lutheran							1							1
Evangelical Association.....														
Hebrew														
Salvation Army.....														
Others														
No Denomination.....														
TOTAL GROOMS	12	15	8	4	3		2					1		45

Licenses, 44.

Banns, 1.

Marriages by Ages in the County of Manitoulin, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	1	8	2	1										
20		7	9	1	3			1							21
25				6	3										9
30															
35															
40							1								1
45									1						1
50															
55															
60															
65															
70 & over												1			1
Age not stated.															
TOTALS.		1	15	17	5	3	1	1	1			1			45

Marriages by Denominations in the County of Middlesex, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	147	26	30	3	13	.....	.....	.....	.....	.....	3	.....	222
Presbyterian.....	33	122	37	4	8	.....	.....	.....	.....	.....	4	.....	208
Methodist.....	37	32	201	2	8	3	2	.....	.....	.....	6	.....	291
Roman Catholic.....	5	1	3	41	2	.....	.....	.....	.....	.....	.....	.....	52
Baptist.....	5	11	22	.....	46	.....	.....	.....	.....	.....	.....	.....	84
Congregationalist.....	1	1	3	.....	1	.....	.....	.....	.....	.....	.....	.....	6
Lutheran.....	2	.....	1	.....	1	.....	1	.....	.....	.....	.....	.....	5
Evangelical Association.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	5
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	7
Others.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	14	.....	17
No Denomination.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	2
TOTAL GROOMS.....	231	194	299	50	80	3	3	1	5	7	27	.....	900

Licenses, 863.

Banns, 37.

Marriages by Ages in the County of Middlesex, 1914.

GROOMS

BRIDES.	GROOMS												TOTAL		
	AGE.	15	20	25	30	35	40	45	50	55	60	65		70 & over	Not stated
15	6	82	31	3	1	2	1	.....	.....	.....	.....	.....	.....	.....	126
20	5	198	138	50	12	4	.....	.....	.....	.....	.....	.....	.....	.....	407
25	.....	26	107	49	19	7	.....	.....	.....	.....	.....	.....	.....	.....	208
30	.....	4	15	28	18	7	.....	2	2	2	.....	.....	.....	.....	78
35	.....	1	1	12	8	5	6	.....	3	.....	.....	1	.....	.....	37
40	.....	.....	.....	2	1	6	1	2	3	1	.....	.....	.....	.....	16
45	.....	.....	1	.....	.....	.....	2	4	.....	1	1	.....	.....	.....	9
50	.....	.....	.....	.....	.....	1	1	.....	2	6	.....	.....	.....	.....	10
55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	.....	.....	.....	3
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Age not stated.	.....	.....	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	3
TOTALS	11	311	294	144	59	32	11	9	13	10	3	3	.....	.....	900

Marriages by Denominations in the District of Muskoka, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	16	1	6	1	1	.....	.....	.....	.....	.....	.....	.....	25
Presbyterian	6	27	13	.....	1	2	1	.....	.....	.....	.....	.....	50
Methodist.....	4	6	30	.....	4	.....	1	.....	.....	.....	.....	.....	45
Roman Catholic.....	1	.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	9
Baptist.....	2	.....	2	.....	6	.....	.....	.....	.....	.....	.....	.....	10
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	3
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	29	34	51	9	12	2	2	.....	.....	.....	3	.....	142

Licenses, 131.

Banns 11.

Marriages by Ages in the District of Muskoka, 1914.

GROOMS.

BRIDES.	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	2	29	8	2
20	29	17	8	1	1	1	.....	.....	.....	.....	1	.....	.....	58
25	4	14	4	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	23
30	1	4	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	8
35	2	.....	1	1	.....	1	.....	.....	.....	5
40	1	1	.....	.....	.....	.....	.....	1	.....	.....	.....	3
45	1	.....	.....	.....	.....	.....	.....	.....	1
50	1	.....	.....	.....	.....	1
55
60
65
70 & over
Age not stated.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
TOTALS.	2	62	41	19	4	5	3	1	1	2	1	1	.....	.....	142

Marriages by Denominations in the District of Nipissing, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	27	3	3	2	.....	.....	.....	.....	.....	.....	.....	.....	36
Presbyterian	3	22	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
Methodist	4	7	21	1	2	.....	.....	.....	.....	1	.....	.....	36
Roman Catholic	3	2	1	150	.....	.....	.....	.....	.....	.....	.....	.....	156
Baptist.....	1	.....	.....	1	3	.....	.....	.....	.....	.....	.....	.....	5
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran.....	.....	2	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	4
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	3
Others .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
TOTAL GROOMS	38	36	31	155	5	.....	2	.....	1	4	1	.....	273

Licenses, 217.

Banns, 56.

Marriages by Ages in the District of Nipissing, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL.	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	7	52	38	2	1	1	.....	1	.....	.....	.....	.....	.....	.....	102
20	1	42	48	10	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	104
25	.....	3	21	3	3	.....	1	.....	.....	.....	.....	.....	.....	.....	31
30	.....	1	4	4	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	10
35	.....	.....	1	1	3	2	4	.....	.....	.....	.....	.....	.....	.....	11
40	.....	1	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....	.....	5
45	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	1	.....	.....	3
50	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	3
TOTALS	8	99	113	20	10	5	10	2	1	2	1	.....	.....	2	273

Marriages by Denominations in the County of Norfolk, 1914.

GROOMS.	BRIDES.	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	TOTAL BRIDES.
Anglican.....	15	2	4	1	2	.....	.....	.....	.....	.....	.....	.....	.....	24
Presbyterian	3	6	5	.....	6	.....	.....	.....	.....	.....	1	.....	.....	21
Methodist.....	5	6	69	1	11	.....	1	.....	.....	.....	.....	.....	.....	93
Roman Catholic .....	.....	.....	2	5	2	.....	.....	.....	.....	.....	.....	.....	.....	9
Baptist	5	2	15	1	49	.....	.....	.....	.....	.....	.....	3	.....	75
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Evangelical Association.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	3
Others	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	29	16	95	8	70	.....	2	.....	.....	.....	3	5	.....	238

Licenses, 223.

Banns, 5.

Marriages by Ages in the County of Norfolk, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	8	45	12	2	1
20	2	44	31	7	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	86
25	1	4	14	7	3	1	.....	.....	.....	.....	.....	.....	1	.....	31
30	.....	1	5	2	4	4	2	.....	.....	.....	.....	.....	.....	.....	18
35	.....	1	.....	3	5	1	1	3	.....	.....	.....	.....	.....	.....	14
40	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	2
45	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	2
50	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	2
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	11	95	62	22	16	7	4	3	1	4	.....	3	.....	.....	238

Marriages by Denominations in the Counties of Northumberland and Durham, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist	Congregationalist	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	41	2	13	.....	.....	1	1	.....	.....	.....	1	.....	59
Presbyterian	10	33	20	1	.....	2	.....	.....	.....	.....	.....	.....	66
Methodist.....	18	28	143	.....	2	1	.....	.....	.....	.....	4	.....	196
Roman Catholic.....	3	.....	.....	19	1	.....	.....	.....	.....	.....	.....	.....	23
Baptist.....	1	1	4	.....	11	.....	.....	.....	.....	.....	.....	.....	17
Congregationalist.....	2	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	4
Lutheran.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	4
Others	1	1	.....	.....	.....	1	.....	.....	.....	.....	7	.....	10
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	76	65	181	20	14	6	1	.....	.....	4	12	.....	379

Licenses, 364.

Banns, 15.

Marriages by Ages in the Counties of Northumberland and Durham, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL.	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	3	20	18	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
20	2	86	60	16	6	3	.....	.....	.....	.....	.....	.....	.....	.....	173
25	.....	9	42	11	5	3	2	.....	.....	1	.....	.....	.....	.....	73
30	.....	1	7	9	6	2	4	1	2	.....	.....	.....	.....	.....	32
35	.....	.....	.....	4	10	3	4	2	.....	.....	.....	.....	.....	.....	23
40	.....	1	2	.....	1	4	.....	3	1	.....	.....	1	.....	.....	13
45	.....	.....	.....	.....	.....	.....	2	2	2	.....	.....	.....	.....	.....	6
50	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	1	.....	3
55	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	1	.....	3
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
TOTALS.	6	126	120	41	28	15	12	9	7	2	.....	4	.....	.....	379

Marriages by Denominations in the County of Ontario, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	40	5	14	.....	1	.....	.....	.....	.....	.....	.....	.....	60
Presbyterian	2	53	15	3	3	.....	.....	.....	.....	.....	3	.....	79
Methodist.....	11	12	98	2	5	.....	.....	.....	.....	1	1	.....	130
Roman Catholic	1	.....	.....	14	.....	.....	.....	.....	.....	.....	.....	.....	15
Baptist	1	4	5	.....	7	.....	.....	.....	.....	.....	.....	.....	17
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others	1	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....	5
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	56	74	133	19	16	.....	1	.....	1	1	7	.....	308

Licenses, 296.

Banns, 12.

Marriages by Ages in the County of Ontario, 1914.

GROOMS.

BRIDES.	GROOMS.												TOTAL.		
	AGE.	15	20	25	30	35	40	45	50	55	60	65		70 & over	Not stated
15	6	37	12	3	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	59
20	45	39	24	8	2	1	.....	.....	.....	.....	.....	.....	.....	119
25	11	33	19	9	1	.....	.....	.....	.....	.....	.....	.....	.....	76
30	3	11	8	3	2	.....	.....	.....	.....	.....	.....	.....	27
35	2	2	4	.....	.....	.....	1	.....	.....	.....	.....	.....	9
40	3	3	1	.....	1	.....	.....	.....	.....	8
45	1	2	.....	3	.....	.....	1	.....	.....	.....	7
50	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	2
55
60
65
70 & over	1
Age not stated.
TOTALS.	6	93	92	60	30	11	6	4	3	1	1	.....	.....	.....	308

Marriages by Denominations in the County of Oxford, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	56	6	14	.....	4	1	.....	.....	.....	.....	1	.....	82
Presbyterian	9	60	19	.....	6	2	1	.....	.....	.....	.....	.....	97
Methodist	9	19	79	.....	14	.....	.....	.....	.....	1	1	.....	123
Roman Catholic .....	.....	.....	.....	17	.....	.....	.....	.....	.....	.....	.....	.....	17
Baptist	4	4	16	1	31	.....	.....	.....	.....	.....	1	.....	57
Congregationalist.....	.....	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	3
Lutheran .....	.....	3	1	.....	.....	.....	5	.....	.....	.....	.....	.....	9
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	.....	10
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	78	93	130	18	55	4	6	1	.....	2	13	.....	400

Licenses, 379.

Banns, 21.

Marriages by Ages in the County of Oxford, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	4	44	19	2	3
20	1	84	57	17	4	2	.....	.....	.....	.....	.....	.....	.....	.....	165
25	.....	19	38	18	8	5	.....	.....	.....	.....	.....	.....	.....	.....	88
30	.....	2	7	12	6	2	4	1	.....	.....	.....	.....	.....	.....	34
35	.....	.....	1	3	7	1	2	2	1	.....	.....	.....	.....	.....	17
40	.....	.....	.....	.....	2	3	3	2	2	.....	.....	.....	.....	.....	12
45	.....	.....	.....	.....	.....	.....	.....	3	.....	1	.....	.....	.....	.....	4
50	.....	.....	.....	.....	.....	.....	.....	2	1	1	.....	.....	.....	.....	4
55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	2
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	2
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	5	149	122	52	30	13	9	10	5	3	2	.....	.....	.....	400

Marriages by Denominations in the District of Parry Sound, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	19	9	13	1	.....	.....	.....	.....	.....	.....	2	.....	44
Presbyterian	3	32	4	2	.....	.....	.....	.....	.....	.....	1	.....	42
Methodist.....	9	5	38	1	2	.....	.....	.....	.....	.....	.....	.....	55
Roman Catholic .....	.....	.....	1	21	.....	.....	1	.....	.....	.....	2	.....	35
Baptist .....	.....	.....	1	.....	6	.....	.....	.....	.....	.....	.....	.....	7
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Evangelical Association .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	32	46	59	35	8	.....	1	.....	.....	.....	5	.....	186

Licenses, 161.

Banns, 22.

Marriages by Ages in the District of Parry Sound, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	3	34	16	6	4	1
20	1	20	42	8	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	75
25	.....	6	15	6	1	1	.....	.....	.....	.....	.....	.....	.....	.....	29
30	.....	1	2	4	1	.....	1	.....	1	.....	.....	.....	.....	.....	10
35	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
40	.....	.....	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	3
45	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
50	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	4	61	76	26	12	3	1	2	1	.....	.....	.....	.....	.....	186

Marriages by Denominations in the County of Peel, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	20	5	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
Presbyterian	5	22	12	1	2	.....	.....	.....	.....	.....	.....	.....	42
Methodist.....	5	7	32	.....	3	.....	.....	.....	.....	.....	.....	.....	47
Roman Catholic.....	1	.....	.....	12	.....	.....	.....	.....	.....	.....	.....	.....	13
Baptist .....	.....	2	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	31	36	51	13	5	.....	.....	.....	.....	.....	1	.....	137

Licenses, 128.

Banns, 9.

Marriages by Ages in the County of Peel, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	6	2	2
20	1	24	23	8	6	2	.....	.....	.....	.....	.....	.....	.....	.....	64
25 .....	.....	4	23	11	2	1	.....	.....	.....	.....	.....	.....	.....	.....	41
30 .....	.....	1	3	4	1	.....	1	.....	.....	.....	.....	.....	.....	.....	12
35 .....	.....	.....	.....	2	1	1	1	1	.....	.....	.....	.....	.....	.....	6
40 .....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	1	.....	.....	.....	3
45 .....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
50 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65 .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS.	1	35	51	27	10	6	4	1	1	1	.....	.....	.....	.....	137

Marriages by Denominations in the County of Perth, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	36	20	12	1	2	.....	.....	.....	.....	.....	.....	1	.....	72
Presbyterian.....	11	47	17	.....	5	1	8	1	.....	.....	.....	2	.....	92
Methodist.....	12	8	56	.....	1	.....	2	2	.....	.....	.....	.....	.....	81
Roman Catholic.....	1	1	2	31	.....	.....	1	.....	.....	.....	.....	.....	.....	36
Baptist .....	.....	2	2	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	9
Congregationalist.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	2
Lutheran	3	3	6	.....	1	.....	35	.....	.....	.....	.....	1	.....	49
Evangelical Association.....	.....	2	1	.....	.....	.....	3	10	.....	.....	.....	.....	.....	16
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	6
No Denomination.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	3
TOTAL GROOMS	63	83	98	32	14	2	50	13	.....	2	10	1	.....	368

Licenses, 351.

Banns, 17.

Marriages by Ages in the County of Perth, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL.	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	20	14	3	2	.....	1	.....	.....	.....	.....	.....	.....	.....	40
20	1	77	69	16	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	171
25	12	47	28	7	2	.....	.....	.....	.....	.....	.....	.....	.....	96
30	1	6	8	7	5	2	.....	1	.....	.....	.....	.....	.....	30
35	1	1	4	3	1	.....	.....	.....	.....	.....	.....	.....	10
40	1	.....	.....	1	.....	.....	2	.....	.....	.....	.....	.....	4
45	2	.....	1	.....	2	1	.....	.....	.....	6
50	1	1	.....	3	1	.....	.....	.....	6
55	1	.....	1	.....	.....	.....	2
60	2	1	.....	.....	3
65
70 & over
Age not stated
TOTALS.	1	110	138	56	28	13	5	2	4	5	5	1	.....	.....	368

Marriages by Denominations in the County of Peterborough, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	50	7	13	3	2	.....	.....	.....	.....	.....	.....	1	.....	76
Presbyterian	6	42	24	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	73
Methodist	10	23	75	2	3	1	.....	.....	.....	.....	.....	2	.....	116
Roman Catholic	2	1	.....	66	1	.....	.....	.....	.....	.....	.....	.....	.....	70
Baptist	3	1	2	.....	3	.....	1	.....	.....	.....	.....	.....	.....	10
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army .....	.....	.....	1	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	3
Others	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	4
No Denomination .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2
TOTAL GROOMS.....	72	75	117	71	10	1	1	.....	.....	2	4	1	.....	354

Licenses, 291.

Banns, 63.

Marriages by Ages in the County of Peterborough, 1914.

GROOMS.

BRIDES.	GROOMS.													Not stated	TOTAL
	AoE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		
15	2	30	15	5	4	1	.....	.....	.....	.....	.....	.....	.....	.....	57
20	3	96	43	14	4	1	.....	.....	.....	.....	.....	.....	.....	.....	161
25	.....	8	34	14	10	1	.....	1	.....	.....	.....	.....	.....	.....	68
30	.....	1	6	12	3	3	4	1	.....	.....	.....	.....	.....	.....	30
35	.....	.....	2	3	2	1	5	2	.....	.....	.....	.....	.....	.....	15
40	.....	.....	.....	1	1	.....	3	1	.....	.....	.....	.....	.....	.....	6
45	.....	.....	.....	1	1	.....	2	2	1	1	.....	.....	.....	.....	8
50	.....	.....	.....	.....	.....	.....	2	1	2	1	.....	.....	.....	.....	6
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	5	135	100	50	25	7	16	8	4	4	.....	.....	.....	.....	354

Marriages by Denominations in the Counties of Prescott and Russell, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	11	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
Presbyterian	4	22	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
Methodist	3	4	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
Roman Catholic	1	1	.....	273	.....	.....	.....	.....	.....	.....	.....	.....	275
Baptist .....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	19	31	7	273	.....	.....	.....	.....	.....	.....	.....	.....	330

Licenses, 211.

Banns, 119.

Marriages by Ages in the Counties of Prescott and Russell, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	8	61	28	7	1
20	2	71	56	9	1	1	1	.....	.....	.....	.....	.....	.....	1	142
25	.....	6	15	9	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
30	.....	1	4	6	2	2	2	.....	.....	.....	.....	.....	.....	.....	17
35	.....	.....	.....	1	.....	2	1	.....	.....	.....	.....	.....	.....	.....	4
40	.....	.....	.....	1	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	4
45	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	2
50	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2
55	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14	14
TOTALS	10	139	103	33	11	8	5	2	2	.....	1	1	15	.....	330

Marriages by Denominations in the County of Prince Edward, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	5	4	4										13
Presbyterian.....		1	3	1	1						1		7
Methodist.....	5	3	76	1	1	1					2		87
Roman Catholic.....	2	1		2									5
Baptist.....	2				2								4
Congregationalist.....													
Lutheran.....													
Evangelical Association.....													
Hebrew.....													
Salvation Army.....													
Others.....											1		1
No Denomination.....													
TOTAL GROOMS.....	12	9	83	4	4	1					4		117

Licenses, 115.

Banns, 2.

Marriages by Ages in the County of Prince Edward, 1914.

GROOMS.

AGE.	BRIDES.											TOTAL.		
	15	20	25	30	35	40	45	50	55	60	65		70 & over	Not stated
15	1	23	1	3										28
20	2	37	15	2	2	2								60
25			7	3	1	2								13
30		1	1	2	4		1							9
35														
40							1							1
45									1	1				2
50											1			1
55														
60										1	2			3
65														
70 & over														
Age not stated.														
TOTALS.	3	61	24	10	7	4	2		1	2	3			117

Marriages by Denominations in the District of Rainy River, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	5	3	2		1									11
Presbyterian	3	17	5	1	2									28
Methodist.....	1	3	12	3			2							21
Roman Catholic.....		2	3	33										38
Baptist	1	1	1		2									5
Congregationalist.....														
Lutheran	3	1	2		1		11							18
Evangelical Association														
Hebrew														
Salvation Army.....														
Others											4			4
No Denomination.....														
TOTAL GROOMS.....	12	27	25	37	6		13				4			125

Licenses, 105.

Banns, 20.

Marriages by Ages in the District of Rainy River, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15			17	13	6	3								
20			18	21	3	4	2								48
25			1	7	9	4		1							22
30			1	2	4	1	3								11
35					1										1
40						1				1					2
45									1						1
50															
55															
60															
65															
70 & over															
Age not stated.			1												1
TOTALS.....			38	43	23	13	5	1	1	1					125

Marriages by Denominations in the County of Renfrew, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	23	5	5	.....	1	1	1	.....	.....	.....	1	.....	36
Presbyterian	4	56	18	2	3	.....	1	2	.....	.....	.....	.....	86
Methodist.....	3	8	29	.....	1	.....	2	1	.....	1	.....	.....	45
Roman Catholic	4	4	.....	124	1	.....	.....	.....	.....	.....	2	.....	135
Baptist .....	.....	4	1	1	14	.....	3	.....	.....	.....	.....	.....	23
Congregationalist.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	2	4	.....	.....	.....	51	.....	.....	.....	.....	.....	57
Evangelical Association .....	.....	1	1	.....	2	.....	2	14	.....	.....	.....	.....	20
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	4
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	33	81	59	127	22	1	60	17	.....	1	7	.....	408

Licenses, 218.

Banns, 90.

Marriages by Ages in the County of Renfrew, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	5	41	20	5	2	1
20	2	83	76	26	8	2	2	.....	.....	.....	.....	.....	.....	.....	199
25	.....	9	33	21	9	6	2	.....	.....	.....	.....	.....	.....	.....	80
30	.....	1	8	8	1	2	.....	2	.....	.....	.....	.....	.....	.....	22
35	.....	1	1	4	5	1	1	1	.....	1	.....	.....	.....	.....	15
40	.....	.....	.....	.....	.....	1	1	3	2	1	1	.....	.....	.....	9
45	.....	.....	.....	.....	.....	.....	.....	1	.....	2	.....	.....	.....	.....	3
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
TOTALS	7	135	139	67	24	14	10	5	4	2	.....	1	.....	.....	408

Marriages by Denominations in the County of Simcoe, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	67	25	22	2	6	2					2		126
Presbyterian.....	31	86	36	1	4						1		159
Methodist.....	23	31	98		2		1			1	3		159
Roman Catholic		1		113									114
Baptist	2	2	4		8	1	1				1		19
Congregationalist.....			1										1
Lutheran													
Evangelical Association								1					1
Hebrew									3				3
Salvation Army.....	1												1
Others					2							14	16
No Denomination.....													
TOTAL GROOMS	124	145	161	116	22	3	2	1	3	1	21		599

Licenses, 593.

Banns, 96.

Marriages by Ages in the County of Simcoe, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	5	77	46	12	5	1	2	1						
20	2	81	86	32	9	1	1								212
25		13	55	38	13	2	1								122
30		2	11	25	10	6	2								56
35		1	3	3	5	2	4	1	1						20
40				1	2	5		6	1						15
45					1	1	4	2							8
50								2	1	1	1				5
55										1	1	1			3
60												1	1		2
65												3	1		4
70 & over															
Age not stated.		1	1											1	3
TOTALS	7	175	202	111	45	18	16	11	4	2	5	2	1		599

Marriages by Denominations in the Counties of Stormont, Dundas and Glengarry, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	15	11	11	3	.....	.....	2	.....	.....	.....	.....	.....	42
Presbyterian.....	11	78	25	2	3	2	1	.....	.....	.....	.....	.....	122
Methodist.....	6	18	52	7	4	1	1	.....	.....	.....	1	.....	90
Roman Catholic.....	6	5	1	136	1	.....	.....	.....	.....	.....	.....	2	151
Baptist.....	.....	2	3	.....	2	.....	1	.....	.....	.....	.....	.....	8
Congregationalist.....	.....	1	1	.....	.....	2	.....	.....	.....	.....	.....	.....	4
Lutheran.....	2	1	1	.....	.....	.....	8	.....	.....	.....	.....	.....	12
Evangelical Association.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	40	116	94	148	10	5	13	.....	.....	.....	2	2	430

Licenses, 343.

Banns, 87.

Marriages by Ages in the Counties of Stormont, Dundas and Glengarry, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	5	55	22	3	1	1
20	4	81	56	25	10	2	2	1	1	.....	.....	.....	.....	.....	180
25	.....	9	41	32	8	2	.....	.....	.....	.....	.....	.....	.....	.....	92
30	.....	2	6	9	7	3	3	4	1	.....	.....	.....	.....	.....	32
35	.....	.....	.....	3	3	2	1	5	.....	.....	.....	1	.....	.....	15
40	.....	.....	.....	.....	1	1	1	3	2	2	.....	1	.....	.....	10
45	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	.....	.....	.....	3
50	.....	.....	.....	.....	.....	.....	.....	.....	1	2	.....	.....	.....	.....	3
55	.....	.....	1	.....	.....	.....	.....	.....	1	1	.....	.....	1	.....	4
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	2
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
TOTALS.	9	147	127	73	30	11	11	11	7	1	2	1	.....	.....	430

Marriages by Denominations in the District of Thunder Bay, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	74	11	10	2	3	.....	.....	.....	.....	.....	1	.....	101
Presbyterian	11	57	11	4	3	.....	1	.....	.....	.....	.....	.....	87
Methodist.....	4	16	29	2	.....	1	2	.....	.....	.....	1	.....	55
Roman Catholic	4	2	3	123	.....	.....	.....	.....	.....	.....	3	.....	135
Baptist	2	3	1	.....	7	.....	.....	.....	.....	.....	1	.....	14
Congregationalist.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Lutheran	1	3	.....	1	.....	.....	62	.....	.....	.....	.....	.....	67
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	2
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others	2	.....	2	.....	1	.....	.....	.....	.....	.....	26	.....	31
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	98	92	56	132	14	2	65	1	1	.....	32	.....	493

Licenses, 405.

Banns, 88.

Marriages by Ages in the District of Thunder Bay, 1914.

GROOMS.

BRIDES.	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	5	75	41	11	3	2
20	1	79	81	28	4	.....	1	.....	.....	.....	.....	.....	.....	.....	194
25	.....	9	65	15	10	4	.....	.....	.....	.....	.....	.....	.....	.....	103
30	.....	1	8	7	6	3	.....	.....	.....	.....	.....	.....	.....	.....	25
35	.....	.....	.....	8	3	3	5	1	.....	.....	.....	.....	.....	.....	20
40	.....	.....	.....	.....	2	1	.....	1	.....	1	.....	.....	.....	.....	5
45	.....	.....	.....	1	2	1	1	2	.....	.....	.....	.....	.....	.....	7
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
TOTALS	6	164	195	70	30	14	7	4	.....	1	.....	.....	1	1	493

Marriages by Denominations in the County of Victoria, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.	
Anglican	30	3	5	.....	1	.....	.....	.....	.....	.....	.....	1	.....	40
Presbyterian	9	31	12	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
Methodist	8	7	80	1	6	.....	.....	.....	.....	.....	.....	.....	.....	102
Roman Catholic	1	1	2	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
Baptist	2	3	2	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	14
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Others	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	3
No Denomination	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
TOTAL GROOMS	53	45	101	18	15	.....	.....	.....	.....	.....	.....	2	.....	234

Licenses, 220.

Banns, 14.

Marriages by Ages in the County of Victoria, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL.	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	1	19	12	4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
20	2	40	44	24	1	2	.....	.....	.....	.....	.....	.....	.....	.....	113
25	.....	4	22	15	5	1	.....	.....	.....	.....	.....	.....	.....	.....	47
30	.....	1	1	10	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	14
35	.....	1	.....	1	5	3	2	1	.....	.....	.....	.....	.....	.....	13
40	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	3
45	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
50	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	2
55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Age not stated:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	3	65	79	54	12	10	4	2	2	1	1	1	.....	.....	234

Marriages by Denominations in the County of Waterloo, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican.....	42	11	11	.....	2	1	3	.....	.....	.....	2	.....	72
Presbyterian	8	66	12	1	3	1	7	2	.....	1	3	.....	104
Methodist	3	7	47	.....	1	.....	12	.....	.....	.....	7	.....	77
Roman Catholic	2	2	2	120	.....	.....	5	3	.....	.....	.....	.....	134
Baptist	2	1	.....	1	10	.....	6	1	.....	.....	1	.....	22
Congregationalist .....	.....	2	1	.....	.....	1	.....	.....	.....	.....	.....	.....	4
Lutheran	10	6	5	4	5	.....	88	2	.....	.....	1	.....	121
Evangelical Association .....	.....	1	.....	.....	1	.....	2	20	.....	1	2	.....	27
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	5
Salvation Army.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2
Others .....	.....	.....	4	.....	2	.....	1	1	.....	.....	56	.....	64
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	68	96	82	126	24	3	124	29	5	3	72	.....	632

Licenses, 472.

Banns, 160.

Marriages by Ages in the County of Waterloo, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	9	73	17	5	2
20	5	146	107	24	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	285
25	.....	29	70	35	7	4	.....	.....	.....	.....	.....	.....	.....	.....	145
30	.....	4	7	15	8	4	2	1	.....	.....	.....	.....	.....	.....	41
35	.....	.....	2	6	12	2	2	3	.....	.....	.....	1	.....	.....	28
40	.....	.....	.....	1	.....	3	1	1	1	.....	.....	.....	.....	.....	7
45	.....	.....	.....	.....	.....	.....	5	1	.....	.....	.....	1	.....	.....	7
50	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	1	1	.....	.....	8
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	.....	3
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	14	252	203	86	32	18	6	11	2	1	1	6	.....	.....	632

Marriages by Denominations in the County of Welland, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	99	28	16	8	9	1	3	1	.....	.....	6	.....	171
Presbyterian	13	55	21	12	8	.....	5	.....	.....	.....	5	.....	119
Methodist	28	9	89	10	14	1	7	2	1	.....	7	.....	168
Roman Catholic	4	4	7	75	4	.....	6	1	.....	.....	7	.....	108
Baptist	9	5	7	4	23	1	1	.....	.....	.....	2	.....	52
Congregationalist.....	.....	1	1	.....	.....	4	.....	.....	.....	.....	1	.....	7
Lutheran	4	3	7	5	.....	1	22	1	.....	.....	4	.....	47
Evangelical Association .....	.....	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	3
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Others	1	2	2	2	1	.....	1	.....	.....	.....	57	.....	66
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	158	108	151	117	59	8	45	5	2	1	89	.....	743

Licenses, 703.

Banns, 40.

Marriages by Ages in the County of Welland, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & ov'r		Not stated
15	7	119	31	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	162
20	5	142	80	29	7	3	1	1	.....	.....	.....	.....	.....	.....	268
25	2	16	65	43	18	4	2	1	.....	.....	.....	.....	.....	.....	151
30	.....	2	17	28	16	5	4	2	1	1	.....	.....	.....	.....	76
35	.....	.....	3	3	11	4	6	4	3	.....	.....	.....	.....	.....	34
40	.....	.....	.....	2	3	7	4	4	3	.....	.....	.....	.....	.....	23
45	.....	.....	1	1	1	2	3	4	1	.....	.....	.....	.....	.....	13
50	.....	.....	.....	.....	.....	1	3	4	2	.....	1	.....	.....	.....	11
55	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	2
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	14	279	197	108	58	27	23	20	11	4	1	1	.....	.....	743

Marriages by Denominations in the County of Wellington, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	27	11	7	1	.....	.....	1	.....	.....	.....	1	.....	48
Presbyterian.....	10	85	29	1	2	.....	.....	.....	.....	.....	6	.....	133
Methodist.....	2	22	58	2	3	1	1	.....	.....	.....	5	.....	94
Roman Catholic.....	3	2	5	41	.....	.....	.....	.....	.....	.....	1	.....	52
Baptist.....	1	2	8	.....	7	.....	.....	.....	.....	.....	.....	.....	18
Congregationalist.....	.....	1	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	4
Lutheran.....	.....	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....	3
Evangelical Association.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	5
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	43	124	108	45	12	4	3	1	.....	.....	18	.....	358

Licenses, 317.

Banns, 41.

Marriages by Ages in the County of Wellington, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	31	12	2	1
20	78	61	15	4	1	.....	.....	.....	.....	.....	1	.....	.....	160
25	8	44	19	7	2	.....	1	.....	.....	.....	.....	.....	.....	81
30	1	3	14	8	.....	.....	2	.....	.....	1	.....	.....	.....	29
35	2	2	5	5	1	.....	.....	.....	.....	.....	.....	.....	15
40	1	.....	3	5	2	.....	.....	2	.....	.....	.....	13
45	1	1	.....	.....	.....	3	.....	.....	.....	.....	5
50	3	.....	.....	.....	.....	.....	.....	3
55	1	.....	.....	1	.....	1	.....	.....	3
60	1	.....	.....	.....	1
65
70 & over	1	.....	1
Age not stated.	1	1
TOTALS	118	122	53	25	14	6	8	.....	7	2	2	1	.....	358

Marriages by Denominations in the County of Wentworth, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Angl can.....	213	49	38	11	7	3	4	1				4	3	333
Presbyterian	43	163	44	4	10	1	1					3	2	271
Methodist.....	44	40	212	9	13	7	4					3		332
Roman Catholic.....	13	8	9	144	2	1	3	1	1				3	185
Baptist	11	15	16	3	29							1	3	78
Congregationalist.....	2	3	3	1	1	15								25
Lutheran	4	3	6	1			6					1		21
Evangelical Association								2						2
Hebrew				1					30					31
Salvation Army.....	1									2				3
Others	3	4	3	1	1							22		34
No Denomination	3												2	5
TOTAL GROOMS	337	285	331	175	63	27	18	4	31	2	31	13		1,320

Licenses, 1,190.

Banns, 130.

Marriages by Ages in the County of Wentworth, 1914.

GROOMS.

BRIDES.	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	28	158	62	8										
20	4	201	203	44	11	2	6								561
25		42	161	67	25	5	2	3	1	1					307
30		7	26	41	17	11	4								106
35			2	12	14	10	3	1				1			43
40				3	3	9	1	3	1	1					21
45						1	1	2	3					1	8
50						1			5	1	1	1			9
55										1	1	1			3
60												2			2
65												1			1
70 & over															
Age not stated.				1	1								1		3
TOTALS	32	498	454	176	71	39	17	9	10	4	3	6	1		1,320

Marriages by Denominations in the County of York, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	1,512	232	225	52	57	16	12	1	1	.....	20	6	2,134
Presbyterian	264	897	175	30	40	10	8	.....	2	3	24	7	1,460
Methodist.....	190	167	731	21	49	10	5	1	.....	.....	12	1	1,187
Roman Catholic	70	29	29	450	1	.....	1	.....	.....	.....	9	7	596
Baptist	53	57	50	1	167	.....	2	1	.....	.....	5	1	336
Congregationalist.....	15	13	12	1	4	38	1	.....	.....	.....	2	1	87
Lutheran	7	5	5	2	.....	2	37	.....	.....	.....	1	.....	59
Evangelical Association	1	1	1	.....	1	.....	.....	1	.....	.....	.....	.....	5
Hebrew .....	.....	1	.....	.....	.....	.....	.....	.....	254	.....	.....	.....	255
Salvation Army.....	2	.....	2	1	.....	.....	.....	.....	.....	32	.....	.....	37
Others	118	20	16	9	3	2	2	1	.....	.....	108	.....	179
No Denomination	1	3	1	4	.....	.....	.....	.....	2	.....	.....	12	23
TOTAL GROOMS.....	2,133	1,425	1,247	571	321	78	68	5	259	35	181	35	6,558

Licenses, 5,748.

Banns, 610.

Marriages by Ages in the County of York, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	64	620	179	25	11	5	1	2
20	29	1,317	1,033	246	59	21	5	1	.....	.....	.....	.....	.....	.....	2,711
25	1	257	849	339	116	30	5	6	2	1	.....	.....	.....	1	1,607
30	.....	22	155	230	103	36	26	13	2	3	.....	.....	.....	.....	590
35	.....	4	31	53	70	57	35	7	2	7	2	1	.....	.....	269
40	.....	3	2	20	22	32	25	15	13	4	1	.....	.....	.....	137
45	.....	.....	.....	4	5	7	22	16	13	7	.....	.....	.....	.....	74
50	.....	.....	.....	2	.....	3	.....	6	10	6	5	2	.....	.....	34
55	.....	.....	.....	.....	.....	.....	.....	1	.....	2	1	.....	2	.....	6
60	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3	.....	3	.....	7
65	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	2	2	.....	.....	5
70 & over	.....	.....	.....	.....	.....	.....	.....	3	.....	1	1	.....	.....	.....	5
Age not stated.	.....	1	1	3	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	6
TOTALS	94	2,224	2,250	922	386	192	124	67	45	33	12	8	1	6,358	

Marriages by Denominations in the Cities of Ontario, 1914.

GROOMS.	BRIDES.											No Denomination.	TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		
Anglican	2,327	431	392	88	96	27	27	2	1	1	42	9	3,443
Presbyterian	440	1,547	339	63	76	19	26	1	2	3	47	10	2,573
Methodist	319	339	1,545	56	108	30	31	2	1	1	35	1	2,498
Roman Catholic	148	68	79	1,539	12	1	19	3	3	.....	29	11	1,912
Baptist	111	117	127	9	389	2	14	2	.....	.....	17	4	789
Congregationalist	24	20	30	6	6	71	1	.....	.....	.....	5	1	164
Lutheran	28	14	31	16	8	2	185	2	.....	.....	6	.....	292
Evangelical Association	1	4	2	.....	4	2	6	13	.....	.....	3	.....	35
Hebrew .....	.....	1	.....	2	.....	.....	.....	.....	334	.....	.....	.....	337
Salvation Army	5	.....	3	.....	1	.....	.....	.....	.....	61	.....	.....	70
Others	26	27	33	16	11	2	5	4	.....	.....	270	.....	394
No Denomination	4	3	1	4	1	.....	.....	.....	2	.....	.....	15	30
TOTAL GROOMS	3,463	2,571	2,582	1,799	712	156	311	29	343	66	454	61	12,537

Licenses, 11,281.

Banns, 1,256.

Marriages by Ages in the Cities of Ontario, 1914.

GROOMS.

BRIDES.	GROOMS.													Not stated	TOTAL.
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		
15	185	1,346	440	63	29	12	4	3	.....	.....	.....	.....	.....	.....	2,082
20	70	2,617	1,973	476	128	36	15	2	.....	.....	.....	.....	.....	.....	5,317
25	2	437	1,480	649	236	72	16	16	3	1	1	.....	.....	1	2,914
30	1	47	269	444	214	86	41	23	6	7	.....	.....	.....	.....	1,138
35	.....	8	38	104	136	101	64	26	6	10	4	1	.....	.....	498
40	.....	3	1	33	42	74	43	37	24	12	2	.....	.....	.....	274
45	.....	.....	2	9	11	15	40	33	24	18	4	1	1	1	158
50	.....	.....	.....	2	.....	5	6	26	17	16	7	5	.....	.....	84
55	.....	.....	.....	.....	.....	1	2	2	5	8	.....	4	.....	.....	22
60	.....	.....	.....	.....	.....	.....	2	1	.....	4	7	1	.....	.....	15
65	.....	.....	.....	.....	.....	1	.....	.....	1	1	4	3	.....	.....	10
70 & over	.....	.....	.....	.....	.....	.....	3	.....	1	1	.....	1	.....	.....	6
Age not stated.	.....	2	2	5	1	.....	.....	2	.....	.....	1	.....	.....	6	19
TOTALS	258	4,490	4,208	1,785	797	403	236	171	87	78	30	16	8	12,537	

Marriages by Denominations in the City of Belleville, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	16	10	6	1	1	.....	.....	.....	.....	.....	.....	.....	54
Presbyterian	3	3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
Methodist.....	11	6	47	2	1	.....	.....	.....	.....	.....	1	.....	68
Roman Catholic	1	.....	.....	1)	.....	.....	.....	.....	.....	.....	.....	.....	11
Baptist	1	.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	5
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	2
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	3
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	32	19	55	14	5	.....	.....	.....	.....	1	4	.....	130

Licenses, 112.

Banns, 18.

Marriages by Ages in the City of Belleville, 1914.

GROOMS.

BRIDES.	GROOMS.												TOTAL		
	AGE.	15	20	25	30	35	40	45	50	55	60	65		70 & over	Not stated
15	4	17	5	2	1	1	.....	.....	.....	.....	.....	.....	.....	.....	30
20	1	27	17	2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
25	.....	4	10	8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
30	.....	1	9	8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
35	.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	3
40	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1	.....	.....	.....	2
45	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	3
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	5	50	41	21	6	1	1	.....	.....	.....	4	1	.....	.....	130

Marriages by Denominations in the City of Berlin, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican.....	3	1	3	.....	1	.....	1	.....	.....	.....	1	.....	10
Presbyterian .....	.....	6	2	.....	.....	.....	5	.....	.....	.....	.....	.....	13
Methodist.....	1	.....	16	.....	.....	.....	7	.....	.....	.....	4	.....	28
Roman Catholic .....	.....	.....	.....	61	.....	.....	4	2	.....	.....	.....	.....	67
Baptist.....	.....	.....	.....	.....	.....	.....	6	1	.....	.....	.....	.....	7
Congregationalist.....	.....	1	1	.....	.....	1	.....	.....	.....	.....	.....	.....	3
Lutheran	3	3	2	4	2	.....	39	1	.....	.....	.....	.....	54
Evangelical Association .....	.....	1	.....	.....	.....	2	4	5	.....	.....	3	.....	15
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	4
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Others .....	.....	.....	3	.....	1	.....	.....	1	.....	.....	15	.....	20
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	7	12	27	65	4	2	66	10	4	1	23	.....	222

Licenses, 160.

Banns, 62.

Marriages by Ages in the City of Berlin, 1914.

GROOMS.

BRIDES	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	7	30	10	1
20	4	55	35	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
25	.....	7	24	12	1	2	.....	.....	.....	.....	.....	.....	.....	.....	46
30	.....	1	4	2	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
35	.....	.....	.....	1	.....	2	1	2	.....	.....	.....	.....	.....	.....	6
40	.....	.....	.....	1	.....	1	.....	1	.....	.....	.....	.....	.....	.....	3
45	.....	.....	.....	.....	.....	2	1	.....	.....	.....	.....	.....	1	.....	4
50	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	1	.....	.....	.....	3
55	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	11	93	73	22	6	7	2	6	.....	1	.....	1	.....	.....	222

Mariages by Denominations in the City of Brantford, 1914.

GROOMS.	BRIDES.												
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	TOTAL BRIDES.
Anglican	50	7	8	1	1	2							69
Presbyterian	6	29	10		1	1					1		48
Methodist.....	4	6	33		3	1							47
Roman Catholic	1	1		39	2						1		44
Baptist	6	5	9		38						2		60
Congregationalist.....	2		3			5					1		11
Lutheran			1				2						3
Evangelical Association													
Hebrew								1					1
Salvation Army.....									3				3
Others			1		1						8		10
No Denomination													
TOTAL GROOMS	69	48	65	40	46	9	2	1	3	13	.....	.....	296

Licenses, 261.

Banns, 35.

Mariages by Ages in the City of Brantford, 1914:

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	2	42	10											
20	1	66	61	11	2	1									142
25		11	18	10	3	1									43
30		1	7	13	5	5	1	1							33
35		1		1	3	2	4								11
40					1		1	1		1	1				5
45				2					2						4
50								1							1
55									1						1
60															
65															
70 & over															
Age not stated.												1		1	2
TOTALS	3	121	96	37	14	9	7	2	3	1	2	.....	.....	1	296

Marriages by Denominations in the City of Chatham, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican.....	19	5	6	.....	1	.....	.....	.....	.....	.....	.....	.....	31
Presbyterian	2	23	7	1	.....	.....	.....	.....	.....	.....	.....	.....	33
Methodist.....	6	6	48	.....	7	.....	.....	.....	.....	.....	1	.....	68
Roman Catholic	1	2	4	24	.....	.....	.....	.....	.....	.....	.....	.....	31
Baptist	5	2	2	.....	15	.....	.....	.....	.....	.....	1	.....	25
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
Others .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....	4
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	33	38	68	25	23	.....	.....	.....	.....	2	5	.....	194

Licenses, 177.

Banns, 17.

Marriages by Ages in the City of Chatham, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL.	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	6	42	7	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
20	1	35	23	13	1	2	1	.....	.....	.....	.....	.....	.....	.....	76
25	.....	6	11	5	2	4	.....	.....	.....	.....	.....	.....	.....	.....	28
30	.....	.....	3	2	3	4	2	1	.....	.....	.....	.....	.....	.....	15
35	.....	.....	.....	.....	2	1	1	1	.....	.....	.....	.....	.....	.....	5
40	.....	.....	.....	.....	.....	1	.....	2	1	.....	.....	.....	.....	.....	4
45	.....	.....	.....	.....	.....	.....	2	1	3	1	.....	.....	.....	.....	7
50	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	7	83	44	20	9	12	7	6	4	1	.....	1	.....	.....	194

Marriages by Denominations in the City of Fort William, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	44	5	4	1	1	.....	.....	.....	.....	1	1	.....	57
Presbyterian	3	31	2	1	1	.....	1	.....	.....	.....	1	1	41
Methodist.....	1	3	12	.....	.....	1	1	.....	.....	.....	.....	.....	21
Roman Catholic	2	.....	1	99	.....	.....	.....	.....	.....	.....	3	1	106
Baptist.....	1	.....	1	.....	3	.....	.....	.....	.....	.....	.....	.....	5
Congregationalist.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	1	.....	.....	.....	.....	9	.....	.....	.....	.....	.....	10
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others	2	.....	.....	.....	1	.....	.....	.....	.....	.....	7	.....	10
No Denomination.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1	2
TOTAL GROOMS	53	43	20	101	7	2	11	.....	1	1	12	3	254

Licenses, 210.

Banns, 44.

Marriages by Ages in the City of Fort William, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	2	40	33	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80
20	1	41	45	16	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	106
25	.....	4	21	7	6	3	.....	.....	.....	.....	.....	.....	.....	.....	41
30	.....	1	6	3	1	2	.....	.....	.....	.....	.....	.....	.....	.....	13
35	.....	.....	.....	3	2	2	2	.....	.....	.....	.....	.....	.....	.....	9
40	.....	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	2
45	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	2
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	3	86	105	34	13	8	2	2	.....	.....	.....	1	.....	.....	254

Marriages by Denominations in the City of Guelph, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.	
Anglican	24	4	5											33
Presbyterian	4	27	9		1									41
Methodist	2	4	17	2	1	1					3			30
Roman Catholic	3	2	3	17							1			26
Baptist	1	1	4		3									9
Congregationalist						3								3
Lutheran			1											1
Evangelical Association							1							1
Hebrew														
Salvation Army														
Others											1			1
No Denomination														
TOTAL GROOMS	34	38	39	19	5	4	1				5			145

Licenses, 127.

Banns, 18.

Marriages by Ages in the City of Guelph, 1914.

GROOMS.

BRIDES.	GROOMS.														TOTAL
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	
15		15	1	1											17
20		40	25	2	3	1									71
25		5	16	8	2										31
30		1		6	4										11
35			1	2	1	2	1								7
40				1				1							2
45					1	1				1					3
50								1							1
55						1									1
60											1				1
65															
70 & over															
Age not stated															
TOTALS		61	43	20	11	5	1	2		1	1				145

Marriages by Denominations in the City of Hamilton, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No. Denomina- tion.	
Anglican	196	45	34	10	7	3	4	1	.....	.....	4	3	307
Presbyterian	41	146	32	3	7	1	1	.....	.....	.....	3	2	236
Methodist.....	39	33	151	7	8	7	4	.....	.....	.....	3	.....	252
Roman Catholic.....	11	8	9	141	2	1	3	1	1	.....	.....	3	180
Baptist	10	14	14	3	25	.....	.....	.....	.....	.....	1	3	70
Congregationalist.....	2	3	3	1	1	13	.....	.....	.....	.....	.....	.....	23
Lutheran	4	3	6	1	.....	.....	6	.....	.....	.....	1	.....	21
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	2
Hebrew .....	.....	.....	.....	1	.....	.....	.....	.....	30	.....	.....	.....	31
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	2
Others	3	4	3	1	1	.....	.....	.....	.....	.....	22	.....	34
No Denomination ,...	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	5
TOTAL GROOMS ,...	309	256	252	168	51	25	18	4	31	2	34	13	1,163

Licenses, 1,042.

Banns, 121.

Marriages by Ages in the City of Hamilton, 1914.

GROOMS.

BRIDES.	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	26	138	55	8
20	4	260	175	37	10	1	5	.....	.....	.....	.....	.....	.....	.....	492
25	.....	40	142	60	23	3	2	3	1	.....	.....	.....	.....	.....	274
30	.....	6	24	38	14	9	3	.....	.....	.....	.....	.....	.....	.....	94
35	.....	.....	2	11	11	9	3	1	.....	.....	1	.....	.....	.....	38
40	.....	.....	.....	3	3	8	1	3	1	1	.....	.....	.....	.....	20
45	.....	.....	.....	.....	.....	.....	.....	1	2	2	.....	.....	.....	1	6
50	.....	.....	.....	.....	.....	.....	1	.....	.....	2	1	.....	.....	.....	5
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	3
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	1	3
TOTALS	30	444	398	158	62	31	15	9	6	4	1	3	2	.....	1,163

Marriages by Denominations in the City of Kingston, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	38	7	9	1	.....	2	.....	.....	.....	.....	1	.....	58
Presbyterian	9	33	4	1	.....	1	1	.....	.....	.....	.....	.....	49
Methodist.....	12	13	85	1	2	1	.....	.....	.....	.....	.....	.....	113
Roman Catholic	2	.....	.....	40	1	.....	1	.....	.....	.....	1	.....	45
Baptist	2	2	1	.....	2	.....	.....	.....	.....	.....	.....	.....	7
Congregationalist.....	3	1	1	.....	1	1	.....	.....	.....	.....	.....	.....	7
Lutheran .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	.....	.....	3
Others .....	.....	1	1	1	.....	.....	.....	.....	.....	.....	1	.....	4
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	67	56	103	44	6	5	2	.....	.....	1	3	.....	287

Licenses, 279.

Banns, 8.

Marriages by Ages in the City of Kingston, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL	
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	7	42	11	3	1	1	.....	.....	.....	.....	.....	.....	.....	.....	65
20	.....	56	34	11	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	106
25	1	4	26	12	5	5	2	.....	.....	.....	.....	.....	.....	.....	55
30	.....	1	6	8	11	3	1	1	.....	.....	.....	.....	.....	.....	31
35	.....	.....	.....	6	5	.....	1	.....	.....	.....	.....	.....	.....	.....	12
40	.....	.....	.....	.....	2	3	1	2	1	1	1	.....	.....	.....	11
45	.....	.....	.....	.....	1	.....	1	2	.....	.....	.....	.....	.....	.....	4
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2
TOTALS	8	103	77	40	30	12	6	5	1	2	1	.....	.....	2	287

Marriages by Denominations in the City of London, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	105	21	18	6	11	.....	.....	.....	.....	.....	2	.....	163
Presbyterian	18	71	20	4	4	.....	.....	.....	.....	.....	2	.....	119
Methodist.....	29	26	97	2	5	2	.....	.....	.....	.....	1	.....	163
Roman Catholic.....	4	1	4	34	2	.....	1	.....	.....	.....	1	.....	47
Baptist	6	8	17	.....	39	.....	.....	.....	.....	.....	.....	.....	70
Congregationalist.....	1	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
Lutheran	1	.....	1	.....	2	.....	.....	.....	.....	.....	.....	.....	4
Evangelical Association	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	6
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	6
Others	1	.....	4	.....	2	.....	.....	.....	.....	16	.....	.....	23
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	165	128	164	46	65	2	3	6	6	16	6	.....	607

Licenses, 575.

Banns, 32.

Marriages by Ages in the City of London, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	4	62	22	2	1	1
20	11	142	115	26	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	300
25	.....	18	52	31	13	6	.....	.....	.....	.....	.....	.....	.....	.....	120
30	.....	2	7	16	12	4	.....	1	2	1	.....	.....	.....	.....	45
35	.....	1	.....	3	7	3	5	.....	2	.....	.....	.....	.....	.....	21
40	.....	.....	.....	1	1	4	.....	1	2	2	.....	.....	.....	.....	11
45	.....	.....	1	.....	.....	.....	1	.....	.....	1	.....	.....	.....	.....	3
50	.....	.....	.....	.....	.....	1	.....	1	2	5	.....	.....	.....	.....	9
55	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Age not stated.	.....	1	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	3
TOTALS	15	226	197	80	40	19	6	4	9	9	1	1	.....	.....	607

Marriages by Denominations in the City of Niagara Falls, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	29	13	2	2	3	1	2				2		54
Presbyterian	6	27	14	5	4		2				3		61
Methodist	11	6	30	5	4	2	5				2		65
Roman Catholic	1	2	4	31	1						3		42
Baptist	3	4	3		13	1					1		25
Congregationalist			1			1					1		3
Lutheran	2		3	3			4						12
Evangelical Association		1											1
Hebrew								1					1
Salvation Army									1				1
Others			1	2			2				21		26
No Denomination													
TOTAL GROOMS	52	53	58	48	25	5	15		1	1	33		291

Licenses, 278.

Banns, 13.

Marriages by Ages in the City of Niagara Falls, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	5	34	10		2	1								
20	2	47	38	12	5	1									105
25	1	10	19	20	9	3	1	1							64
30		2	8	15	8			1		1					35
35			1	1	6	1		2							11
40				1	2	5	2	2							12
45			1	1				2	2						6
50								2		2		1			5
55															
60											1				1
65															
70 & over															
Age not stated.															
TOTALS	8	93	77	50	32	11	7	8	2	2	2	1			291

Marriages by Denominations in the City of Ottawa, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	140	46	32	4	4	2	3	.....	.....	.....	2	.....	233
Presbyterian	37	118	15	9	7	1	2	.....	.....	.....	3	.....	192
Methodist.....	17	14	59	6	4	1	.....	.....	.....	.....	1	.....	102
Roman Catholic.....	38	9	6	357	1	.....	1	.....	.....	.....	6	.....	418
Baptist	9	8	1	2	11	.....	.....	.....	.....	.....	.....	.....	31
Congregationalist.....	1	1	2	1	.....	4	.....	.....	.....	.....	.....	.....	9
Lutheran	1	.....	1	1	.....	.....	14	.....	.....	.....	.....	.....	17
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew.....	.....	.....	.....	1	.....	.....	.....	.....	28	.....	.....	.....	29
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	5
Others .....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	35	.....	36
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	243	197	116	381	27	8	20	.....	28	5	47	.....	1,072

Licenses, 905.

Banns, 167.

Marriages by Ages in the City of Ottawa, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	14	91	39	7	4	1	2	2
20	8	230	177	35	13	5	2	1	.....	.....	.....	.....	.....	.....	471
25	.....	33	116	70	20	8	3	1	.....	.....	1	.....	.....	.....	252
30	.....	2	22	46	17	9	6	2	1	.....	.....	.....	.....	.....	105
35	.....	1	.....	9	16	10	.....	2	.....	1	1	.....	.....	.....	40
40	.....	.....	1	2	2	4	5	5	2	.....	.....	.....	.....	.....	21
45	.....	.....	.....	.....	.....	.....	1	5	3	4	2	1	.....	.....	16
50	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	2
55	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	.....	.....	.....	3
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	22	357	355	169	72	38	24	18	7	5	5	.....	.....	.....	1,072

Marriages by Denominations in the City of Peterboro', 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	30	8	8	2	.....	.....	.....	.....	.....	.....	.....	.....	48
Presbyterian	12	36	10	.....	1	1	.....	1	.....	.....	1	.....	62
Methodist	5	8	36	1	1	.....	.....	.....	.....	.....	.....	.....	51
Roman Catholic	4	1	1	23	.....	.....	.....	.....	.....	.....	1	.....	30
Baptist	2	1	4	.....	5	.....	.....	.....	.....	.....	.....	.....	12
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	53	54	59	26	7	1	.....	1	1	1	4	.....	207

Licenses, 186.

Banns, 21.

Marriages by Ages in the City of Peterboro', 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	2	14	7	2	1	1
20	3	41	33	7	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	87
25	.....	5	24	8	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
30	.....	1	5	9	3	2	1	1	.....	.....	.....	.....	.....	.....	22
35	.....	.....	2	2	2	.....	4	2	.....	.....	.....	.....	.....	.....	12
40	.....	.....	.....	1	.....	.....	3	1	.....	.....	.....	.....	.....	.....	5
45	.....	.....	.....	1	1	.....	1	1	.....	1	.....	.....	.....	.....	5
50	.....	.....	.....	.....	.....	.....	2	1	2	1	.....	.....	.....	.....	6
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	5	61	71	30	16	3	11	6	2	2	.....	.....	.....	.....	207

Marriages by Denominations in the City of Port Arthur, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.	
Anglican	30	2	5	1	3	.....	.....	.....	.....	.....	.....	1	.....	42
Presbyterian	6	26	8	3	2	.....	.....	.....	.....	.....	.....	.....	.....	45
Methodist.....	3	10	13	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	27
Roman Catholic.....	2	1	1	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	28
Baptist.....	1	3	.....	.....	4	.....	.....	.....	.....	.....	.....	1	.....	9
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran	1	2	.....	1	.....	.....	52	.....	.....	.....	.....	.....	.....	56
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	43	44	29	29	9	.....	52	1	.....	.....	.....	3	.....	219

Licenses. 203.

Banns. 7.

Marriages by Ages in the City of Port Arthur, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	28	7	4	3
20	32	37	10	1	.....	1	.....	.....	.....	.....	.....	.....	.....	81
25	4	40	6	5	1	.....	.....	.....	.....	.....	.....	.....	.....	56
30	2	3	5	1	.....	.....	.....	.....	.....	.....	.....	.....	11
35	6	1	1	3	1	.....	.....	.....	.....	.....	.....	12
40	1	1	.....	.....	.....	1	.....	.....	.....	.....	3
45	1	2	.....	1	1	.....	.....	.....	.....	.....	.....	5
50
55
60
65
70 & over
Age not stated
TOTALS	64	86	30	18	4	5	2	.....	1	.....	.....	.....	.....	210

Marriages by Denominations in the City of St. Catharines, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	53	4	12	3	2	.....	.....	.....	.....	.....	1	.....	75
Presbyterian	14	18	1	1	.....	.....	.....	.....	.....	.....	2	.....	36
Methodist.....	2	5	24	1	1	.....	2	.....	.....	.....	1	.....	36
Roman Catholic	5	2	1	45	.....	.....	2	.....	1	.....	1	.....	57
Baptist	2	2	3	.....	13	.....	.....	.....	.....	.....	2	.....	22
Congregationalist.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Others .....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	8	.....	10
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	77	31	41	52	17	.....	4	.....	1	.....	15	.....	238

Licenses, 209.

Banns, 29.

Marriages by Ages in the City of St. Catharines, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL	
	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	7	24	10	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	52
20	2	55	41	13	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	113
25	.....	7	18	11	3	1	.....	1	.....	.....	.....	.....	.....	.....	41
30	1	1	4	6	3	.....	1	1	.....	.....	.....	.....	.....	.....	17
35	.....	1	.....	.....	1	1	2	.....	.....	.....	.....	.....	.....	.....	5
40	.....	.....	.....	.....	1	2	1	1	.....	.....	.....	.....	.....	.....	5
45	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	1
50	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	2
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	10	98	73	30	8	7	4	6	.....	1	1	.....	.....	.....	238

Marriages by Denominations in the City of St. Thomas, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	23	3	5	2	2	.....	.....	.....	.....	.....	.....	1	.....	36
Presbyterian.....	4	18	8	.....	5	.....	1	.....	.....	.....	.....	3	.....	39
Methodist.....	7	5	49	1	3	.....	1	.....	.....	.....	.....	.....	.....	66
Roman Catholic	1	1	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
Baptist	3	2	6	.....	11	.....	.....	.....	.....	.....	.....	.....	.....	32
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Evangelical Association.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	3
Others .....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	7	.....	8
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	38	29	68	11	21	.....	2	1	1	3	12	.....	.....	186

Licenses, 182.

Banns, 4.

Marriages by Ages in the City of St. Thomas, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	not stated	TOTAL
	15	2	24	7	2	1	1
20	37	29	4	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
25	8	22	11	8	1	1	.....	.....	.....	.....	.....	.....	.....	51
30	2	3	7	2	3	1	1	.....	1	.....	.....	.....	.....	20
35	1	.....	1	1	.....	1	.....	.....	.....	.....	.....	.....	4
40	1	.....	2	.....	2	.....	.....	.....	.....	.....	.....	5
45	1	1	2	.....	.....	.....	.....	.....	.....	4
50	1	.....	.....	.....	.....	.....	.....	1
55
60	1	.....	.....	.....	.....	.....	1
65
70 & over
Age not stated.
TOTALS	2	71	53	25	14	9	3	8	.....	1	.....	.....	.....	.....	186

Marriages by Denominations in the City of Stratford, 1914.

GROOMS	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	32	10	4	1							1		38
Presbyterian	3	16	2		2	1	3				1		28
Methodist	7	3	17					1					28
Roman Catholic		1	1	17			1						20
Baptist					2								2
Congregationalist			1			1							2
Lutheran	3		3		1		8						15
Evangelical Association		1	1					2					4
Hebrew													
Salvation Army									1				1
Others											1		1
No Denomination													
TOTAL GROOMS	35	31	29	18	5	2	12	3		1	3		139

Licenses, 120.

Banns, 19.

Marriages by Ages in the City of Stratford, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15			12	4	1	1		1						
20	1		24	19	5	2									51
25			5	24	9	4	1								43
30			1	2	5	3	2	1							12
35							2								2
40				1			1		2						4
45							2				1	1			4
50								1	1		1				3
55										1					1
60															
65															
70 & over															
Age not stated															
TOTALS		1	42	50	18	10	8	3	1	3	2	1			139

Marriages by Denominations in the City of Toronto, 1914.

GROOMS.	BRIDES.												
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	TOTAL BRIDES.
Anglican.....	1,400	222	298	50	53	15	12	1	1	.....	20	6	1,988
Presbyterian.....	29	847	161	30	36	10	8	.....	2	3	23	7	1,285
Methodist.....	176	153	647	20	46	9	4	1	.....	.....	7	1	1,004
Roman Catholic.....	6	58	29	441	1	.....	1	.....	.....	.....	8	7	584
Baptist.....	51	55	45	1	159	.....	2	1	.....	.....	5	1	320
Congregationalist.....	15	11	11	1	4	37	1	.....	.....	.....	2	1	86
Lutheran.....	7	4	5	2	.....	2	55	.....	.....	.....	.....	.....	75
Evangelical Association	1	1	1	.....	1	.....	.....	1	.....	.....	.....	.....	5
Hebrew.....	.....	1	.....	.....	.....	.....	.....	.....	254	.....	.....	.....	255
Salvation Army.....	2	.....	2	.....	.....	.....	.....	.....	.....	32	.....	.....	36
Others.....	18	18	12	9	1	2	2	1	.....	.....	10	.....	165
No Denomination.....	1	3	1	1	.....	.....	.....	.....	2	.....	.....	12	23
TOTAL GROOMS.....	1,996	1,345	1,122	461	504	75	65	5	259	35	165	35	5,964

Licenses, 5,877.

Banns, 587.

Marriages by Ages in the City of Toronto, 1914.

GROOMS.

BRIDES.	GROOMS.														
	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
15	58	574	166	24	10	3	1	1	.....	.....	.....	.....	.....	.....	837
20	27	1,241	970	245	57	2	4	1	.....	.....	.....	.....	.....	.....	2,547
25	.....	240	807	8	16	27	5	6	2	1	.....	.....	1	.....	1,013
30	.....	21	146	210	101	31	24	11	2	3	.....	.....	.....	.....	558
35	.....	3	28	8	67	52	3	7	2	7	2	1	.....	.....	249
40	.....	3	2	20	51	31	24	13	11	4	1	.....	.....	.....	130
45	.....	.....	.....	4	5	7	21	14	13	7	.....	.....	.....	.....	71
50	.....	.....	.....	2	.....	2	.....	6	8	6	5	2	.....	.....	31
55	.....	.....	.....	.....	.....	.....	1	.....	2	1	.....	2	.....	.....	6
60	.....	.....	.....	.....	.....	.....	.....	1	.....	3	2	.....	.....	.....	6
65	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	2	.....	2	.....	5
70 & over	.....	.....	.....	.....	.....	.....	.....	32	.....	1	1	.....	.....	.....	5
Age not stated.	.....	1	1	3	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	6
TOTALS	85	2,083	2,120	862	267	177	116	60	41	33	12	7	1	5,964	

Marriages by Denominations in the City of Windsor, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	15	9	13	3	4	1	?				5		103
Presbyterian	6	32	20	3	2	2	2				3		70
Methodist.....	5	18	105	8	15	4	6		1		8		170
Roman Catholic	5	6	11	108	1		5		1		2		139
Baptist	2	5	10	2	18	1	2				5		55
Congregationalist.....			2	2		2					1		7
Lutheran	5	1	6	4	3		16	1			3		39
Evangelical Association					3		1						4
Hebrew									6				6
Salvation Army.....													
Others	2	2	3	1	2		1	2			16		29
No Denomination													
TOTAL GROOMS	90	73	170	131	58	10	36	3	8		43		692

Licenses, 575.

Banns, 47.

Marriages by Ages in the City of Windsor, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	19	92	29	2	1	1								
20	3	107	70	29	11	2	2								224
25		15	60	27	17	4	1	2							126
30		2	7	30	14	5		2	1						61
35			2	6	6	10	4	4		1					33
40				1	6	7	3	1	2	1					21
45					1			2	1		2				6
50						1			3	1		1			6
55													1		1
60															
65															
70 & over															
Age not stated.															
TOTALS	22	216	168	95	56	30	12	13	4	4	1	1			622

Marriages by Denominations in the City of Woodstock, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	26	5	6	.....	1	1	.....	.....	.....	.....	.....	.....	.....	39
Presbyterian	4	18	5	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	30
Methodist	1	4	24	.....	3	.....	.....	.....	.....	1	.....	.....	.....	36
Roman Catholic .....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Baptist	4	2	4	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	18
Congregationalist .....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	2
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
No Denomination .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS	39	29	39	4	15	2	.....	.....	.....	2	1	.....	.....	131

Licenses, 124.

Banns, 10.

Marriages by Ages in the City of Woodstock, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	1	11	2	1
20	39	17	7	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
25	2	17	11	1	1	.....	.....	.....	.....	.....	.....	.....	.....	32
30	1	6	2	1	.....	.....	.....	.....	.....	.....	.....	.....	10
35	1	1	4	1	1	2	.....	.....	.....	.....	.....	.....	10
40	1	1	.....	1	.....	.....	.....	.....	.....	3
45	1	.....	1	.....	.....	.....	.....	2
50	2	.....	.....	.....	.....	.....	.....	2
55
60	1	.....	.....	1
65	1	.....	.....	.....	.....	.....	1
70 & over
Age not stated.
TOTALS	1	43	38	25	9	4	2	5	2	1	1	.....	.....	.....	131

Marriages by Denominations in the Towns of Ontario, 1914.

Grooms.	Brides.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican	243	44	47	8	6	2	1	.....	.....	.....	7	.....	356
Presbyterian	49	253	77	11	10	3	4	2	.....	1	.....	1	411
Methodist.....	47	46	300	19	19	1	3	.....	.....	3	4	.....	433
Roman Catholic.....	29	11	8	339	4	.....	1	1	.....	.....	5	.....	369
Baptist	6	10	14	5	40	1	1	.....	.....	.....	4	.....	61
Congregationalist.....	2	1	2	.....	1	2	.....	.....	.....	.....	.....	.....	8
Lutheran	3	2	7	1	1	.....	62	.....	.....	.....	1	.....	77
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	4
Hebrew.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	5
Salvation Army.....	1	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	9
Others	2	.....	2	3	.....	.....	.....	.....	.....	.....	39	.....	45
No Denomination.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
TOTAL GROOMS.....	373	367	457	376	81	9	72	7	5	12	60	2	1,821

Licenses. 1,624.

Banns. 197.

Marriages by Ages in the Towns of Ontario, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	24	223	110	21	5	1	1
20	8	338	273	97	28	5	.....	.....	.....	.....	.....	.....	.....	.....	749
25	.....	59	192	89	36	11	2	1	1	.....	.....	.....	.....	.....	391
30	.....	10	28	49	31	14	3	1	1	.....	.....	.....	.....	.....	137
35	.....	3	10	14	25	10	8	4	1	2	.....	.....	.....	.....	77
40	.....	.....	1	.....	1	11	6	5	2	1	.....	.....	.....	.....	27
45	.....	.....	.....	1	.....	5	10	6	2	.....	.....	.....	.....	.....	24
50	.....	.....	.....	.....	.....	.....	1	3	5	1	1	.....	.....	.....	11
55	.....	.....	.....	.....	.....	.....	.....	2	3	2	1	2	.....	.....	10
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	2
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	3	.....	.....	.....	5
70 & over	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	3
TOTALS	32	633	615	271	126	57	31	22	15	9	6	2	2	.....	1,821

Marriages by Denominations in the Town of Barrie, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.	
Anglican	16	4	4			1								25
Presbyterian	6	11	1	1										19
Methodist	2	5	22								1			27
Roman Catholic				11										11
Baptist		1			2	1								4
Congregationalist			1											1
Lutheran														
Evangelical Association														
Hebrew ..														
Salvation Army														
Others											1			1
No Denomination														
TOTAL GROOMS	24	19	28	12	2	2					2			88

Licenses, 79.

Banns, 9.

Marriages by Ages in the Town of Barrie, 1914.

GROOMS.

BRIDES.	GROOMS.														TOTAL	
	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated		
15			12	3	1											16
20			12	14	5	2										33
25			1	7	5	4										17
30			1	3	2	1	2		1							10
35			1				1	1								3
40							2		1							5
45								1								1
50										1						1
55										1						1
60																
65												1				1
70 & over																
Age not stated																
TOTALS			27	27	13	7	5	1	4	1	2	1				88

Marriages by Denominations in the Town of Cobourg, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.	
Anglican	6		1											7
Presbyterian	1	3	2	1		2								9
Methodist.....	2	3	11			1								17
Roman Catholic	1			7										8
Baptist.....					1									1
Congregationalist.....	2					1								3
Lutheran														
Evangelical Association														
Hebrew														
Salvation Army										3				3
Others											2			2
No Denomination														
TOTAL GROOMS	12	6	14	8	1	4				3	2			50

Licenses, 45.

Banns, 5

Marriages by Ages in the Town of Cobourg, 1914.

GROOMS.

BRIDES.	AGE.	GROOMS.												TOTAL		
		15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated	
	15	1	1													2
	20	2	12	7	1	3										25
	25		2	12	2		1									17
	30				1											1
	35					1										1
	40						2									2
	45								1							1
	50									1						1
	55															
	60															
	65															
	70 & over															
	Age not stated															
	TOTALS	3	15	19	4	4	3		1	1						50

Marriages by Denominations in the Town of Collingwood, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	7	3	1									1		12
Presbyterian	1	15	16											32
Methodist.....	3	1	15		2									21
Roman Catholic.....				5										5
Baptist			1		2									3
Congregationalist.....														
Lutheran														
Evangelical Association														
Hebrew														
Salvation Army.....														
Others												1		1
No Denomination.....														
TOTAL GROOMS	11	20	33	5	4							2		75

Licenses, 71.

Banns, 4.

Marriages by Ages in the Town of Collingwood, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15			8	6		1								
20			1	15	3	2									32
25			3	9	3	3									18
30				1	2	1									4
35				2				1							3
40															
45															
50									1						1
55										1					1
60															
65												1			1
70 & over															
Age not stated															
TOTALS.....			23	23	8			1	1	1		1			75

Marriages by Denominations in the Town of Cornwall, 1914

GROOMS	BRIDES.												TOTAL BRIDES.		
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.			
Anglican.....	9	3	5	1											18
Presbyterian	4	17		1	1										23
Methodist		2	1	1											4
Roman Catholic	2		1	40	1										44
Baptist			1												1
Congregationalist															
Lutheran.....															
Evangelical Association															
Hebrew															
Salvation Army.....															
Others															
No Denomination.....															
TOTAL GROOMS	15	22	8	43	2										90

Licenses, 67.

Banns, 23.

Marriages by Ages in the Town of Cornwall, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
		15		11	9										
	20	1	3	1	4										45
	25			9	6										15
	30				3	1									4
	35							1							1
	40							1	1						2
	45														
	50									1					1
	55								1						1
	60														
	65														
	70 & over														
	Age not stated.			1											1
	TOTALS	1	41	20	13	1		2	2	1					90

Marriages by Denominations in the Town of Galt, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	21	8	2		1							1		33
Presbyterian	7	31	8	1	2	1		1		1				52
Methodist	2	3	17		1							1		24
Roman Catholic	2			10										12
Baptist	1				4									5
Congregationalist.....		1												1
Lutheran	2				1									3
Evangelical Association														
Hebrew.....									1					1
Salvation Army.....														
Others												1		1
No Denomination.....														
TOTAL GROOMS.....	35	43	27	11	9	1		1	1	1	1	3		132

Licenses, 120.

Banns, 12.

Marriages by Ages in the Town of Galt, 1914.

GROOMS.

BRIDES.	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	1	7	2	2										
20		28	26	6											60
25		10	11	6	4										31
30		1	3	4	2	2									12
35				2	7		1		1						11
40															
45							2								2
50									1						1
55													2		2
60													1		1
65															
70 & over															
Age not stated.															
TOTALS	1	46	42	20	13	4	1	1	1	1			3		132

Marriages by Denominations in the Town of Ingersoll, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	12	1	1	.....	1	.....	.....	.....	.....	.....	.....	.....	15
Presbyterian .....	.....	8	3	.....	1	.....	.....	.....	.....	.....	.....	.....	12
Methodist.....	.....	2	10	.....	2	.....	.....	.....	.....	.....	1	.....	15
Roman Catholic.....	1	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	6
Baptist .....	.....	.....	2	1	4	.....	.....	.....	.....	.....	1	.....	8
Congregationalist .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
No Denominations .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	13	12	16	5	8	.....	.....	.....	.....	.....	2	.....	56

Licenses, 52.

Banns, 4.

Marriages by Ages in the Town of Ingersoll, 1914.

GROOMS.

BRIDES.	AGE	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	1	7	3	1
20	1	8	8	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	20
25	.....	4	6	1	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	13
30	.....	1	3	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	6
35	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
40	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....	2
45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70 & over.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Age not stated.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS	2	21	20	5	2	4	2	.....	1	.....	.....	.....	.....	.....	56

Marriages by Denominations in the Town of Kenora, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army	Others.		No Denomination.
Anglican	4	1											5
Presbyterian	1	3		1	1								6
Methodist.....	1	2	1				1						5
Roman Catholic	1	1	2	2									6
Baptist ..					1						1		2
Congregationalist.....													
Lutheran	1		1				7						9
Evangelical Association													
Hebrew													
Salvation Army.....													
Others											5		5
No Denomination.....													
TOTAL GROOMS	8	7	4	3	2		8				6		38

Licenses, 34.

Banns, 4.

Marriages by Ages in the Town of Kenora, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
		15	1	7	5										
	20		3	6	2	2									13
	25			3	2	1									6
	30				1	2		1							4
	35														
	40														
	45							2							2
	50														
	55														
	60														
	65														
	70 & over														
	Age not stated.														
	TOTALS	1	11	11	5	5		3							38

Marriages by Denominations in the Town of Lindsay, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	16	1	4									1	22
Presbyterian	7	10	2	2									21
Methodist.....	2	1	35		1								39
Roman Catholic.....	1		1	10									12
Baptist		1	2		3								6
Congregationalist.....													
Lutheran													
Evangelical Association													
Hebrew													
Salvation Army.....													
Others											1		1
No Denomination.....													
TOTAL GROOMS.....	26	13	44	12	4							2	101

Licenses, 94.

Banns, 7

Marriages by Ages in the Town of Lindsay, 1914.

GROOMS.

BRIDES.	GROOMS.													TOTAL	
	Age.	15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated
15	1	8	4	2											15
20	1	18	16	8											43
25		5	7	7	3	1									23
30				6		2									8
35		1		1	2	2		2							8
40															
45															
50								1	1						2
55															
60											1				1
65												1			1
70 & over															
Age not stated.															
TOTAL	2	32	27	24	5	5	.....	3	1	1	1	.....	.....	.....	101

Marriages by Denominations in the Town of North Bay, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	19	2	1	1										23
Presbyterian	2	14	4											20
Methodist	3	4	19		1					1				28
Roman Catholic	3	2		35										40
Baptist	1			1	2									4
Congregationalist														
Lutheran							1							1
Evangelical Association														
Hebrew									1					1
Salvation Army										3				3
Others														
No Denomination												1		1
TOTAL GROOMS	20	22	24	37	3	1	1	1	4	1	1	1	1	121

Licenses, 94.

Banns, 27.

Marriages by Ages in the Town of North Bay, 1914.

GROOMS.

BRIDES.	AGE.	GROOMS.												TOTAL.		
		15	20	25	30	35	40	45	50	55	60	65	70 & over		Not stated	
	15	2	17	12												31
	20		19	20	4	2										45
	25		10	15	3	2										30
	30				1											1
	35			1	1	2	1	2								7
	40						2									2
	45							1					1			2
	50															
	55															
	60															
	65										1					1
	70 & over															
	Age not stated.														2	2
	TOTALS.	2	46	48	9	6	3	3	1	1	1	1	2	2	121	

Mariages by Denominations in the Town of Orillia, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	6	2	4		1									14
Presbyterian	4	1	2											16
Methodist.....	2	2	25				1							31
Roman Catholic.....				6										6
Baptist.....			1											1
Congregationalist.....						1								1
Lutheran														
Evangelical Association														
Hebrew														
Salvation Army	1													1
Others											4			4
No Denomination.....														
TOTAL GROOMS.....	11	15	32	6	1	1	1				4			74

Licenses, 66.

Banns, 8.

Mariages by Ages in the Town of Orillia, 1914.

GROOMS.

BRIDES.	AGE	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
		15	1	9	6	2	2	1							
	20		8	9	7	1									25
	25		1	8	7		1								16
	30		1	3	2										6
	35					2			1						3
	40					1									1
	45						1	1							2
	50														
	55														
	60														
	65														
	70 & over														
	Age not stated.														
	TOTALS	1	19	26	18	6	3	1	1						74

Marriages by Denominations in the Town of Oshawa, 1914.

GROOMS.	BRIDES.													TOTAL BRIDES	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.			
Anglican	22		4												26
Presbyterian		8	1	2	1										12
Methodist.....	3	1	29	2	2										37
Roman Catholic				3											3
Baptist.....					1										1
Congregationalist.....															
Lutheran															
Evangelical Association															
Hebrew															
Salvation Army.....															
Others	1		1									2			4
No Denomination.....															
TOTAL GROOMS	26	9	35	7	4							2			83

Licenses, 81.

Banns, 2.

Marriages by Ages in the Town of Oshawa, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL.
	15	5	12	6											
20		11	10	10	4	1									36
25		2	9	2	1	1			1						16
30				3	1										4
35			1	1	1										3
40							1								1
45															
50															
55															
60															
65															
70 & over															
Age not stated															
TOTALS	5	25	26	16	7	3				1					83

Marriages by Denominations in the Town of Owen Sound, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	
Anglican.....	7	1	4	4	.....	.....	.....	.....	.....	.....	3	.....	19
Presbyterian	4	20	12	1	1	.....	.....	.....	.....	.....	.....	.....	38
Methodist.....	7	9	26	1	1	.....	.....	.....	.....	1	1	.....	46
Roman Catholic.....	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	6
Baptist.....	1	2	2	.....	5	.....	.....	.....	.....	.....	.....	.....	10
Congregationalist.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lutheran .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Evangelical Association	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hebrew .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salvation Army.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Others .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	5
No Denomination.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTAL GROOMS.....	19	32	44	12	7	.....	.....	.....	.....	2	9	.....	125

Licenses, 119.

Banns 6.

Marriages by Ages in the Town of Owen Sound, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	4	12	4	3	1
20	21	21	7	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	53
25	3	9	6	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
30	1	.....	3	2	3	.....	.....	.....	.....	.....	.....	.....	.....	9
35	1	2	2	1	1	.....	.....	.....	1	.....	.....	.....	8
40	2	1	1	.....	.....	.....	.....	.....	4
45	1	.....	.....	1	.....	.....	.....	2
50	1	.....	.....	.....	.....	.....	1
55	1	.....	.....	1
60
65
70 & over
Age not stated.
TOTALS.	4	37	35	21	14	4	4	1	2	2	1	.....	.....	.....	125

Marriages by Denominations in the Town of Pembroke, 1914.

GROOMS.	BRIDES.											TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.		No Denomination.
Anglican	6					1							7
Presbyterian		7					1	1					9
Methodist.....	1	1	7										9
Roman Catholic.....		1		20	1								32
Baptist		1											1
Congregationalist.....													
Lutheran			2				10						12
Evangelical Association		1			1			2					4
Hebrew													
Salvation Army.....													
Others											1		1
No Denomination.....													
TOTAL GROOMS	7	11	9	30	2	1	11	3			1		75

Licenses, 61.

Banns, 14.

Marriages by Ages in the Town of Pembroke, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15			6	4	2			1						
20			15	17	1	1									34
25			1	9	7	1	2								20
30				1		1									2
35					1	2									3
40											1				1
45										1					1
50															
55															
60															
65															
70 & over													1		1
Age not stated.....															
TOTALS.....			22	31	11	5	2	1		1	1		1		75

Marriages by Denominations in the Town of Sault Ste. Marie, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican.....	15	1	4		1		1							23
Presbyterian.....	1	39	11		1		2							54
Methodist.....	1	5	20	1	1							1		29
Roman Catholic.....	1	2		41										44
Baptist.....		1	2	1	4		1							9
Congregationalist.....														
Lutheran.....			2	1			17							20
Evangelical Association.....														
Hebrew.....									1					1
Salvation Army.....														
Others.....												1		1
No Denomination.....														
TOTAL GROOMS.....	18	48	39	44	7		21		1			2		180

Licenses, 164.

Banns 16.

Marriages by Ages in the Town of Sault Ste. Marie, 1914.

GROOMS.

BRIDES	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	1	20	15	3										
20		28	27	10	1	2									68
25		7	21	8	7										43
30		2	2	2	5	1									12
35			4	2	2	3									11
40							2	1	1						4
45								1							1
50												1			1
55									1						1
60															
65															
70 & over															
Age not stated.															
TOTALS	1	57	69	25	15	8	2	2				1			180

Marriages by Denominations in the Town of Smith's Falls, 1914.

GROOMS.	BRIDES.												TOTAL BRIDES.	
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.		
Anglican	10	3	1											14
Presbyterian	4	7	2											13
Methodist.....	4	3	10	1	1									19
Roman Catholic			1	6										7
Baptist	1		1		1									3
Congregationalist.....														
Lutheran														
Evangelical Association														
Hebrew														
Salvation Army.....														
Others												2		2
No Denomination.....														
TOTAL GROOMS	19	13	15	7	2							2		58

Licenses, 53.

Banns, 5.

Marriages by Ages in the Town of Smith's Falls, 1914.

GROOMS.

BRIDES.	AGE.	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated	TOTAL
	15	1	7	1											
20		16	7	3	1										27
25		1	5	2	2	1									11
30			1	4											5
35		1				1						1			3
40						1									1
45								1							1
50															
55											1				1
60															
65															
70 & over															
Age not stated.															
TOTALS	1	25	14	9	3	3	1				1	1			58

Marriages by Denominations in the Town of Welland, 1914.

GROOMS.	BRIDES.												
	Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Lutheran.	Evangelical Association.	Hebrew.	Salvation Army.	Others.	No Denomination.	TOTAL BRIDES.
Anglican	21	2	7		1							1	32
Presbyterian		13	2										15
Methodist.....	7	1	13	1	3		1						26
Roman Catholic.....	1	1		10				1				1	14
Baptist	1	1	2	2	1							3	9
Congregationalist			1										1
Lutheran												1	1
Evangelical Association													
Hebrew													
Salvation Army.....													
Others	1		1	1								6	9
No Denomination.....													
TOTAL GROOMS	31	18	23	14	5		1	1				11	107

Licenses, 96.

Banns, 11.

Marriages by Ages in the Town of Welland, 1914.

GROOMS.

AGE.	BRIDES.													TOTAL.	
	15	20	25	30	35	40	45	50	55	60	65	70 & over	Not stated		
15		22	12	1											35
20	2	21	8	3	2										36
25		2	14	5			1								22
30			4	1		1	1		1						8
35							1								1
40															
45						2	1	2							5
50															
55									1						1
60															
65															
70 & over															
Age not stated.....															
TOTALS.	2	45	38	10	2	3	4	2	2						107

CAUSES OF DEATH IN THE DISTRICT OF ALGOMA, 1914.

DISEASES AND CAUSES OF DEATH.	Ages.													Sex.		Nativity.			Social Con.		Months.																			
	Ages.													Sex.		Nativity.			Social Con.		Months.																			
	Under 1.	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79	80 and over.	Not stated.	Male.	Female.	Not stated.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.						
Total.	118	17	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	
Grand Total	400	6	2	2	1	1	5	5	4	13	13	11	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
I.—GENERAL DISEASES.																																								
Group Total	90	6	2	2	1	1	5	5	4	13	13	11	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
1. Typhoid fever	14	1	1	1	1	1	2	2	4	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2. Measles	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3. Whooping cough	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. Diphtheria and croup	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5. Influenza	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6. Dysentery	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7. Erysipelas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8. Purulent infection and septicæmia	26	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
9. Tuberculosis of the lungs	35	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
10. Acute miliary tuberculosis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
11. Abdominal tuberculosis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
12. Cancer and other malignant tumors of the buccal cavity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
13. Cancer and other malignant tumors of the stomach, liver	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
14. Cancer and other malignant tumors of the peritoneum, intestines, rectum	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
15. Cancer and other malignant tumors of the female genital organs	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
16. Cancer and other malignant tumors of the breast	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
17. Cancer and other malignant tumors of other organs and of organs not specified	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
18. Acute articular rheumatism	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
19. Diabetes	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
20. Exophthalmic goitre	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
21. Leucæmia	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
22. Anæmia, chlorosis	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
23. Other general diseases	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
24. Alcoholism (acute or chronic)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																								
Group Total	31	6	1	1	1	1	2	1	1	4	4	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
61. Simple meningitis	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
62. Cerebral hemorrhage, apoplexy	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

BRANT—Continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
Number of Column.																																							
136. Other accidents of labor	1																																						
137. Puerperal septicaemia	2																																						
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																																							
Group Total	2																																						
142. Gangrene	1																																						
144. Acute abscess	1																																						
X.—MALFORMATIONS.																																							
Group Total	1																																						
150. Congenital malformations (still-births not included)	1																																						
XI.—DISEASES OF EARLY INFANCY.																																							
Group Total	37																																						
151. Congenital debility, icterus, and sclerema	35																																						
153. Lack of care	2																																						
Group Total	63																																						
XII.—OLD AGE.																																							
Group Total																																							
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																																							
Group Total	34																																						
163. Other suicides	1																																						
165. Other acute poisonings	2																																						
166. Burns (conflagration excepted)	10																																						
169. Accidents of drowning	1																																						
170. Traumatism by falls	1																																						
172. Traumatism by fire	2																																						
173. Traumatism by mines and quarries	1																																						
174. Traumatism by machines	1																																						
175. Traumatism by other crushing (vehicles, rail road, machines, etc.)	5																																						
181. Electricity (lightning excepted)	4																																						
185. Fractures (cases not specified)	2																																						
186. Other external violence	2																																						
XIV.—ILL-DEFINED DISEASES.																																							
Group Total	6																																						
188. Sudden death	1																																						
189. Cause of death not specified or ill-defined	5																																						
Still-Births.																																							
Group Total	38																																						

Not included in totals

CARLETON—Continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38			
Number of Column.																																									
47. Acute articular rheumatism	9					1	2	1		2	1		1				6	3		9																					
48. Chronic rheumatism and gout	2																			1																					
50. Diabetes	13					2	1	1		2	1		2				6	6		12																					
51. Exophthalmic goitre	16						2	1		2	1		2							5																					
54. Anæmia, chlorosis	16						2	1		2	1		2							12																					
55. Other general diseases	5					1	1			2	1		2							5																					
56. Alcoholism (acute or chronic)	3									2			2							2																					
Group Total	166	36	5	3	2	5	3	6	4	8	7	8	18	21	22	15	80	86	121	43	2	81	84	1	12	10	17	18	22	13	16	11	11	16	9	12					
60. Encephalitis	1																																								
61. Simple meningitis	22					2	1	3	1	2	1		1				10	13		21																					
62. Locomotor ataxia	3																			3																					
63. Other diseases of the spinal cord	46					1	1			3	2		1				3	3		3																					
64. Cerebral hemorrhage, apoplexy	30									2	1		11	10	10	8	23	23		26																					
67. Paralysis without specified cause	2																			20																					
67. General paralysis of the insane	2																			20																					
68. Other forms of mental alienation	4																			22																					
69. Epilepsy	38									2	1		1				1	1		3																					
70. Convulsions of infants	2																			3																					
72. Chorea	38									2	1		1				22	16		38																					
73. Neuritis and neuritis	9																			1																					
74. Other diseases of the nervous system	7																			2																					
76. Diseases of the ears	2																			4																					
Group Total	215	4	1	2	3	4	8	9	24	8	9	24	18	50	58	2	102	113	150	62	3	60	156	9	15	22	30	14	19	25	13	15	18	11	18	11	15				
78. Acute endocarditis	2																			1																					
79. Organic diseases of the heart	183																			73																					
81. Diseases of the arteries, aneurysm, etc.	54																			106																					
82. Embolism and thrombosis	4																			35																					
83. Diseases of the veins (varices, hemorrhoids, phlebitis, etc.)	4																			2																					
84. Diseases of the lymphatic system (lymphangitis, etc.)	2																			3																					
Group Total	213	49	9	8	4	2	1	2	9	24	48	12	23	24	16	109	104	167	39	7	114	95	4	29	38	27	26	18	9	8	12	9	6	11	20						
86. Diseases of the nasal fossæ	1																			1																					
87. Diseases of the larynx	2																			1																					
88. Diseases of the thyroid body	42																			10																					
89. Acute bronchitis	15																			6																					
90. Chronic bronchitis	30																			6																					
91. Bronchio-pneumonia	16																			26																					

II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.

III.—DISEASES OF THE CIRCULATORY SYSTEM.

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

154. XII.—OLD AGE.

Group Total	72	1	1	2	1	6	8	9	6	3	1	5	4	38	34	35	36	1	8	62	2	5	7	4	9	6	4	2	9	8	4	6			
Group Total	72	1	1	2	1	6	8	9	6	3	1	5	4	38	34	35	36	1	8	62	2	5	7	4	9	6	4	2	9	8	4	6			
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																																			
Group Total	47													37	10	32	14	1	18	25	4	4	3	6	5	2	1	7	3	1	4	7			
155. Suicide by poison	3						1	2						3		2				2	1														
159. Suicide by firearms	2									1	1			1		1			1	1															
160. Suicide by cutting or piercing instruments	1													1		1			1	1															
167. Burns (conflagration excepted)	3		1	1										1	2	3			3																
168. Absorption of deleterious gases (conflagration excepted)	1													1		1																			
169. Accidental drowning	11					2	2	4						10	1	4	7		5	5	1	1	1	1	2										
170. Traumatism by firearms	2													2		2			2																
172. Traumatism by fall	2													2	3	3	2		1	3															
175. Traumatism by other crushing (vehicles, rail-road, landslides, etc.)	5													5		4	1		2	2	1	1	1	1	1	1									
181. Electricity (lightning excepted)	6													6		5	1		5	1		1	1	1	1	1									
185. Fractures (causes not specified)	5													3	2	4	1		2	3															
186. Other external violence	3													2	1	2	1		2	1															
Group Total	13	4								2	4	3		9	1	8	5	4	9																
188. Sudden death	5													5		2	3		5																
189. Cause of death not specified or ill-defined	8													4	4	6	2		4																
Group Total	69	69												41	28	69			69																

XIV.—ILL-DEFINED DISEASES.

STILL-BIRTHS.

Not included in totals

XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.

	35	1	2	1	3	5	2	3	2	4	5	1	26	9	27	8	21	14	1	2	2	1	5	3	4	3	5	3	3						
Group Total	35	1	2	1	3	5	2	3	2	4	5	1	26	9	27	8	21	14	1	2	2	1	5	3	4	3	5	3	3						
155. Suicide by poison	2					2							2		2																				
157. Suicide by hanging or strangulation	1									1			1		1																				
159. Suicide by firearms	2					1				1			2		2																				
165. Other acute poisonings	2									1			2		2																				
166. Conflagration	2												1		2																				
167. Burns (conflagration excepted)	5									2			3		4																				
168. Absorption of deleterious gases (conflagration excepted)	1												1		1																				
169. Accidental drowning	4									1			4		4																				
170. Traumatism by firearms	2									2			2		2																				
172. Traumatism by fall	1									1			1		1																				
174. Traumatism by machines	1									1			1		1																				
175. Traumatism by other crushing (vehicles, rail-road, landslides, etc.)	3									1			2		2																				
176. Injuries by animals	1									1			1		1																				
182. Homicide by firearms	1									1			1		1																				
185. Fractures (cause not specified)	4									4			2		3																				
186. Other external violence	2									1			2		2																				
Group Total	11	1	1				1	4	2	1			5	6	11		5	6																	
188. Sudden death	1									1					1																				
189. Cause of death not specified or ill-defined	10	1								1	4	1	5	5	15		5	5																	
Group Total	54	54											26	28	54		54																		

XIV.—ILL-DEFINED DISEASES.

Group Total	11	1	1				1	4	2	1			5	6	11		5	6																	
188. Sudden death	1									1					1																				
189. Cause of death not specified or ill-defined	10	1								1	4	1	5	5	15		5	5																	
Group Total	54	54											26	28	54		54																		

STILL-BIRTHS.

Not included in totals	54	54											26	28	54		54																	
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CAUSES OF DEATH IN THE COUNTY OF HURON, 1914.

DISEASES AND CAUSES OF DEATH.	Ages.													Sex.		Nativity.			Social Con.			Months.																			
	Number of Column.													Male.	Female.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.								
	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41									
Total.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38			
Grand Total	589	72	111	122	125	124	124	137	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144		
Group Total	126	6	3	1	1	3	3	15	6	20	18	17	13	2	55	71	272	317	272	394	190	5	181	395	13	43	83	9	10	13	12	6	9	14	8	41	44	47	41		
1. Typhoid fever																																									
6. Measles																																									
7. Scarlet fever																																									
8. Whooping cough																																									
9. Diphtheria and croup																																									
10. Influenza																																									
14. Dysentery																																									
18. Erysipelas																																									
20. Purulent infection and septicemia																																									
24. Tetanus																																									
28. Tuberculosis of the lungs																																									
31. Abdominal tuberculosis																																									
37. Syphilis																																									
39. Cancer and other malignant tumors of the buccal cavity																																									
40. Cancer and other malignant tumors of the stomach, liver																																									
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum																																									
42. Cancer and other malignant tumors of the female genital organs																																									
43. Cancer and other malignant tumors of the breast and other malignant tumors of other organs and of organs not specified																																									
47. Acute rheumatism																																									
48. Chronic rheumatism and gout																																									
50. Diabetes																																									
51. Exophthalmic goitre																																									
53. Leucemia																																									
54. Anemia, chlorosis																																									

I.—GENERAL DISEASES.

XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.		21	1	1	1	2	1	2	2	6	2	2	10	5	14	7	7	14	1	2	2	1	3	2	4	1	1	3	1		
Group	Total																														
155. Suicide by poison	1	1				1							1		1																
157. Suicide by hanging or strangulation	1												1		1																
158. Suicide by drowning	1									1			1		1																
167. Burns (contagion excepted)	2	1	1							2			2		2																
169. Accidental drowning	1					2							2		2																
172. Traumatism by fall	1									1			1		1																
174. Traumatism by machines	1									1			1		1																
175. Traumatism by other crushing (vehicles, rail-road, landslides, etc.)	2									1			1		2																
185. Fractures (cause not specified)	3									1			2		2																
186. Other external violence	3									1			2		2																
XIV.—ILL-DEFINED DISEASES.																															
Group	Total	6	1			1	3	1		1			1	5	5	1		3	1	1	1		2								
187. Ill-defined organic disease	1					1							1		1																
188. Sudden death	1												1		1																
189. Cause of death not specified or ill-defined	4							2		1			1	3	2			3	1	1	1		1								
Not included in totals		28	38										15	13	38			38					6	3	3	1	4	2	2	2	3

STILL-BIRTHS.

LEEDS AND GRENVILLE—Continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
Number of Column.																																							
53. Leucemia	1																																						
54. Anemia, chlorosis	15																																						
55. Other general diseases	1																																						
56. Alcoholism (acute or chronic)	3																																						
Group Total	90	4	1	1	1	2	1	2	4	10	2	27	30	12	1	43	56			82	16	1	30	65	4	12	17	14	13	8	3	3	6	7	7	5	8		
61. Simple meningitis	8																																						
62. Locomotor ataxia	3																																						
63. Other diseases of the spinal cord	2																																						
64. Cerebral hemorrhage, apoplexy	38																																						
65. Softening of the brain	1																																						
66. Paralysis without specified cause	18																																						
67. General paralysis of the insane	2																																						
68. Other forms of mental alienation	9																																						
69. Epilepsy	8																																						
70. Convulsions of infants	5																																						
71. Chorea	1																																						
72. Chorea	1																																						
73. Chorea	1																																						
74. Other diseases of the nervous system	4																																						
Group Total	144																																						
79. Organic diseases of the heart	88																																						
80. Angina pectoris	2																																						
81. Diseases of the arteries, aneurysm, etc.	50																																						
82. Embolism and thrombosis	2																																						
83. Diseases of the veins (varices, hemorrhoids, phlebitis, etc.)	1																																						
85. Hemorrhage; other diseases of the circulatory system	1																																						
Group Total	56	7	4	1	1	2	2	2	2	3	2	12	8	9	1	27	39			45	11		21	33	2	5	8	9	8	5	4	2	3	1	1	8			
87. Diseases of the larynx	3																																						
89. Acute bronchitis	3																																						
90. Chronic bronchitis	9																																						
91. Broncho-pneumonia	4																																						
92. Pneumonia	30																																						
93. Pleurisy	4																																						
94. Pulmonary congestion, pulmonary apoplexy	1																																						
96. Asthma	2																																						
Group Total	144	7	4	1	1	2	2	2	2	3	2	12	8	9	1	27	39			45	11		21	33	2	5	8	9	8	5	4	2	3	1	1	8			

III.—DISEASES OF THE CIRCULATORY SYSTEM.

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

CAUSES OF DEATH IN THE DISTRICT OF MANITOULIN, 1914.

DISEASES AND CAUSES OF DEATH.	Total.	Ages.													Sex.		Nationality.			Social Con.			Months.																									
		Under 1.													Male.	Female.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.														
		0-1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79	80 and over.	Not stated.	39	34	50	12	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38											
Number of Column.	1																																															
Grand Total	23																																															
I.—GENERAL DISEASES.																																																
Group Total	16																																															
1. Typhoid fever	1																																															
8. Whooping cough	3																																															
10. Influenza	3																																															
28. Tuberculosis of the lungs	4																																															
50. Diabetes	1																																															
51. Exophthalmic goitre	1																																															
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																																
Group Total	8																																															
61. Simple meningitis	1																																															
64. Cerebral hemorrhage, apoplexy	5																																															
66. Paralysis without specified cause	2																																															
III.—DISEASES OF THE CIRCULATORY SYSTEM.																																																
Group Total	4																																															
79. Organic diseases of the heart	4																																															
IV.—DISEASES OF THE RESPIRATORY SYSTEM.																																																
Group Total	10																																															
90. Chronic bronchitis	1																																															
92. Pneumonia	8																																															
94. Pulmonary congestion, pulmonary apoplexy	1																																															

MANITOULIN—Concluded.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
V.—DISEASES OF THE DIGESTIVE SYSTEM.																																						
Group Total	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	4	4	4	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																																						
Group Total	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
VII.—THE PUERPERAL STATE.																																						
Group Total	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
XI.—DISEASES OF EARLY INFANCY.																																						
Group Total	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
XII.—OLD AGE.																																						
Group Total	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																																						
Group Total	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
XIV.—ILL-DEFINED DISEASES.																																						
Group Total	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Not included in totals																																						

NORTHERLAND AND DURHAM—Continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
Number of Column.																																							
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																																							
Group Total	42								1	1	2	9	4	16	9	23	19		30	10	2																		
119. Acute nephritis	1																																						
120. Bright's disease	33								1	1	2	7	4	11	7	18	15		27	4	2																		
122. Other diseases of the kidneys and adnexa	2																																						
126. Diseases of the prostate	4																																						
129. Uterine tumor (non-cancerous)	1																																						
130. Other diseases of the uterus	1																																						
VII.—THE PUERPERAL STATE.																																							
Group Total	4								1	3								4																					
134. Accidents of pregnancy	2									2									2																				
137. Puerperal septicemia	1									1									1																				
138. Puerperal albuminuria and convulsions	1									1									1																				
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																																							
Group Total	8								1	2	2	3		6	2				5	3																			
142. Gangrene	5													1	1	3			2	3																			
144. Acute abscess	3													1	1	1			3																				
IX.—DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.																																							
Group Total	1	1																	1																				
146. Diseases of the bones (tuberculosis excepted)																																							
X.—MALFORMATIONS.																																							
Group Total	3	3																	3																				
150. Congenital malformations (still-births not included)	3	3																	3																				
XI.—DISEASES OF EARLY INFANCY.																																							
Group Total	48	48																	48																				
151. Congenital debility, icterus, and sclerema	47	47																	47																				
153. Lack of care	1	1																	1																				
154.																																							
XII.—OLD AGE.																																							
Group Total	119												10	32	74	51	68		64	50	5				3	113	34	13	18	7	3	9	10	3	7	13	7	14	

II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.

Group	67	10	1	2	3	10	11	12	14	2	31	32	47	19	1	17	48	2	6	6	4	5	6	10	6	2	3	5	10								
61. Simple meningitis	2	4	1	1	1	1	1	1	1	1	1	2	5	1	1	4	2	1	1	1	1	1	1	1	2	1	2	3	5	10							
63. Other diseases of the spinal cord	2	4	1	1	1	1	1	1	1	1	1	2	5	1	1	4	2	1	1	1	1	1	1	1	2	1	2	3	5	10							
64. Cerebral hemorrhage, apoplexy	28	1	1	1	1	1	1	1	1	1	15	13	20	8	1	1	23	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
65. Softening of the brain	12	1	1	1	1	1	1	1	1	1	6	6	2	5	1	1	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
66. Paralysis without specified cause	67.	1	1	1	1	1	1	1	1	1	2	2	6	5	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
67. General paralysis of the insane	1	1	1	1	1	1	1	1	1	1	2	2	6	5	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
68. Other forms of mental alienation	3	1	1	1	1	1	1	1	1	1	2	2	6	5	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
70. Convulsions (non-puerperal)	1	1	1	1	1	1	1	1	1	1	2	2	6	5	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
71. Convulsions of infants	6	1	1	1	1	1	1	1	1	1	3	3	6	5	1	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
74. Other diseases of the nervous system	4	1	1	1	1	1	1	1	1	1	3	3	6	5	1	1	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Group Total	67	4	1	1	1	1	1	1	1	1	38	39	42	22	32	4	63	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

III.—DISEASES OF THE CIRCULATORY SYSTEM.

Group	67	10	1	2	3	10	11	12	14	2	31	32	47	19	1	17	48	2	6	6	4	5	6	10	6	2	3	5	10									
79. Organic diseases of the heart	47	1	1	1	1	1	1	1	1	1	26	21	32	12	3	4	43	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
80. Angina pectoris	17	1	1	1	1	1	1	1	1	1	9	8	11	4	1	1	17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
81. Diseases of the arteries, atheroma, aneurysm, etc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
82. Embolism and thrombosis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

Group	52	4	1	1	1	1	1	1	1	1	9	6	19	11	26	23	36	16	10	41	1	9	6	5	2	5	2	4	1	5	2	4	1	5	2	4	1	5	2	4		
89. Acute bronchitis	2	3	1	1	1	1	1	1	1	1	5	4	3	4	3	3	3	6	2	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90. Chronic bronchitis	9	1	1	1	1	1	1	1	1	1	2	1	3	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
91. Broncho-pneumonia	27	1	1	1	1	1	1	1	1	1	17	10	20	7	1	1	21	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
92. Pneumonia	2	1	1	1	1	1	1	1	1	1	5	3	13	4	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
93. Pleurisy	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
94. Pulmonary congestion, pulmonary apoplexy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
96. Asthma	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

V.—DISEASES OF THE DIGESTIVE SYSTEM.

Group	27	8	2	1	3	1	2	1	4	4	14	13	22	5	37	10	1 <th>3</th> <th>10</th> <th>1 <th>9</th> <th>6</th> <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> </th></th></th></th></th>	3	10	1 <th>9</th> <th>6</th> <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> </th></th></th></th>	9	6	5	2	4	1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> </th></th></th>	5	2	4	1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> </th></th>	5	2	4	1 <th>5</th> <th>2</th> <th>4</th> <th>1 <th>5</th> <th>2</th> <th>4</th> </th>	5	2	4	1 <th>5</th> <th>2</th> <th>4</th>	5	2	4		
103. Other diseases of the stomach (cancer excepted)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
104. Diarrhea and enteritis (under 2 years)	9	7	2	1	1	1	1	1	1	1	2	2	5	4	9	3	1	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
108. Appendicitis and typhlitis	3	1	1	1	1	1	1	1	1	1	2	2	3	2	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
109. Hæmorrhoids	3	1	1	1	1	1	1	1	1	1	2	2	3	2	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
110. Diseases of the intestines	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
113. Cirrhosis of the liver	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
115. Other diseases of the liver	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
117. Simple peritonitis (non-puerperal)	4	1	1	1	1	1	1	1	1	1	2	2	2	2	1	3	1	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		

VI.—NON-GENITAL DISEASES OF THE GENITO URINARY SYSTEM AND ADNEXA.

Group	21	8	10	1	1	1	1	1	1	1	15	6	17	4	5	16	1 <th>3</th> <th>10</th> <th>1 <th>9</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th></th></th></th></th></th></th>	3	10	1 <th>9</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th></th></th></th></th></th>	9	2	1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th></th></th></th></th>	1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th></th></th></th>	3	2	1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th></th></th>	1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th></th>	3	2	1 <th>1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th></th>	1 <th>3</th> <th>2</th> <th>1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th></th>	3	2	1 <th>1 <th>3</th> <th>2</th> <th>1 </th></th>	1 <th>3</th> <th>2</th> <th>1 </th>	3	2	1	
119. Acute nephritis	8	1	1	1	1	1	1	1	1	1	2	2	5	4	4	15	6	17	4	5	16	1	3	2	1	4	2	1	1	3	2	1	1	3	2	1	1	3	2	1
120. Bright's disease	10	1	1	1	1	1	1	1	1	1	2	2	5	4	4	6	3	9	1	2	10	1	2	1	3	2	1	1	3	2	1	1	3	2	1	1	3	2	1	1

II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.

Group Total	72	3	2	2	2	1	1	3	4	4	6	4	17	16	7	38	34	52	20	32	40	9	5	2	6	4	5	7	10	5	8	6		
61. Simple meningitis	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	5	6	3	6	3	1	1	1	1	1	1	1	1	1	1	1		
62. Locomotor ataxia	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
63. Other diseases of the spinal cord	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
64. Cerebral hæmorrhage, apoplexy	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	11	5	1	16	2	2	2	2	2	2	2	2	2	2	2	2	
66. Paralysis without specified cause	19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
68. Other forms of mental alienation	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	7	10	5	5	1	1	1	1	1	1	1	1	1	1	1	1	1	
69. Epilepsy	11	3	1	1	1	1	1	1	1	1	1	1	1	1	1	7	4	10	1	11	1	3	2	2	2	2	2	2	2	2	2	2	2	2
71. Convulsions of infants	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4	1	5	1	3	2	2	2	2	2	2	2	2	2	2	2	2
74. Other diseases of the nervous system	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1

III. DISEASES OF THE CIRCULATORY SYSTEM.

Group Total	70	11	1	1	1	1	1	1	1	1	1	1	1	1	1	43	27	46	24	9	60	11	10	6	7	3	2	6	7	1	6	5		
79. Organic diseases of the heart	45	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23	23	34	11	8	37	7	6	4	1	3	2	6	5	1	2	1	1	
80. Angina pectoris	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
81. Diseases of the arteries, atheroma, aneurysm etc.	23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	4	11	12	1	21	4	3	2	3	5	2	2	4	4	4	4	4	4
85. Hemorrhage; other diseases of the circulatory system	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

Group Total	62	11	1	1	1	1	1	1	1	1	1	1	1	1	1	38	24	50	12	21	39	2	3	11	9	10	6	5	1	1	4	2	3	7	
89. Acute bronchitis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90. Chronic bronchitis	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
91. Broncho-pneumonia	8	3	1	1	1	1	1	1	1	1	1	1	1	1	1	5	3	7	1	5	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1
92. Pneumonia	43	7	1	1	1	1	1	1	1	1	1	1	1	1	1	26	17	34	9	11	28	1	2	7	3	6	4	1	1	3	1	1	1	1	1
93. Pleurisy	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
94. Pulmonary congestion, pulmonary apoplexy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
96. Asthma	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1

V.—DISEASES OF THE DIGESTIVE SYSTEM.

Group Total	33	7	1	1	1	1	1	1	1	1	1	1	1	1	1	15	18	26	7	16	17	4	1	1	6	1	1	5	3	4	1	3	3		
100. Diseases of the pharynx	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
102. Ulcer of the stomach	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
103. Other diseases of the stomach (cancer excepted)	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	5	1	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
104. Diarrhoea and enteritis (under 2 years)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
105. Diarrhoea and enteritis (2 years and over)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
108. Appendicitis and typhlitis	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
109. Hernias, intestinal obstructions	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	5	1	2	4	1	1	2	1	1	1	1	1	1	1	1	1	1	1
110. Diseases of the intestines	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	5	1	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1
115. Other diseases of the liver	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1
117. Simple peritonitis (non-puerperal)	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	4	1	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1

VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.

Group Total	33	6	2	2	2	2	2	2	2	2	2	2	2	2	2	18	15	23	10	6	27	3	6	4	2	1	5	9	4	2	1	1	1		
119. Acute nephritis	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	5	1	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
120. Bright's disease	31	5	1	1	1	1	1	1	1	1	1	1	1	1	1	15	6	18	8	3	24	2	5	1	2	3	5	1	2	1	1	1	1	1	1

III.—DISEASES OF THE CIRCULATORY SYSTEM.																	
81	43	38	51	29	1	15	64	2	13	10	6	7	5	6	6	5	8
Group Total	1	4	3	8	8	21	23	12	1	4	3	8	2	1	4	3	4
79. Organic diseases of the heart	1	2	3	5	6	11	12	6	1	2	3	5	2	4	3	3	4
80. Angina pectoris	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
81. Diseases of the arteries, atheroma, aneurysm, etc.	2	3	1	8	10	6	6	1	2	2	4	3	3	2	2	2	1
82. Embolism and thrombosis	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
83. Diseases of the veins, varices, hemorrhoids, phlebitis, etc.)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group Total	33	5	7	1	2	2	2	2	2	1	2	2	3	1	3	1	2
IV.—DISEASES OF THE RESPIRATORY SYSTEM.																	
Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
87. Diseases of the larynx	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
88. Acute bronchitis	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
89. Chronic bronchitis	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
90. Broncho-pneumonia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
91. Pneumonia	19	1	5	2	2	4	2	1	8	11	5	4	3	3	2	2	3
92. Asthma	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group Total	51	18	3	2	2	2	2	2	2	28	23	3	4	3	26	14	13
V.—DISEASES OF THE DIGESTIVE SYSTEM.																	
Group Total	2	9	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2
100. Diseases of the pharynx	9	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
103. Other diseases of the stomach (cancer excepted).	13	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
104. Diarrhea and enteritis (under 2 years)	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
105. Diarrhea and enteritis (2 years and over)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
108. Appendicitis and typhlitis	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
109. Hernias, intestinal obstructions	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
110. Diseases of the intestines	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
113. Cirrhosis of the liver	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
115. Other diseases of the liver	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
116. Diseases of the spleen	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
117. Simple peritonitis (non-puerperal)	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group Total	15	7	8	9	6	5	10	5	10	2	2	2	2	2	2	2	2
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																	
Group Total	2	7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
119. Acute nephritis	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
120. Bright's disease	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
121. Other diseases of the kidneys and adnexa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
125. Diseases of the urethra, urinary abscess, etc.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
126. Diseases of the prostate	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
131. Cysts and other tumors of the ovary	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VII.—THE PUERPERAL STATE.																	
Group Total	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
137. Puerperal septicemia	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
138. Puerperal albuminuria and convulsions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																	
Group Total	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
142. Gangrene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
144. Acute Abscess	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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VII.—THE PUERPERAL STATE.									
Group Total	8	3	3	3	3	3	3	3	3
134. Accidents of pregnancy	1	1	1	1	1	1	1	1	1
136. Other accidents of labor	1	1	1	1	1	1	1	1	1
137. Puerperal septicæmia	3	3	3	3	3	3	3	3	3
138. Puerperal albuminuria and convulsions	3	3	3	3	3	3	3	3	3
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.									
Group Total	3	1	1	1	1	1	1	1	1
142. Gangrene	1	1	1	1	1	1	1	1	1
144. Acute Abscess	1	1	1	1	1	1	1	1	1
145. Other diseases of the skin and anexa	1	1	1	1	1	1	1	1	1
XI.—DISEASES OF EARLY INFANCY.									
Group Total	112	112	66	16	112	112	112	112	112
151. Congenital debility, icterus, and sclerema	112	112	66	16	112	112	112	112	112
154. Group Total	63	420	38	1	32	56	5	3	5
XII.—OLD AGE.									
Group Total	28	1	2	1	3	3	6	2	3
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.									
Group Total	169	1	1	1	1	1	1	1	1
169. Other suicides	1	1	1	1	1	1	1	1	1
167. Burns (contagration excepted)	2	2	2	2	2	2	2	2	2
169. Accidental drowning	1	1	1	1	1	1	1	1	1
170. Traumatism by firearms	1	1	1	1	1	1	1	1	1
172. Traumatism by fall	2	2	2	2	2	2	2	2	2
173. Traumatism in mines and quarries	6	6	6	6	6	6	6	6	6
175. Traumatism by other crushing (vehicles, rail-road, landshoes, etc.)	3	3	3	3	3	3	3	3	3
176. Injuries by animals	2	2	2	2	2	2	2	2	2
181. Electricity (lightning excepted)	5	5	5	5	5	5	5	5	5
185. Fractures (cause not specified)	5	5	5	5	5	5	5	5	5
186. Other external violence	20	1	4	1	1	1	2	2	11
XIV.—ILL-DEFINED DISEASES.									
Group Total	18	1	4	1	1	1	6	1	2
188. Sudden death	2	2	2	2	2	2	2	2	2
189. Cause of death not specified or ill-defined	16	1	4	1	1	1	5	1	10
STILL-BIRTHS.									
Not included in totals	49	49	33	16	49	49	49	49	49

CAUSES OF DEATH IN THE DISTRICT OF RAINY RIVER, 1914.

OFFICIAL ENGLISH TRANSLATION. DISEASES AND CAUSES OF DEATH.	Total.	Ages.												Sex.		Nativity.			Social Con.		Months.																
		Under 1.												Male.	Female.	Not stated.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
		0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31	31-32	32-33	33-34	34-35	35-36	36-37	37-38
Number of Column.	1																																				
Grand Total	115																																				
I.—GENERAL DISEASES.																																					
Group Total	31																																				
1. Typhoid fever	3																																				
7. Scarlet fever	3																																				
9. Diphtheria and croup	1																																				
14. Dysentery	1																																				
18. Erysipels	1																																				
20. Purulent infection and septicæmia	1																																				
28. Tuberculosis of the lungs	9																																				
29. Acute miliary tuberculosis	1																																				
40. Cancer and other malignant tumors of the stomach, liver	1																																				
44. Cancer and other malignant tumors of the skin	1																																				
54. Anæmia, chlorosis	3																																				
55. Other general diseases	6																																				
56. Alcoholism (acute or chronic)	2																																				
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																					
Group Total	14																																				
61. Simple meningitis	3																																				
64. Cerebral hæmorrhage, apoplexy	2																																				
66. Paralysis without specified cause	2																																				
68. Other forms of mental alienation.	2																																				
71. Convulsions of infants	2																																				
III.—DISEASES OF THE CIRCULATORY SYSTEM.																																					
Group Total	5																																				
78. Acute endocarditis	2																																				
79. Organic diseases of the heart	2																																				
81. Diseases of the Arteries, atheroma, aneurysm, etc.	1																																				

CAUSES OF DEATH IN THE DISTRICT OF TEMISKAMING, 1914.

OFFICIAL ENGLISH TRANSLATION. DISEASES AND CAUSES OF DEATH.	Ages.													Sex.			Nativity.		Social Con.			Months.																	
	Under 1.													Male.		Female.	Not stated.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.				
	163	17	8	4	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		
Total.	1	163	17	8	4	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	33	23	32	29	40	24	34	42	34	30	29	37	38
Number of Column.	1	163	17	8	4	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	33	23	32	29	40	24	34	42	34	30	29	37	38
Grand Total	373	163	17	8	4	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	33	23	32	29	40	24	34	42	34	30	29	37	38
I.—GENERAL DISEASES.																																							
Group Total	50	163	17	8	4	4	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	33	23	32	29	40	24	34	42	34	30	29	37	38
1. Typhoid fever	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6. Measles	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7. Scarlet fever	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8. Whooping cough	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9. Diphtheria and croup	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20. Purulent infection and septicæmia	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
24. Tetanus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
28. Tuberculosis of the lungs	18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30. Tuberculous meningitis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31. Abdominal tuberculosis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35. Disseminated tuberculosis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
40. Cancer and other malignant tumors of the stomach, liver	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
45. Cancer and other malignant tumors of other organs and of organs not specified	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
54. Anæmia, chlorosis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
56. Alcoholism (acute or chronic)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.	31	12	1	2	1	3	1	1	1	1	2	1	1	1	1	1	15	15	15	23	7	1	24	6	1	2	4	4	3	3	3	3	3	3	1	3	1	3	
Group Total	31	12	1	2	1	3	1	1	1	2	1	1	1	1	1	15	15	15	23	7	1	24	6	1	2	4	4	3	3	3	3	3	3	3	1	3	1	3	
60. Phacphalitis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
61. Simple meningitis	7	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
64. Cerebral hemorrhage, apoplexy	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
69. Epilepsy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
71. Convulsions of infants	12	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
73. Neuritis and neuritis	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
74. Other diseases of the nervous system.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
76. Diseases of the ears	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

III.—DISEASES OF THE CIRCULATORY SYSTEM.																								
79. Organic diseases of the heart	33	1	2	4	10	7	9	23	10	19	11	2	31	4	1	2	6	3	2	5	1	3	2	
81. Diseases of the arteries, aneurysm, etc	26	1	2	1	9	5	5	18	8	17	9	1	25	1	1	2	1	4	3	2	4	1	3	1
Group Total	7	1	2	1	2	4	2	5	2	2	5	1	6	1	1	1	2	1	1	1	1	1	1	1
IV.—DISEASES OF THE RESPIRATORY SYSTEM.																								
90. Chronic bronchitis	26	1	3	1	1	1	1	11	15	21	4	1	14	1	1	4	3	5	4	3	3	1	2	2
91. Broncho-pneumonia	2	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
92. Pneumonia	3	1	1	1	1	1	1	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1
94. Pulmonary congestion, pulmonary apoplexy	19	3	1	1	4	3	2	9	10	15	3	1	9	1	4	2	5	2	1	1	1	1	1	1
96. Asthma	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group Total	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
V.—DISEASES OF THE DIGESTIVE SYSTEM.																								
99. Diseases of the mouth and adnexa	12	3	1	1	1	1	3	2	4	8	12	7	5	1	1	1	1	1	1	2	2	1	2	1
102. Ulcer of the stomach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
103. Other diseases of the stomach (cancer excepted)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
104. Diarrhoea and enteritis (under 2 years)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
105. Appendicitis and typhlitis	5	1	1	1	1	1	1	2	2	5	2	2	3	1	1	1	1	1	1	1	1	1	1	1
109. Hernias, intestinal obstructions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
117. Simple peritonitis (non-puerperal)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																								
120. Bright's disease	23	1	2	4	7	4	3	11	12	19	4	3	20	2	2	3	1	3	2	3	1	3	3	3
122. Other diseases of the kidneys and adnexa	20	1	2	3	6	3	3	10	10	16	4	3	17	2	2	1	2	2	1	2	3	1	2	2
126. Diseases of the prostate	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
131. Cysts and other tumors of the ovary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VII.—THE PUERPERAL STATE.																								
134. Accidents of pregnancy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																								
142. Gangrene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
X.—MALFORMATIONS.																								
150. Congenital malformations (still-births not included)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

WENTWORTH—Concluded.

		Number of Column.																		
XI.—DISEASES OF EARLY INFANCY.																				
172	Group Total	172	106	66	172	106	66	172	106	66	172	106	66	172	106	66	172	106	66	172
161.	Congenital debility, icterus, and sclerema	107	103	64	107	103	64	107	103	64	107	103	64	107	103	64	107	103	64	107
153.	Lack of care	5	5	2	5	5	2	5	5	2	5	5	2	5	5	2	5	5	2	5
XII.—OLD AGE.																				
101	Group Total	12	49	52	43	58	12	86	3	8	6	11	12	8	10	11	5	8	7	5
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																				
73	Group Total	41	52	24	41	39	33	37	3	6	6	4	5	12	10	4	6	4	3	7
2	Suicide by poison	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Suicide by hanging or strangulation	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1	Suicide by firearms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	Suicide by cutting or piercing instruments	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Other acute poisonings	4	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5	Burns (conflagration excepted)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
168.	Absorption of deleterious gases (conflagration excepted)	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
169.	Accidental drowning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
170.	Trammatism by firearms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
171.	Trammatism by cutting or piercing instruments	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
172.	Trammatism by fall	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
173.	Trammatism in mines and quarries	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175.	Trammatism by other crushing (vehicles, railroad, landslides, etc.)	10	9	4	10	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
179.	Effects of heat	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
181.	Electricity (lightning excepted)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
185.	Fractures (cause not specified)	11	5	3	11	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
186.	Other external violence	13	9	5	13	8	8	4	10	1	4	1	4	1	4	1	4	1	4	1
XIV.—ILL-DEFINED DISEASES.																				
20	Group Total	13	14	6	13	0	8	12	3	1	2	2	3	1	2	2	3	1	2	4
5	Sudden death	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Cause of death not specified or ill-defined	12	13	5	12	2	7	11	2	0	5	1	5	2	1	1	2	2	1	3
STILL-BIRTHS.																				
181	Not included in totals	181	109	72	181	181	181	181	21	10	16	16	15	12	9	16	12	9	16	12

YORK—Continued.

	Number of Column.										31	32	33	34	35	36	37	38																			
43. Cancer and other malignant tumors of the breast											3	28	17	14	2	25	4	5	26	27	28	29	30	31	32	33	34	35	36	37	38						
44. Cancer and other malignant tumors of the skin											3	2	3	2	4	1	5	1	1	2	2	3	5	4	1	2	2	1	3	3	2						
45. Cancer and other malignant tumors of other organs and of organs not specified											55	60	61	53	1	18	92	5	8	9	4	10	8	13	13	10	15	13	8								
46. Other tumors (tumors of the female genital organs excepted)											2	6	5	3		7	1	1	1	1	2	1	2	1	1	1	1	2	1	1	1						
47. Acute articular rheumatism											10	19	17	9	20	6	20	3	1	3	1	2	4	3	4	2	2	1	2	1	1	1					
48. Chronic rheumatism and gout											8	12	14	6	17	1	17	1	1	1	5	2	1	2	2	2	2	1	2	1	1	1					
49. Scurvy											21	22	21	22	12	26	5	2	2	2	4	7	5	6	3	4	1	4	6	1	1	1					
50. Diabetes											3	20	16	5	8	14	1	3	3	3	4	7	5	6	3	2	2	2	1	2	1	1					
51. Exophthalmic goitre											4	3	4	3	2	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
52. Addison's disease											7	4	5	6	5	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
53. Leucemia											32	38	50	20	9	57	4	5	7	7	7	4	10	8	3	3	8	9	4								
54. Anemia, chlorosis											10	7	13	4	15	2	13	4	5	5	7	7	4	0	3	3	5	6	2	1	1	1					
55. Other general diseases											25	6	17	11	3	9	15	7	4	4	1	1	1	5	7	5	3	3	1	1	1	1					
56. Alcoholism (acute or chronic)											4	8	6	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
Group Total	706	831	118	64	1	436	350	482	214	10320	363	25	49	46	68	74	67	56	58	50	48	63	63	64													
60. Encephalitis	2																																				
61. Simple meningitis	89	11	11	5	6	1	2	4	8	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
62. Locomotor ataxia	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
63. Other diseases of the spinal cord	253	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
64. Cerebral hemorrhage, apoplexy	84	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
65. Softening of the brain	62	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
66. Softening of the brain, without specified cause	80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
67. General paralysis of the insane	33	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
68. Other forms of mental alienation	29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
69. Epilepsy	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
70. Convulsions (non-epileptic)	141	19	12	3	2	5	2	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
71. Convulsions of infants	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
72. Clonus	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
73. Neuritis	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
74. Other diseases of the nervous system	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
75. Diseases of the ears	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Group Total	830	4	2	1	3	2	14	22	19	36	51	97	120	183	186	87	3	158	372	435	379	168	162	624	47	74	58	86	80	74	76	66	52	69	73	64	58
77. Pericarditis	10	3	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
78. Acute endocarditis	13	1	1	1	2	3	6	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
79. Organic diseases of the heart	482	1	1	1	2	5	17	31	43	65	80	98	87	31	253	229	9	109	346	27	57	56	37	40	40	25	37	44	39	36							
80. Aneurism pectoris	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
81. Diseases of the Arteries, aneurism, etc.	258	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
82. Embolism and thrombosis	29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
83. Diseases of the veins (varices, hemorrhoids, phlebitis, etc.)	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

III.—DISEASES OF THE CIRCULATORY SYSTEM.

84. Diseases of the lymphatic system (lymphangitis, etc.)
 85. Hemorrhage; other diseases of the circulatory system

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

777	321	45	20	13	3	13	3	7	41	58	54	62	72	108	48	3	402	374	521	345	11	389	355	233	91	62	75	90	15	60	39	41	30	49	62	64		
9	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	6	3	7	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
55	38	8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	23	32	51	4	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
63	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
161	78	23	5	4	1	3	1	3	1	3	1	6	2	16	7	1	85	76	133	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
428	96	15	10	6	3	3	1	3	1	3	1	3	1	12	5	1	227	201	270	152	6	183	223	22	60	32	49	63	55	80	15	17	11	31	30	35		
43	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	11	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	9	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
94	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	7	12	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
92	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	7	12	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
91	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	7	12	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	3	4	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
673	318	49	5	3	12	4	14	36	52	43	37	54	26	13	2	347	326	531	439	3	462	186	25	37	32	34	43	39	34	87	423	116	59	34	35			
4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	3	0	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	5	4	7	3	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
69	25	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23	27	43	17	3	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
291	252	39	1	1	1	1	1	1	1	1	1	1	1	1	1	1	157	137	291	17	294	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
104	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13	13	17	9	12	12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
51	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	23	28	23	20	28	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3	2
108	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	28	28	26	16	34	5	4	4	5	4	5	4	5	4	5	4	5	4	5	4	
109	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	20	36	4	32	7	1	6	3	2	6	1	2	1	1	1	1	1	1	1	1	
40	27	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
110	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	6	13	12	5	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
113	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	13	18	11	5	23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
114	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
115	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
116	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
117	5	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	40	32	23	24	26	5	5	4	1	1	1	1	1	1	1	1	1	1	1	1	1
118	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.
 Group Total

Group Total

287	6	5	1	6	1	5	19	31	44	50	51	47	18	3	148	139	150	132	5	62	203	22	26	21	23	25	28	33	25	18	25	23	24	18			
10	6	5	1	6	1	5	19	31	44	50	51	47	18	3	148	139	150	132	5	62	203	22	26	21	23	25	28	33	25	18	25	23	24	18			
188	16	33	37	39	38	12	5	96	92	100	85	3	29	117	19	15	12	16	17	15	25	16	14	16	12	17	13	16	12	17	13	16	12	17	13		
122	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
125	15	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
129	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
130	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
132	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

119. Acute nephritis
 120. Bright's disease
 121. Other diseases of the kidneys and adnexa
 122. Calculi of the urinary passages
 123. Calculi of the bladder
 124. Diseases of the bladder
 125. Diseases of the urethra, urinary abscess, etc.
 126. Diseases of the prostate
 129. Uterine tumor (non-cancerous)
 130. Other diseases of the uterus
 131. Cysts and other tumors of the ovary
 132. Salpingitis and other diseases of the female genital organs

VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.												
Group Total	2	1	1	2	1	1	2	1	1	2	1	1
142. Gangrene	2	1	1	2	1	1	2	1	1	2	1	1
XI.—DISEASES OF EARLY INFANCY.												
Group Total	27	27	27	30	7	27	27	27	27	27	27	27
151. Congenital debility, icterus, and sclerema	26	26	26	19	7	26	26	26	26	26	26	26
153. Lack of care	1	1	1	1	1	1	1	1	1	1	1	1
XII.—OLD AGE.												
Group Total	17	2	6	9	7	10	6	11	1	16	2	1
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.												
Group Total	6	1	1	1	4	2	3	3	3	3	1	2
165. Other acute poisonings	1	1	1	1	1	1	1	1	1	1	1	1
167. Burns (conflagration excepted)	1	1	1	1	1	1	1	1	1	1	1	1
172. Traumatism by fall	1	1	1	1	1	1	1	1	1	1	1	1
175. Traumatism by other crushing (vehicles, rail-train, handtrucks, etc.)	1	1	1	1	1	1	1	1	1	1	1	1
185. Fractures (causes of specified)	1	1	1	1	1	1	1	1	1	1	1	1
186. Other external violence	1	1	1	1	1	1	1	1	1	1	1	1
XIV.—ILL-DEFINED DISEASES.												
Group Total	2	1	1	2	2	1	1	1	1	1	1	1
189. Cause of death not specified or ill-defined	2	1	1	2	2	1	1	1	1	1	1	1
STILL-BIRTHS.												
Not included in totals	18	18	18	12	6	18	18	18	18	18	18	18

53. Leucæmia
 54. Anæmia, chlorosis
 55. Alcoholism (acute or chronic)
 56. Alcoholism (chronic)
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.

1	30	4	2	1	4	1	4	2	5	11	13	20	19	8	07	58	79	48	55	70	16	12	12	11	10	6	10	6	11	4	15	12					
3	5	1	1	1	3	1	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
48	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
68	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
69	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
71	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
72	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
74	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

III.—DISEASES OF THE CIRCULATORY SYSTEM.

159	1	1	1	1	8	5	8	13	22	45	24	84	75	75	83	1	26	130	3	10	20	15	17	15	12	9	13	11	11	11	15							
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
116	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
92	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

142	50	9	2	4	3	1	3	5	12	7	12	21	11	74	68	93	46	3	63	76	3	7	12	17	12	17	5	8	7	2	16	11	28			
14	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
13	17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	30	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

V.—DISEASES OF THE DIGESTIVE SYSTEM.

120	59	7	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
52	49	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

101. Diseases of the œsophagus
 102. Ulcer of the stomach
 103. Other diseases of the stomach (cancer excepted)
 104. Diarrœa and enteritis (under 2 years)
 105. Diarrœa and enteritis (2 years and over)
 106. Intestinal parasites
 107. Appendicitis and typhitis

<p>XI.—DISEASES OF EARLY INFANCY.</p>														
15	15	15	9	6	6	4	1	2	1	1	1	3	2	
14	14	8	6	6	4	1	2	1	1	1	2	2		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	
<p>XII.—OLD AGE.</p>														
13	13	7	6	7	8	5	1	12	2	1	1	1	2	2
<p>XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.</p>														
17	17	3	14	3	3	11	3	10	1	3	1	2	2	2
167.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
169.	6	1	1	3	1	3	3	3	1	1	1	2	2	1
172.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
175.	4	1	4	1	1	2	1	2	2	1	1	1	1	1
178.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
181.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
185.	2	1	2	1	1	2	1	1	1	1	1	1	1	1
186.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<p>XIV.—ILL-DEFINED DISEASES.</p>														
189.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<p>STILL-BIRTHS.</p>														
11	11	5	6	5	6	11	11	11	2	2	2	2	2	2
<p>Not included in totals</p>														

OTTAWA—Continued.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
V.—DISEASES OF THE DIGESTIVE SYSTEM.																																							
Group Total	220	128	16	3	2	2	5	8	3	8	10	10	6	13	5	8	125	104	....	215	11	3	182	47	....	17	11	14	15	10	12	51	42	21	18	12	6
99. Diseases of the mouth and adnexa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
100. Diseases of the pharynx	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
102. Ulcer of the stomach	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
103. Other diseases of the stomach (cancer excepted)	11	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
104. Diarrhoea and enteritis (under 2 years)	124	114	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
105. Diarrhoea and enteritis (2 years and over)	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
108. Appendicitis and typhitis	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
109. Hernias, intestinal obstructions	15	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
110. Diseases of the intestines	10	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
111. Atrophic atrophy of the liver	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
113. Cirrhosis of the liver	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
115. Other diseases of the liver	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
117. Simple hepatitis (non-puerperal)	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
118. Other diseases of the digestive system (cancer and tuberculosis excepted)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
VI.—NON-GENITAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																																							
Group Total	70	1	1	1	1	1	1	1	1	4	7	9	14	5	11	15	2	38	32	....	49	18	3	24	45	1	3	8	6	9	13	4	4	2	5	4	1	
119. Acute nephritis	15	1	1	1	1	1	1	1	1	2	4	3	1	2	....	....	11	4	....	....	13	2	....	10	5	....	1	....	1	....	5	1	1	1	3	1	2
120. Bright's disease of the kidneys and adnexa	41	1	1	1	1	1	1	1	1	3	7	4	8	15	2	....	22	19	....	26	12	3	12	28	1	2	5	5	6	6	1	1	1	2	3	1	8
123. Calculi of the urinary passages	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
124. Diseases of the bladder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
126. Diseases of the prostate	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
129. Uterine tumor (non-cancerous)	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
130. Other diseases of the uterus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
131. Cysts and other tumors of the ovary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
132. Salpingitis and other diseases of the female genital organs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
VII.—THE PUERPERAL STATE.																																							
Group Total	10	....	....	....	....	....	....	....	....	7	2	1	....	....	....	....	....	....	....	....	7	3	....	1	9	....	1	3	....	1	1	4	....	....	....	....
134. Accidents of pregnancy	4	....	....	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	....	4	....	....	4	....	....	1	1	....	1	1	1	....	....	....	....
137. Puerperal septicemia	5	....	....	....	....	....	....	....	....	3	1	....	....	....	....	....	....	....	....	....	3	....	....	1	4	....	....	1	....	2	....	1	....	....	....	....
138. Puerperal albuminuria and convulsions	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																																							
Group Total	15	2	....	1	....	....	....	....	....	1	1	....	3	5	1	....	11	4	....	....	8	4	3	6	9	....	1	4	....	1	1	....	2	....	1	1	
142. Gangrene	7	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	2	2	5	....	1	....	1	....	1	....	1	....	....	....	....
143. Furuncle	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
144. Acute Abscess	7	2	....	1	....	....	....	....	....	1	1	....	1	....	....	....	4	3	....	....	5	1	1	4	3	....	2	....	2	....	2	....	2	....	....	....

III.—DISEASES OF THE CIRCULATORY SYSTEM.

Group Total	30	1	1	1	1	2	2	3	7	14	4	4	4	14	25	37	12	7	32	1	6	2	2	4	5	4	3	4	2	3	1
79. Organic diseases of the heart	32	1	1	1	2	2	2	1	7	13	1	2	2	11	21	22	10	6	26	1	7	1	2	2	4	4	2	4	1	3	1
80. Aneurysm	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
81. Diseases of the arteries; aneurysm, aneurysm, etc.	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
82. Hemorrhage; other diseases of the circulatory system	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

IV.—DISEASES OF THE RESPIRATORY SYSTEM.

Group Total	17	1	1	1	2	3	3	1	4	4	1	9	8	14	25	8	9	4	13	1	2	2	1	1	1	1	1	1	1	1	2	
90. Chronic bronchitis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
91. Broncho-pneumonia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
92. Pneumonia	12	1	1	1	2	2	2	4	2	1	6	6	5	7	6	5	7	3	9	1	2	1	1	1	1	1	1	1	1	1	1	1
94. Pulmonary congestion, pulmonary apoplexy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
96. Asthma	2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1

V.—DISEASES OF THE DIGESTIVE SYSTEM.

Group Total	26	10	1	1	1	1	3	3	1	2	13	13	21	4	1	15	10	1	15	1	2	2	1	2	2	2	2	2	2	2	2	3	1
102. Ulcer of the stomach	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
103. Other diseases of the stomach (cancer excepted)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
104. Diarrhea and enteritis (under 2 years)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
105. Diarrhea and enteritis (2 years and over)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
108. Appendicitis and typhlitis	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
109. Hernias, intestinal obstructions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
110. Diseases of the intestines	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
115. Other diseases of the liver	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
117. Simple peritonitis (non-puerperal)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	

VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.

Group Total	13	1	1	1	1	3	3	4	1	1	8	5	10	3	4	9	4	9	4	9	2	1	4	1	1	1	1	1	1	1	1	
119. Acute nephritis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
120. Bright's disease	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
122. Other diseases of the kidneys and adnexa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
126. Diseases of the prostate	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
129. Uterine tumor (non-cancerous)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
131. Cysts and other tumors of the ovary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

VII.—THE PUERPERAL STATE.

Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.

Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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144. Acute abscess

CAUSES OF DEATH IN THE CITY OF SARNIA, 1914.

OFFICIAL ENGLISH TRANSLATION. DISEASES AND CAUSES OF DEATH.	Total.	Ages.												Sex.		Nativity.		Social Con.		Months.																							
		Under 1.												Male.	Female.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.										
		0-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38			
Number of Column.	1																																										
Grand Total	156	34	3	1	1	1	1	2	3	3	6	7	8	9	10	10	15	15	25	19	21	107	47	2	68	84	4	13	14	16	12	5	10	10	6	2	2	4	4	1	8	
I.—GENERAL DISEASES.																																											
Group Total	40	3	1	1	1	1	2	3	3	6	7	8	9	10	10	15	15	25	19	21	107	47	2	68	84	4	13	14	16	12	5	10	10	6	2	2	4	4	1	8		
1. Typhoid fever	1																																										
8. Whooping cough	3																																										
9. Diphtheria and croup	1																																										
10. Influenza	2																																										
14. Dysentery	1																																										
18. Erysipelas	1																																										
20. Purulent infection and septicæmia	1																																										
28. Tuberculosis of the lungs	9																																										
39. Cancer and other malignant tumors of the buccal cavity	1																																										
42. Cancer and other malignant tumors of the female genital organs	1																																										
43. Cancer and other malignant tumors of the breast	3																																										
44. Cancer and other malignant tumors of the skin	1																																										
45. Cancer and other malignant tumors of other organs and of organs not specified	3																																										
47. Acute articular rheumatism	1																																										
50. Diabetes	3																																										
54. Anæmia, chlorosis	7																																										
Group Total	11	3	1	1	1	1	2	3	3	6	7	8	9	10	10	15	15	23	19	21	107	47	2	6	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																											
61. Simple meningitis	3																																										
64. Cerebral hæmorrhage, apoplexy	5																																										
71. Convulsions of infants	2																																										
74. Other diseases of the nervous system	1																																										

CAUSES OF DEATH IN THE CITY OF WINDSOR, 1914.

DISEASES AND CAUSES OF DEATH.	Total.	Ages.												Sex.		Nativity.		Social Con.			Months.															
		Under 1.												Male.	Female.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.			
		0-1	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60-69	70-79	80 and over.	172	144	218	95	3	143	153	20	34	31	29	32	30	31	32	33	34	35	36	37	38	39	21	22	23
Number of Column.	1																																			
Grand Total	316																																			
I.—GENERAL DISEASES.																																				
Group Total	63																																			
1. Typhoid fever	6																																			
8. Whooping cough	2																																			
9. Diphtheria and croup	9																																			
20. Purulent infection and septicemia	3																																			
28. Abscess of the lungs	15																																			
29. Acute mitral tuberculosis	2																																			
30. Tuberculous meningitis	1																																			
34. Tuberculosis of other organs	1																																			
37. Syphilis	1																																			
39. Cancer and other malignant tumors of the buccal cavity	1																																			
40. Cancer and other malignant tumors of the stomach, liver	5																																			
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum	1																																			
42. Cancer and other malignant tumors of the female genital organs	1																																			
43. Cancer and other malignant tumors of the breast and other malignant tumors of other organs and of organs not specified	2																																			
48. Chronic rheumatism and gout	4																																			
50. Diabetes	1																																			
51. Exophthalmic goitre	1																																			
54. Anemia, chlorosis	3																																			
55. Other general diseases	3																																			
56. Alcoholism (acute or chronic)	1																																			
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																				
Group Total	29																																			
61. Simple meningitis	6																																			
64. Cerebral hemorrhage, apoplexy	6																																			

CAUSES OF DEATH IN THE CITY OF WOODSTOCK, 1914.

OFFICIAL ENGLISH TRANSLATION. DISEASES AND CAUSES OF DEATH.	Ages.													Sex.		Nativity.		Social Con.			Months.																	
	Under 1.													Male.	Female.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.					
	0-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Number of Column.	1																																					
Grand Total	124																																					
I.—GENERAL DISEASES.																																						
Group Total	26																																					
9. Diphtheria and croup	1																																					
10. Influenza	1																																					
18. Erysipelas	1																																					
20. Purulent infection and septicemia	1																																					
28. Tuberculosis of the lungs	1																																					
31. Abdominal tuberculosis	1																																					
40. Cancer and other malignant tumors of the stomach, liver	1																																					
42. Cancer and other malignant tumors of the female genital organs	2																																					
45. Cancer and other malignant tumors of other organs and of organs not specified	2																																					
46. Other tumors (tumors of the female genital organs excepted)	1																																					
48. Chronic rheumatism and gout	1																																					
53. Leucemia	1																																					
54. Anemia, chlorosis	3																																					
55. Other general diseases	1																																					
56. Alcoholism (acute or chronic)	1																																					
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																						
Group Total	19																																					
61. Simple meningitis	1																																					
64. Cerebral hemorrhage, apoplexy	3																																					
66. Paralysis without specified cause	3																																					
68. Other forms of mental alienation	7																																					
71. Convulsions of infants	1																																					
74. Other diseases of the nervous system	1																																					

X.—MALFORMATIONS.												
Group Total	1	2	3	4	5	6	7	8	9	10	11	12
150. Congenital malformations (still-births not included)	1											
XI.—DISEASES OF EARLY INFANCY.												
Group Total	13				8	5	13				3	1 4 2 2 1
151. Congenital debility, icterus, and sclerema	13				8	5	13				3	1 4 2 2 1
XII.—OLD AGE.												
Group Total	12			1	4	7	6	6	7	5	12	3 1 2
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.												
Group Total	4			1	1	1	1	4	1	2	1	3 1 1 2
175. Traumatism by other crushing (vehicles, rail-road, landslides, etc.)	1											
178. Excessive cold	1											
185. Fractures (cause not specified)	1											
186. Other external violence	1											
XIV.—ILL-DEFINED DISEASES.												
Group Total	1											
188. Sudden death	1											
STILL-BIRTHS.												
Not included in totals	9				4	5	9				9	1 2 2 1 1 1 1

IV.—DISEASES OF THE RESPIRATORY SYSTEM.																								
18	1	1	1	1	1	2	1	3	1	2	9	9	14	4	6	0	1	3	3	2	1	2	4	
Group Total																								
87. Diseases of the larynx																								
89. Acute bronchitis	2																							
90. Chronic bronchitis	3	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1
91. Broncho-pneumonia	1																							
92. Pneumonia	7	1	1	1	1	1	1	1	1	1	3	4	5	2	2	2	2	2	2	1	2	1	1	1
93. Pleurisy	3										3	1	3	3	1	1	1	1	1	1	1	1	1	1
94. Pulmonary congestion, pulmonary apoplexy	1																							
Group Total	11	1	1	1	1	1	1	1	1	2	6	5	10	1	4	4	4	4	4	3	2	1	1	1
V.—DISEASES OF THE DIGESTIVE SYSTEM.																								
Group Total																								
102. Ulcer of the stomach																								
104. Diarrhea and enteritis (under 2 years)	1																							
108. Appendicitis and typhlitis	1																							
113. Cirrhosis of the liver	1																							
115. Other diseases of the liver	1																							
117. Simple peritonitis (non-puerperal)	6																							
Group Total	7																							
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																								
Group Total																								
119. Acute nephritis	2																							
120. Bright's disease	4																							
129. Uterine tumor (non-cancerous)	1																							
130. Other diseases of the uterus	1																							
Group Total	15	15									11	4	15	4	6	15	15	15	15	4	3	1	1	2
XI.—DISEASES OF EARLY INFANCY.																								
Group Total																								
151. Congenital debility, icterus, and sclerema	15																							
154. XII.—Old Age.	15																							
Group Total	7										2	5	4	3	1	6	3	3	3	1	2	1	1	2
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																								
Group Total																								
157. Suicide by hanging or strangulation	1																							
160. Suicide by cutting or piercing instruments	1																							
165. Other acute poisonings	1																							
166. Conflagration	1																							
169. Accidental drowning	1																							
175. Traumatism by other crushing (vehicles, rail-road, handslides, etc.)	3																							
185. Fractures (cause not specified)	2																							
Group Total	10	10									8	2	10	10	10	10	10	10	10	2	1	2	1	1
XIV.—ILL-DEFINED DISEASES.																								
Group Total																								
189. Cause of death not specified or ill-defined, STILL-BIRTHS.	2																							
Group Total	2																							
Not included in totals	10	10									8	2	10	10	10	10	10	10	10	2	1	2	1	1

V.—DISEASES OF THE DIGESTIVE SYSTEM.																	
Group Total 17 13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2																	
104. Diarrhea and enteritis (under 2 years)	12	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
108. Appendicitis and typhlitis	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
110. Diseases of the intestines	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
111. Other diseases of the liver	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
115. Other diseases of the spleen	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																	
Group Total 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2																	
130. Other diseases of the uterus	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
VII.—THE PUERPERAL STATE.																	
Group Total 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2																	
135. Puerperal hemorrhage	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
X.—MALFORMATIONS.																	
Group Total 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2																	
150. Congenital malformations (still-births not included)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
XI.—DISEASES OF EARLY INFANCY.																	
Group Total 41 41 20 21 20 21 20 21 20 21 20 21 20 21 20 21 41 41																	
151. Congenital debility, icterus, and sclerema	41	41	20	21	20	21	20	21	20	21	20	21	20	21	20	21	41
154	41	41	20	21	20	21	20	21	20	21	20	21	20	21	20	21	41
XII.—OLD AGE.																	
Group Total 2 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2																	
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																	
Group Total 8 8 3 3 1 1 1 3 1 1 3 1 1 3 1 1 8																	
167. Burns (conflagration excepted)	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
173. Traumatism by mines and quarries	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
174. Traumatism by machines	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
183. Fractures (cause not specified)	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
186. Other external violence	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
XIV.—ILL-DEFINED DISEASES.																	
Group Total 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2																	
189. Cause of death not specified or ill-defined	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
STILL-BIRTHS.																	
Group Total 20 20 10 10 10 10 10 10 10 10 10 10 10 10 10 10 20																	
Not included in totals 2 2 1 1 2 1 1 2 1 1 2 1 1 2 1 1 2																	

IV.—DISEASES OF THE RESPIRATORY SYSTEM.												
Group Total	10	1	1	1	1	1	1	1	1	1	1	1
89. Acute bronchitis	1	1	1	1	1	1	1	1	1	1	1	1
90. Chronic bronchitis	3	1	1	1	1	1	1	1	1	1	1	1
92. Pneumonia	6	1	1	1	1	1	1	1	1	1	1	1
V.—DISEASES OF THE DIGESTIVE SYSTEM.												
Group Total	10	3	1	1	1	1	1	1	1	1	1	1
103. Other diseases of the stomach (cancer excepted)	1	1	1	1	1	1	1	1	1	1	1	1
104. Diarrhoea and enteritis (under 2 years)	3	2	1	1	1	1	1	1	1	1	1	1
113. Cirrhosis of the liver	2	1	1	1	1	1	1	1	1	1	1	1
115. Other diseases of the liver	2	1	1	1	1	1	1	1	1	1	1	1
117. Simple peritonitis (non-puerperal)	3	1	1	1	1	1	1	1	1	1	1	1
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.												
Group Total	8	1	1	1	1	1	1	1	1	1	1	1
120. Bright's disease	6	1	1	1	1	1	1	1	1	1	1	1
126. Diseases of the prostate	1	1	1	1	1	1	1	1	1	1	1	1
129. Uterine tumor (non-cancerous)	1	1	1	1	1	1	1	1	1	1	1	1
X.—MALFORMATIONS.												
Group Total	1	1	1	1	1	1	1	1	1	1	1	1
150. Congenital malformations (stillbirths not included)	1	1	1	1	1	1	1	1	1	1	1	1
XI.—DISEASES OF EARLY INFANCY.												
Group Total	2	2	2	2	2	2	2	2	2	2	2	2
151. Congenital debility, icterus, and sclerema	2	2	2	2	2	2	2	2	2	2	2	2
154. XII.—OLD AGE.	19	3	3	3	3	3	3	3	3	3	3	3
Group Total	19	3	3	3	3	3	3	3	3	3	3	3
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.												
Group Total	4	1	1	1	1	1	1	1	1	1	1	1
Suicide by firearms	1	1	1	1	1	1	1	1	1	1	1	1
169. Accidental drowning	1	1	1	1	1	1	1	1	1	1	1	1
173. Traumatism by other crushing (vehicles, railroad, landslides, etc.)	2	1	1	1	1	1	1	1	1	1	1	1
Not included in totals	8	8	8	8	8	8	8	8	8	8	8	8

CAUSES OF DEATH IN THE TOWN OF OSHAWA, 1914.

DISEASES AND CAUSES OF DEATH.	Total.	Ages.											Sex.		Nativity.		Social Con.		Months.																																										
														Male.	Female.	Canada.	Foreign.	Not stated.	Single.	Married.	Not stated.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.																												
		Under 1.	1-4.	4-5.	5-9.	10-14.	15-19.	20-29.	30-39.	40-49.	50-59.	60-69.	70-79.	80 and over.	Not stated.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39																								
Grand Total	92	27	1	1	1	3	4	7	11	16	11	7	7	1	9	49	43	66	26	23	38	53	1	10	6	7	8	5	2	1	1	1	1	1	1	1	1	1	1																						
I.—GENERAL DISEASES.																																																													
1. Typhoid fever	18	2													9	9						4	14																																						
2. Whooping cough	1																																																												
8. Purulent infection and septicaemia	2																																																												
20. Tuberculous infection of the lungs	2																																																												
28. Tuberculosis of the lungs	3																																																												
39. Cancer and other malignant tumors of the buccal cavity	1																																																												
40. Cancer and other malignant tumors of the stomach, liver	2																																																												
41. Cancer and other malignant tumors of the peritoneum, intestines, rectum	1																																																												
43. Cancer and other malignant tumors of the breast	1																																																												
44. Cancer and other malignant tumors of the skin	1																																																												
47. Acute articular rheumatism	1																																																												
50. Diabetes	2																																																												
54. Anæmia, chlorosis	1																																																												
II.—DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.																																																													
Group Total	9	5													5	4						5	4																																						
61. Simple meningitis	1																																																												
64. Cerebral hemorrhage, apoplexy	4																																																												
66. Paralysis without specified cause	2																																																												
71. Convulsions of infants	1																																																												
74. Other diseases of the nervous system	1																																																												
III.—DISEASES OF THE CIRCULATORY SYSTEM.																																																													
Group Total	15															7	8					14																																							
79. Organic diseases of the heart	10															3	7					9																																							
80. Angina pectoris	1																																																												
81. Diseases of the arteries, aneurysm, etc.	4															3	1					4																																							

OFFICIAL ENGLISH TRANSLATION.
DISEASES AND CAUSES OF DEATH.

Number of Column.

SAULT STE. MARIE—Continued.

		Number of Column.																																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
III.—DISEASES OF THE CIRCULATORY SYSTEM.																																							
Group Total		9																																					
79. Organic diseases of the heart		6																																					
81. Diseases of the arteries, aneurysm, etc.		3																																					
IV.—DISEASES OF THE RESPIRATORY SYSTEM.																																							
Group Total		18																																					
89. Acute bronchitis		2																																					
91. Broncho-pneumonia		2																																					
92. Pneumonia		14																																					
V.—DISEASES OF THE DIGESTIVE SYSTEM.																																							
Group Total		23																																					
102. Ulcer of the stomach		2																																					
103. Other diseases of the stomach (cancer excepted)		2																																					
104. Diarrhoea and enteritis (under 2 years)		12																																					
108. Diarrhoea and enteritis (2 years and over)		2																																					
109. Appendicitis and typhlitis		1																																					
109. Appendicitis and typhlitis		1																																					
110. Hernias, intestinal obstructions		2																																					
113. Cirrhosis of the liver		1																																					
115. Other diseases of the liver		1																																					
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																																							
Group Total		7																																					
120. Bright's disease		1																																					
122. Other diseases of the kidneys and adnexa		2																																					
126. Diseases of the prostate		1																																					
VII.—THE PUERPERAL STATE.																																							
Group Total		2																																					
137. Puerperal septicæmia		2																																					
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																																							
Group Total		1																																					
142. Gangrene		1																																					

V.—DISEASES OF THE DIGESTIVE SYSTEM.

Group Total	14	5	1	1	1	1	4	1	1	1	1	8	6	14	11	3	2	1	1	1	2	4	3
103. Other diseases of the stomach (cancer excepted)	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
104. Diarrhea and enteritis (under 2 years)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
108. Appendicitis and typhlitis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
109. Hernias, intestinal obstructions	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
110. Diseases of the intestines	2	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
115. Other diseases of the liver	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
117. Simple peritonitis (non-puerperal)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
118. Other diseases of the digestive system (cancer and tuberculosis excepted)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VI.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ADNEXA.																							
Group Total	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120. Bright's disease	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
137. Puerperal septicæmia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VII.—THE PUERPERAL STATE.																							
Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
137. Puerperal septicæmia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
VIII.—DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.																							
Group Total	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1
142. Gangrene	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
145. Other diseases of the skin and adnexa	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
X.—MALFORMATIONS.																							
Group Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
150. Congenital malformations (still-births not included)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Group Total	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
151. Congenital debility, icterus, and sclerema	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
154. XII.—OLD AGE.																							
Group Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
XIII.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.																							
Group Total	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
175. Traumatism by other crushing (vehicles, railroad, landslides, etc.)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
185. Fractures (cause not specified)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
XIV.—ILL-DEFINED DISEASES.																							
Group Total	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
189. Cause of death not specified or ill-defined	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Group Total	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Not included in totals																							
Group Total	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

STILL-BIRTHS.
Not included in totals

Thirty-Third Annual Report
OF THE
Provincial Board of Health
OF
Ontario, Canada

FOR THE YEAR

1914

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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1915

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TORONTO

TO HIS HONOUR SIR JOHN STRATHEARN HENDRIE, K.C.M.G., C.R.V.O., etc.,
etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR.—I herewith beg to present for your consideration the Thirty-third Annual Report of the Provincial Board of Health for the year 1914.

Respectfully submitted,

W. J. HANNA,

Provincial Secretary.

TO THE HONOURABLE W. J. HANNA, K.C., M.P.P.,

Provincial Secretary of Ontario.

SIR,—I have the honour to submit for your approval the Thirty-third Annual Report of the Provincial Board of Health, made in conformity with and under the provisions of the Public Health Act, for the year 1914.

I have the honour to be, Sir,

Your obedient servant,

JOHN W. S. McCULLOUGH,

Chief Officer of Health.

PROVINCIAL BOARD OF HEALTH OF ONTARIO
1914

ADAM H. WRIGHT, M.D., ChairmanToronto.
HENRY R. CASGRAIN, M.D.Windsor.
THOMAS E. KAISER, M.D.Oshawa.
WILLIAM H. HOWEY, M.D.Sudbury.
A. A. WEAGANT, M.D.Ottawa.
JAMES ROBERTS, M.D., M.O.H.Hamilton.

Secretary and Chief Officer of Health,
JOHN W. S. McCULLOUGH, M.D., D.P.H. (Tor.)

Provincial Medical Inspector,
R. W. BELL, M.D.

Provincial Bacteriologist,
J. A. AMYOT, M.D.

Assistant Bacteriologist,
FRANK W. SCHOFIELD, D.V.S.

Branch Laboratory—Kingston,
W. T. CONNELL, M.D.

Provincial Chemist,
H. M. LANCASTER, B.A.Sc.

Assistant Chemist,
W. J. FAWCETT, M.A.,

Provincial Sanitary Engineer,
F. A. DALLYN, B.A.Sc., C.E. (Tor.).

District Officers of Health,

District.

- No. 1.—DAVID B. BENTLEY, M.D., Sarnia.
No. 2.—THOMAS J. McNALLY, M.D., Guelph.
No. 3.—DANIEL A. McCLENAHAN, M.D., Hamilton.
No. 4.—GEORGE CLINTON, M.D., Belleville.
No. 5.—PAUL J. MOLONEY, M.D., Cornwall.
No. 6.—W. EGERTON GEORGE, M.D., North Bay.
No. 7.—ROBERT E. WODEHOUSE, M.D., Fort William.

Sanitary Inspector,
GEORGE E. YOUNG.

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ANNUAL REPORT

OF THE

Provincial Board of Health for the Province of Ontario

For the Year ending 31st December, 1914.

RESUMÉ OF TRANSACTIONS OF THE BOARD BY THE CHIEF OFFICER.

This is the Thirty-third Annual Report of the Provincial Board of Health for the year ending December 31st, 1914.

The Board held four regular and two special meetings during the year. In the interval between meetings of the Board a large number of plans and specifications of water works and sewerage construction were, with the assistance of the Provincial Sanitary Engineer, scrutinized and approved. In the consideration of these matters careful attention was given to the plans of the various works in order not only to safeguard the municipalities involved against financial loss, but especially to see that the works approved were designed to give efficient and satisfactory service. In regard to these matters a large measure of credit is due to the Engineer, whose efforts have been most painstaking. The future only will show the public the value of such an excellent officer, whose services have in many instances prevented the establishment of works of faulty design, the construction of which would have meant loss and want of efficient results. A list of the various works approved will be found in his report.

District Officers of Health.

The first report of the District Officers who began their work in the fall of 1912 was included in last year's report. These officers continue to give excellent service and from correspondence received and discussions with Medical Officers of Health, Members of the Legislature, Municipal and County Councillors, and the public generally it will be at once seen that their services continue to be very much appreciated. Many of the matters of reform suggested by these gentlemen have been taken up by the Board and their recommendations are being carried out. At the outset of the war two of our most efficient officers, holding the rank of Major in the Army Medical Corps, offered their services for overseas duty and continue to be so employed. Major Bentley of No. 1 District is second in command of No. 2 Field Ambulance, and Major Wodehouse is employed as field sanitary officer with the Canadian Expeditionary Force in France. In addition, Major Moloney and Captain McClenahan have since the beginning of the war been giving a considerable portion of their time to military duty on the St. Lawrence and Welland Canals, respectively. Major Amyot has been acting as sanitary officer in the Second Division and the writer has been in charge of the work of inoculation against typhoid among the troops concentrated in Toronto.

Anti-Typhoid Inoculation.

Upon the outbreak of the war the Board offered to supply, free of charge, to the Federal Government all the Anti-typhoid Vaccine required for Canadian troops. This offer was accepted. In addition sufficient dosage for the troops sent overseas from the sister colony of Newfoundland was gratuitously supplied. This vaccine which is manufactured in the Provincial Board's Laboratory is of standard quality and, considering the excellent results achieved in the prevention of typhoid fever, the Board's action may reasonably be considered to be as valuable public health work as any hitherto undertaken.

Diphtheria Antitoxin.

Following efforts extending over a period of years the Board has succeeded in effecting a plan whereby the extortionate prices charged the public for Diphtheria antitoxin have been materially reduced. This product was, previous to May, 1914, not manufactured in Canada. Including other sera (or which it formed the very much larger proportion) the cost of the quantity annually imported into Canada exceeded \$120,000. The prices have always been such that there was a hesitancy on the part of physicians in using the remedy until there could be no question of the diagnosis, with the consequence that both as regards prevention and cure the delay was often fatal. Then again the question of cost often prevented large enough dosage being used except in well-equipped Isolation Hospitals. For example, in the year 1913 the death rate from diphtheria in the City of Toronto, apart from the cases treated in the Isolation Hospital, was 16 per cent., while the rate for the Isolation Hospital, where probably the most serious cases were taken, but where the dosage was large and prompt, was but 6 per cent.

In May, 1914, an arrangement was made with the University of Toronto whereby Anti-toxin is supplied to druggists and Boards of Health at the following prices, viz.:

5,000 unit vial package	\$1.00
5,000 unit syringe "	1.15
10,000 unit vial "	2.00
10,000 unit syringe "	2.15

Supplies may be readily procured by addressing Department of Hygiene, University of Toronto, Toronto, Ont.

Not only has this department proved of service to our own Province, but already within a year nearly all of the Provinces in the Dominion have availed themselves of the reasonable price at which the remedy is supplied. There can be no doubt that time will show as the result of this service a substantial decrease in the death rate from this disease.

Rabies Treatment.

It is gratifying to know that the incidence of rabies' cases has been much less during the year. However, a number of cases have been treated at our Laboratory, No. 5, Queen's Park, with continued good results. This treatment is likewise supplied to the Board by the University of Toronto. The Board makes no charge to the patient for 3 weeks' treatment except the actual cost to us of \$20.00. No case is refused even if the fee is not forthcoming. Details of cases treated will be found in the report of the Director of the Laboratory.

Legislation.

An amendment to Section 94 of the Public Health Act is of importance to urban municipalities desiring to establish sewage disposal works in an adjacent municipality by providing that this privilege may be granted if, after objections on behalf of the council of the municipality have been heard by the Board, the latter gives approval of the location. Several applications under this amendment are pending.

Ottawa Water Supply.

The water supply of the City of Ottawa is still an unsettled question. By a special Act of the Legislature of 1914, the decision as to whether mechanical filtration of the Ottawa River water by a plan known as the Currie Scheme or the establishment of a source of supply from Thirty-one Mile Lake in the Province of Quebec was left to the discretion of the Board. The latter scheme had been favourably reported upon by Sir Alex. Binnie of London, Eng. (see Annual Report, 1913). The whole question was fully investigated by the engineer and by the members of the Board all of whom went personally over the ground. As the result of this investigation there was no hesitation on the part of the Board in refusing to approve the plans of the Currie Scheme. However, the Board's refusal to approve of this plan was appealed and the learned judge who tried the appeal ordered the Board to reconsider the matter, which was done on the last day of the year, with the same result. As the law stands the city is committed to the Thirty-one Mile Lake scheme, which is a magnificent source of supply. Probably if the war had not ensued the work would ere this have been under way.

Communicable Diseases.

The regulations regarding the notification of communicable diseases including tuberculosis are being better observed from year to year, but there is still room for improvement. The public are becoming much better informed in respect to public health questions and the manner in which disease is spread. As a consequence greater care is taken in isolation and quarantine of such diseases.

Provincial Medical Inspector.

The general oversight of communicable diseases has continued under the able management of Dr. R. W. Bell, Lt.-Col., who has personally investigated many outbreaks, especially of smallpox, and who by his careful and painstaking work has been able to not only lessen the expense due to these diseases but also to check their spread. Dr. Bell has also investigated many cases of nuisance, notably that complained of by the residents of West Toronto in relation to the abattoirs there. His report will be found elsewhere in this volume.

Sanitary Inspector.

The Sanitary Inspector, Mr. Geo. E. Young, of North Bay, has charge of the various lumber, mining and construction camps in Northern Ontario. He is a very efficient officer and his services to the labour element in the hinterland of Ontario have been most valuable. Besides this he has been of great service to the local District Officer, Dr. W. Egerton George, upon whom, in the absence

of Dr. Wodehouse at the front, has been placed the charge of the public health work in the whole of New Ontario. The work of both these officers continues to be of the greatest value to that vast area of the Province over which they preside.

The Laboratory.

The routine work of this branch of the public health service has been exceedingly large during the year. The absence of the Director, Dr. J. A. Amyot, during a considerable portion of the year has placed a very large burden upon the Chief Chemist, Mr. H. M. Lancaster, B.A.Sc., and his assistants. The various officers of both the bacteriological and chemical laboratories have worked a great deal of overtime in order to keep up the efficiency of the service. The assistant bacteriologist, Dr. Frank Schofield, has been in charge of the production of Anti-typhoid Vaccine for the troops, already referred to. The quantity and character of the supply have been satisfactory at all times. The routine examination of specimens relative to diphtheria, typhoid blood, and tuberculosis reached the number of 8,000 in 1914. All seizures of contraband liquor continue to be examined for the Liquor License Branch. Recently the laboratory has undertaken the examination of foods, coal, soap, washing compounds and other materials used in the public institutions under control of the Government. This will, it is hoped, effect a large saving of expense previously incurred in having this work done outside, and at the same time prevent the practice of fraud by unscrupulous contractors.

The Experimental Plant.

This unit has been in charge of Mr. A. V. DeLaporte, B.A.Sc. Anything new in relation to the purification of water supply and treatment of sewage has been tested and its efficiency or otherwise proved. The laboratory has been enlarged and partially remodelled. Extensive experiments with the Ultra Violet Ray treatment of water have been made and its value in this respect amply shown. A full report upon these matters is included elsewhere.

Annual Conference of Medical Officers of Health.

The meeting of this Association, held in May, brought together an increased number of the most competent Medical Officers of Health in the Province. Dr. Chas. J. Hastings, the efficient Medical Officer of Health of Toronto, presided. The conference discussed a number of important and interesting topics. Much good has accrued from this annual meeting of health officers.

Educational Work.

The education of the public in the prevention of disease is perhaps the most important branch of the Board's service. This is accomplished chiefly by:—

- (a) The distribution of literature.
- (b) The public health exhibit.
- (c) Public lectures.

(a) Distribution of literature—This is carried out with the assistance of municipal medical officers of health aided by the co-operation of the public and separate schools. The plan followed is briefly as follows: There are some 850

Medical Officers of Health in the Province. Two years ago a circular was sent to each Medical Officer of Health asking for the approximate number of families in his municipality. This being ascertained a set of the Board's pamphlets, some fifteen in all, was sent to each officer in sufficient number to supply a copy of each pamphlet to every family. The Medical Officer of Health was instructed to hand these to the teachers in the schools with directions to send to each family a copy of each publication at the rate of a couple each week. In this way we have been able to secure a very extensive distribution of our publications. Already there have been circulated some 150,000 copies of each pamphlet.

(b) The Public Health Exhibit held at the Canadian National Exhibition each year attracts an enormous number of visitors. Besides, our moving picture show is sent about the Province during the fall and winter months. It is well received by the public. Each year we manage to add a number of new instructive films illustrating various phases of public health work.

(c) Lectures—These are usually carried on by the various District Officers and to some extent by the writer in connection with the moving picture exhibit. At the same time copies of our literature are distributed.

Boundary Waters Investigation.

The progress report of the International Joint Commission was published in 1913, and a résumé of the results arrived at was included in last year's report. Since that time work has been begun by the Commission upon the second question involved, viz.: The prevention of the pollution of international waters by sewage. This matter is being taken up in a thorough manner by the Commission and a further report will be published in due course.

Tuberculosis.

It is gratifying to note that the reduction in the death rate from tuberculosis continues, having dropped to 85 persons per 100,000 of population. Eleven years ago this rate was 148 persons per 100,000 of population annually.

Diarrhœa and Enteritis.

The Board has from year to year endeavoured to lessen the ravages amongst young children due to diarrhœal diseases. Elsewhere in this report some remarks upon this question, with a tabulation of rates for the various municipalities over a period of years, are given. In a large number of communities the death-rate has been gradually reduced. In the minority of instances there has been either no reduction or a slight increase. The death-rate for this disease is discussed and certain observations are presented which show that in most communities the existing rate is unnecessarily high.

The veteran Chairman, Dr. Adam H. Wright, has given a great deal of his time to the Board's affairs. To him as well as to the various members of the Board, whose advice and assistance have been most valuable, the writer desires to return his hearty thanks.

The work of the Board has greatly increased during the last few years. The volume of correspondence has increased about twelve-fold since 1910. The work has demanded very close attention and earnest labour on behalf of the staff. To them as well as to all the officers connected with the Board the writer is most grateful.

CASES AND DEATHS FROM COMMUNICABLE DISEASES REPORTED WEEKLY BY LOCAL BOARDS OF HEALTH FOR THE YEAR 1915.

	Smallpox.		Scarlet Fever.		Diphtheria.		Measles.		Whooping Cough.		Typhoid.		Tuberculosis.		Infantile Paralysis.		Cerebro-spinal Meningitis.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
January.....	76	0	320	3	201	29	184	3	89	3	48	14	126	64	.....	.....	7	4
February.....	60	0	410	6	216	10	427	3	63	2	49	10	136	72	.....	.....	7	7
March.....	47	0	447	6	198	19	682	6	47	4	39	10	98	64	1	0	6	5
April.....	31	0	349	11	147	13	609	5	180	8	55	5	145	90	.....	.....	17	15
May.....	39	0	275	13	183	10	691	21	96	6	36	9	110	65	2	0	3	3
June.....	32	0	203	6	158	6	859	7	108	9	43	5	99	55	2	1	3	0
July.....	34	0	80	1	144	12	422	4	34	5	127	9	97	47	3	1	4	4
August.....	6	0	71	2	172	10	148	2	52	5	126	10	124	72	11	0	5	5
September.....	14	0	49	2	158	15	107	4	34	2	140	22	80	45	5	2	3	3
October.....	23	0	128	2	358	22	182	2	20	4	227	8	113	71	3	1	8	3
November.....	55	2	164	2	329	35	201	2	42	1	92	10	94	60	2	0	3	3
December.....	94	0	226	6	508	32	372	1	33	7	78	14	113	71	0	0	3	3
	511	2	2,722	60	2,772	213	4,884	60	798	56	1,060	125	1,335	*776	29	5	68	55

* Tuberculosis, only 34 in every 100 deaths are reported weekly by Local Boards of Health. The M.O.H. and Secretaries are requested to press the matter of reporting all cases of communicable disease occurring in their municipalities. The information is tabulated in the Toronto office and forwarded to the District Offices of Health whose business is to assist the M.O.H.'s in checking outbreaks of disease.

The Legislature in the session of 1914 amended the Public Health Act as follows:

1. Subsection 3 of section 34 is repealed and the following substituted therefor:

Recovery of expenses of carrying out orders of Provincial Board. (3) The corporation of the municipality whose treasurer shall pay the expenses so incurred as provided by subsection 2 may recover the amount so paid by action in any court of competent jurisdiction against the person certified in writing by the chief officer to have been in default, or the council of the corporation of the said municipality may direct the amount of such expenses to be added by the clerk of the municipality to the collector's roll and collected from the person so certified to be in default in like manner as municipal taxes.

Section 94 is amended by adding thereto the following subsections:

Rev. Stat. c. 210, s. 94, amended. (7) The sewerage system or sewage disposal plant of an urban municipality may, with the approval of the Provincial Board be continued into, or through, or be situate in an adjoining township municipality, but before approving of any such work the Provincial Board shall give notice to the clerk of the township and shall hear and consider any objections which the council of the township or the residents therein may make to the location of the works.

Powers of urban municipality after approval of Provincial Board. (8) When the approval of the Provincial Board has been obtained the corporation of the urban municipality may enter upon, take and use such lands in the township as may be necessary, and for that purpose shall have and may exercise the same powers within the township as it has within its own municipality, and paragraph 56 of section 399 of *The Municipal Act* and clauses *a* and *b* following the said paragraph shall not apply.

Rev. Stat. c. 192.

DIARRHOEA AND ENTERITIS.

THE COMPARATIVE STATISTICS OF THE MUNICIPALITIES IN THE PROVINCE OF ONTARIO, 1902-1914.

International statistics show that Ontario has been for some years one of the healthiest provinces in the British Empire; there remains, however, much to be done if a premier position is to be attained. The great war at present raging and the immense loss of life occasioned by it directs our attention to the paramount need of a campaign in the interest of the conservation of life.

Considerable publicity has been given to infant mortality during the past few years and it is with thankfulness we accept the new phases, Baby's Welfare League, Infant's Pure Milk Depot, Little Mother's League, Baby's Milk Dispensary Guild, etc., which are so constantly being used in all progressive communities and which show that the public have recognized a new danger and have started the marshalling of forces.

One of the most serious losses under the general heading "Infant Mortality," and one which tends disastrously to deplete our national resources, is that known in our statistical vocabulary as a high "Diarrhoea and Enteritis" death rate.

The situations which appear to cause greatest trouble are a few cities and towns which are content to labour along with a polluted water supply and an inadequate sewerage system. The use of polluted water by the men and women in factories and mills and in towns without a proper water supply frequently promotes a condition of endemic para-typhoid fever. This, together with the absence of proper sewerage facilities, and the general prevalence of flies and lack of personal hygiene, promotes the transference of infective material to the baby's mouth or to milk which has been reserved for the baby's use.

The result is the baby sickens with what is known variously as summer complaint, cholera infantum, etc. The deaths are all classed under Group 104 which is known as "Diarrhoea and Enteritis (under two years)."

In Ontario, matters closely related to Infant Mortality are now receiving better attention, such as the extensive way in which some of the cities are constructing sewers and compelling landlords and tenants to do away with the old unsanitary privies and install water-carrying systems connected to municipal sewers under Sec. 25, s.s. 2, of The Public Health Act. Many of the smaller municipalities are now entering upon incinerator projects and are providing for the frequent collection of garbage and night soil. The proper screening and protection against flies and removal of the contents of dry earth closets weekly by a contractor engaged by the Local Board of Health or the Council is now recognized as correct practice and is being adopted in many of the northern towns and camps.

With the advent of Hydro-electric power there is no longer any excuse for not installing sewers, for even the most low lying sections can be economically handled by means of small electrically-operated pumping stations.

One of the questions which only a careful examination of our statistics will answer is to what standard may we reasonably attain. For this purpose the following statistics, showing the prevalence of Diarrhoea and Enteritis under two years in Ontario, are here given. Generally speaking, the statistics permit of a rather satisfactory conclusion, and that is, the existing high rates are local and capable of immediate improvement. Table No. 1 shows the conditions throughout the Province. A summary of Table No. 1 shows that the following averages exist.

TABLE I.—DIARRHŒA AND ENTERITIS IN ONTARIO, 1902-1914

County figures exclude cities and towns for which figures are given, but do include numerous small towns and villages not here listed

Name of Municipality and County with Assessed Population, 1914	Yearly deaths from Enteritis per 100 births registered, 1902-1914						Average yearly deaths from all causes, 1902-1912						Average number of births for year, exclusive of Still Births registered 1902-1912											
	Maximum year		Minimum year		Average for 13 years		County		City		Town		County		City		Town		County		City		Town	
	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town			
Algoma.....	38,363	4.0	9.8	0.72	3.2	3.0	2.4	3.6	6.0	376	166	911	911	240	534	534	279	534	534	240	240	240	279	
Sault Ste. Marie.....	13,000	3.7	7.4	0.4	1.2	3.0	1.17	3.6	254	354	166	373	373	533	495	495	808	495	495	240	240	240	279	
Brantford.....	26,453	2.8	7.3	0.8	1.1	3.0	3.85	6.2	702	423	393	1,181	1,181	533	1,053	1,053	808	1,053	1,053	533	533	533	808	
Bruce.....	35,322	7.3	7.5	1.4	1.1	3.0	3.85	6.2	423	423	393	675	675	533	640	640	808	640	640	533	533	533	808	
Carleton.....	100,180	2.6	7.5	0.7	1.1	3.0	3.85	6.2	227	227	1,827	1,827	1,400	1,400	302	302	2,632	302	302	1,400	1,400	1,400	2,632	
Ottawa.....	17,740	3.0	4.2	0.8	1.1	3.0	1.18	2.3	341	341	173	1,181	1,181	533	542	542	808	542	542	533	533	533	808	
Dufferin.....	30,528	3.0	4.2	0.8	1.1	3.0	1.18	2.3	341	341	173	1,181	1,181	533	542	542	808	542	542	533	533	533	808	
Elgin.....	49,718	3.5	7.3	0.9	1.1	3.0	1.81	3.2	574	574	335	1,215	1,215	382	340	340	808	340	340	382	382	382	808	
St. Thomas.....	35,080	1.8	7.7	0.7	1.1	3.0	1.06	3.3	293	293	370	482	482	445	445	445	808	445	445	482	482	482	808	
Winndor.....	35,730	1.8	7.7	0.7	1.1	3.0	1.06	3.3	293	293	370	482	482	445	445	445	808	445	445	482	482	482	808	
Kingston.....	53,322	1.2	4.5	0.7	1.1	3.0	0.71	3.3	588	588	173	1,119	1,119	850	850	850	517	850	850	1,119	1,119	1,119	517	
Owen Sound.....	21,502	5.1	4.5	0.51	1.1	3.0	1.71	2.58	259	259	173	408	408	421	421	421	342	421	421	408	408	408	342	
Haldimand.....	5,309	1.5	4.5	0.51	1.1	3.0	1.46	2.58	75	75	193	273	273	273	273	273	342	273	273	273	273	273	342	
Haliburton.....	22,308	1.3	4.5	0.51	1.1	3.0	1.58	2.58	257	257	193	424	424	516	516	516	342	516	516	424	424	424	342	
Hastings.....	15,868	2.7	7.5	1.5	1.9	3.4	1.87	3.4	581	581	165	1,031	1,031	1,118	1,118	1,118	342	1,118	1,118	1,031	1,031	1,031	342	
Belleville.....	14,968	2.8	7.5	1.5	1.9	3.4	1.87	3.4	581	581	165	1,031	1,031	1,118	1,118	1,118	342	1,118	1,118	1,031	1,031	1,031	342	
Huron.....	35,925	0.6	9.6	0.29	1.1	3.0	0.32	4.7	31	31	126	185	185	210	210	210	342	210	210	185	185	185	210	
Kenora.....	11,955	0.6	9.6	0.29	1.1	3.0	0.32	4.7	31	31	126	185	185	210	210	210	342	210	210	185	185	185	210	
Kenosha.....	43,925	2.5	11.2	1.1	1.4	3.0	1.75	3.7	542	542	185	1,104	1,104	1,020	1,020	1,020	196	1,020	1,020	1,104	1,104	1,104	196	
Chattham.....	14,585	2.4	11.2	1.1	1.4	3.0	1.75	3.7	542	542	185	1,104	1,104	1,020	1,020	1,020	196	1,020	1,020	1,104	1,104	1,104	196	
Lanark.....	11,508	2.4	11.2	1.1	1.4	3.0	1.75	3.7	542	542	185	1,104	1,104	1,020	1,020	1,020	196	1,020	1,020	1,104	1,104	1,104	196	
Sarnia.....	38,005	1.6	5.1	0.41	1.1	3.0	1.51	3.5	545	545	185	800	800	702	702	702	250	800	800	800	800	800	250	
Leeds.....	6,551	1.6	5.1	0.41	1.1	3.0	1.51	3.5	380	380	140	559	559	180	180	180	270	559	559	559	559	559	270	
Smiths Falls.....	6,551	1.6	5.1	0.41	1.1	3.0	1.51	3.5	380	380	140	559	559	180	180	180	270	559	559	559	559	559	270	
Leeds and Grenville.....	4,611	2.5	5.5	0.64	1.1	3.0	1.65	2.4	617	617	84	854	854	745	745	745	186	854	854	854	854	854	186	
Brockville.....	4,611	2.5	5.5	0.64	1.1	3.0	1.65	2.4	617	617	84	854	854	745	745	745	186	854	854	854	854	854	186	
Lennox and Addington.....	30,346	2.3	5.7	0.57	1.1	3.0	1.08	3.9	277	277	179	380	380	342	342	342	228	380	380	380	380	380	228	
Lincoln.....	82,945	3.8	3.5	0	1.1	3.0	3.48	2.6	351	351	193	403	403	514	514	514	342	403	403	403	403	403	342	
St. Catharines.....	16,940	1.3	3.5	0	1.1	3.0	0.55	2.6	74	74	193	316	316	500	500	500	342	316	316	316	316	316	500	
Manitoulin.....	50,758	2.6	3.6	0.41	1.2	3.0	1.13	2.7	632	632	676	903	903	749	749	749	1,200	903	903	903	903	903	749	
Midland.....	55,096	2.6	3.6	0.41	1.2	3.0	1.13	2.7	632	632	676	903	903	749	749	749	1,200	903	903	903	903	903	749	
London.....	81,923	3.2	3.6	0	1.2	3.0	1.23	2.7	245	245	595	595	595	538	538	538	1,200	595	595	595	595	595	538	
Muskoka.....	85,678	5.4	10.3	0.41	1.1	3.0	1.23	2.7	516	516	91	1,196	1,196	494	494	494	342	1,196	1,196	1,196	1,196	1,196	494	
Nipissing.....	16,418	10.3	6.4	0.41	1.1	3.0	3.75	7.8	7.8	7.8	91	146	146	292	292	292	342	146	146	146	146	146	292	
Cobalt.....	27,110	2.6	6.4	0.52	1.1	3.0	1.54	4.27	357	357	103	553	553	406	406	406	342	553	553	553	553	553	406	
North Bay.....	27,110	2.6	6.4	0.52	1.1	3.0	1.54	4.27	357	357	103	553	553	406	406	406	342	553	553	553	553	553	406	
Norfolk.....	27,110	2.6	6.4	0.52	1.1	3.0	1.54	4.27	357	357	103	553	553	406	406	406	342	553	553	553	553	553	406	

* 1909-1914. † 1910-1914. ‡ 1907-1914. § This district has been broken into 3.

TABLE I—Continued.—DIARRHŒA AND ENTERITIS IN ONTARIO, 1902-1914

County figures exclude cities and towns for which figures are given, but do include numerous small towns and villages not here listed

Name of Municipality and County with Assessed Population, 1914	Yearly deaths from Enteritis per 100 births registered, 1902-1914						Average number of births for year, exclusive of Still Births registered 1902-1913						Average yearly deaths from all causes, 1902-13						Average number of Births registered in 1914											
	Maximum year			Minimum year			Average for 13 years			Town			City			Town			City			Town			City			Town		
	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town	County	City	Town			
Northumberland & Durham	2.3								1.17			656			940						99			919						
Cobourg	4,138	3.1				21						3.3			93						99			111						
Port Hope	1,867	3.7										1.6			73						86			601						
Ontario	33,570	4.3				16			1.89			536			672						102			601						
Oshawa	8,248	3.3				35			.95			2.6			90						137			759						
Oxford	36,051	3.3				35			3.11			495			785						187			303						
Woodstock	10,151	4.2										148												781						
Parry Sound	96,547	3.8				11			1.56			300			737						737			498						
Peel	22,102	2.7				27			1.53			266			393						266			679						
Perth	36,293	2.1				0			.85			403			750						403			357						
Stratford	16,425	3.1				36			1.71			272			504						272			506						
Peterborough	23,280	2.5				40			1.31			347			96						347			476						
Prescott and Russell	47,421	4.1				1.5			2.87			630			1,336						630			1,715						
Hawkesbury	4,610	9.1				77			1.21			252			200						252			294						
Prince Edward	17,159	2.5				0			1.34			399			240						399			319						
Rainy River	10,050	3.0				0			1.43			516			1,189						516			959						
Renfrew	42,038	3.0				38																								
Pembroke	7,450	8.6				55			4.1			805			110						805			1,146						
Simcoe	64,805	4.5				55			1.53			805			110						805			1,146						
Barrie	7,245	6.6				58						106			106						106			182						
Collingwood	6,646	7.5				64						104			104						104			143						
Orillia	6,478	9.5				1.3			3.2			80			80						80			158						
Stromont, Dundas & Gengarry	37,601	2.4				1.48			1.71			735			146						735			1,081						
Cornwall	6,700	12.9				2.8			4.7			387			146						387			144						
Sudbury	84,918	8.2				2.1			4.91			31			119						31			178						
Thunder Bay	11,367	10.0				4.95			6.9			217			119						217			178						
Port Arthur	18,025	11.5				3.2			6.5			283			144						283			178						
Victoria	24,226	3.2				1.8			1.43			383			146						383			178						
Lindsay	7,240	3.6				41			.95			101			101						101			181						
Waterloo	36,112	2.4				1.1			1.7			353			149						353			965						
Berlin	18,338	3.8				23			2.3			166			149						166			320						
Galt	11,932	3.4				1.3			2.6			123			171						123			323						
Welland	27,597	4.8				48			2.3			355			171						355			783						
Niagara Falls	11,700	3.7				1.3			2.53			107			81						107			294						
Welland	7,298	10.8				4			3.3			53			81						53			294						
Wellington	39,347	2.2				0			2.6			355			171						355			783						
Georgetown	16,319	3.4				34			.86			504			779						504			719						
Georgetown	29,677	4.7				0			3.2			113			586						113			553						
Wentworth	100,808	5.0				2.0			2.17			391			1,490						391			1,928						
Hamilton	62,064	2.2				71			1.9			4,565			7,181						4,565			13,949						
Toronto	445,575	6.9				1.9			3.91			352			403						352			103						
North Toronto	6,9	5.0				1.1			3.2			200			348						200			348						
West Toronto	6,9	5.0				1.1			3.2			200			348						200			348						

* 1909-14. † 1902-1912. ‡ Included in County, 1914

SUMMARY OF TABLE I.

Class of Municipality	Averages of the average yearly Deaths per 100 Births.				
	Max.	Min.	Average.	Group of the lowest Averages.	Group of the highest Averages.
Counties	3.44	0.54	1.89	0.88	2.73
Towns	7.1	1.27	3.59	2.30	4.86
Cities	5.9	1.44	3.37	2.20	5.36

The Town of Rockland, a lumbering centre on the Ottawa River, in the County of Russell, is an unfortunate example of what a polluted water supply and lack of sanitation means to a community. This town has had during the past ten years an average death rate from Diarrhoea and Enteritis (under two years) of 11 per cent. of the reported births, with exceptional years running as high as 22.9 per cent. of the reported births; another such municipality is Sturgeon Falls. Conditions such as these are intolerable and some method of financing the needed local improvements must be arranged for. No Local Medical Officer of Health should tolerate any such death rate: due publicity should raise such a storm of protest that sanitary conditions would be established at no matter what sacrifice.

We must dismiss once and for all the old fallacy of taking the Province or even the county as a whole and pluming ourselves because a good average is shown. The figures for each municipality must be considered even in the counties exhibiting excellent rates. Examining analytically the counties of Prescott and Russell, Carleton and Nipissing, we find that the county rate is made of several very good townships and some exceptionally bad ones, as is shown in Table No. 3. Conditions such as these could be cited *ad infinitum*.

The intensity of the deaths by months may be conveniently expressed as 18 per cent. occurring in July, 34 per cent. occurring in August, and 21 per cent. occurring in September and less than 3 per cent. in any other month, except October, which is slightly higher than 3 per cent. Considering those municipalities which exhibit the lowest rates we have 24 per cent. of the deaths occurring in August, 30 per cent. occurring in September and 17 per cent. in October with something higher than 3 per cent. of the total each month. July, the highest of these, however, does not exceed 11 per cent. of the total.

In view of the fact that practically 80 per cent. of the cases and deaths occur during July, August and September, a systematic campaign, with an increased staff of nurses and additional milk depots with longer hours, is amply warranted during this period. In fact if this period were properly covered, the remainder of the year could almost take care of itself. Any Babies' Welfare organization which permits its workers to have holidays during this period is guilty of criminal neglect and demonstrates its lack of appreciation of the fundamental principles presented in their problem.

It appears that heat alone is not responsible for excessive death rates, but where unsanitary conditions exist a continued hot spell certainly causes the house flies and other agents of disease transference to multiply, making infections more numerous.

A continued hot spell affects the keeping of fresh milk very seriously and in a minor way may be the cause of disorders which on account of an artificial

food diet renders the infant more sensitive to infection. The pure milk depots ought to be kept open all day in hot weather and the milk sold in smaller containers. This will prevent the growth of organisms introduced by careless handling in the home. The ideal container would have only one feeding. Remember the milk as it leaves the carefully managed depot is good; infection is always introduced subsequently by the mother or person handling the infant's food.

Many of our municipalities boasting of sewage systems have large sections of the municipality unsewered. Unfortunately, the Medical Officer of Health have until recently overlooked the fact that in many sewered sections no systematic effort has been made to abolish all the out-houses and have connection with the town sewers. In cities Section 25, s.s. 2, of the Public Health Act can be used effectively; this section is to be amended to apply to all urban municipalities having a municipal sewerage system. Dr. Hastings, M.O.H. of the City of Toronto. reported to the writer that he had been able in the last three years to abolish ten thousand outside closets. All Medical Officers of Health should have their sanitary inspectors make a census annually of the number of outside closets. A close analytical study of the statistics will frequently show a relation between the unsewered sections of a municipality and a high Diarrhœa and Enteritis rate.

Maps of the municipalities for the purpose of analytical study can be procured through the courtesy of the Provincial Board of Health or directly from Chas. E. Goad & Co., at nominal prices. The maps appear as shown on the opposite page with the street number and surroundings clearly shown. The sanitary inspector can really complete the necessary information with reference to the location of privies, and as to whether the house is connected to the sewer.

Many of the Ontario municipalities have reduced their rates and the remainder can do likewise.

The high rates existing in several of the counties are due almost entirely to unsanitary conditions in one or several of the urban municipalities included therein.

In studying his problem, the Local Medical Health Officer or District Officer of Health should bear in mind these several facts and remember that the deaths occur mainly in July, August, September and October.

Tables and text arranged by F. A. Dallyn.

COUNTIES OF ONTARIO

Summary Deaths by Months, 1902-1914.

DIARRHŒA AND ENTERITIS

1911 Popu- lation	County or District	January	February	March	April	May	June	July	August	September	October	November	December	Total	Average No. of deaths per 100 births D. & E.
11,367	Thunder Bay	3	...	2	3	9	3	18	58	24	10	4	...	134	11.3
11,955	Kenora .....	...	1	...	1	1	1	9	14	1	2	3	...	32	5.1
34,948	Sudbury	10	3	10	4	1	4	23	76	37	14	6	2	190	4.91
32,322	Carlton .....	...	5	6	12	7	20	91	111	57	22	7	4	342	3.85
47,424	Prescott & Russell.	16	18	14	19	22	42	77	143	79	43	20	27	520	2.87
45,678	Nipissing	10	7	8	9	13	12	73	147	91	39	9	10	428	2.75
27,597	Welland	2	1	2	2	2	5	13	44	62	34	8	2	177	2.6
22,945	Lincoln	4	4	3	4	5	3	18	49	19	14	4	3	130	2.48
23,403	Algoma	7	4	5	1	8	5	18	108	73	24	7	7	267	2.4
29,677	Wentworth	3	4	3	4	5	1	22	38	59	18	5	4	166	2.17
62,064	York	6	6	9	6	8	13	45	120	99	39	13	6	370	1.9
33,570	Ontario	5	2	2	3	8	4	17	19	53	32	3	5	153	1.89
45,927	Hastings	6	4	6	5	14	10	19	63	73	39	8	4	241	1.87
49,718	Essex	11	5	5	6	9	7	41	89	69	31	8	8	289	1.81
45,225	Kent	5	3	7	3	6	6	12	66	94	35	8	7	252	1.75
57,601	Stormont, Dundas and Glengarry ..	3	5	4	7	13	14	32	91	60	31	1	4	265	1.74
21,562	Haldimand	4	2	5	4	...	3	16	27	15	13	2	...	91	1.71
44,951	Leeds & Grenville.	6	3	9	8	4	7	17	26	53	37	6	8	184	1.65
22,208	Halton	2	1	2	1	4	3	2	20	33	10	3	2	83	1.58
26,547	Parry Sound	2	2	5	3	3	5	18	43	32	19	4	2	138	1.56
22,102	Peel	1	3	1	1	3	4	9	15	23	11	2	1	74	1.55
10,050	Rainy River	1	1	4	4	1	...	7	8	7	3	...	1	37	1.54
27,110	Norfolk .....	...	1	3	11	4	4	7	16	35	26	3	1	111	1.54
64,805	Simcoe	10	8	6	5	4	5	15	70	74	54	6	9	266	1.53
41,585	Lambton	6	6	4	5	1	4	4	19	49	44	14	2	158	1.51
28,005	Lanark	6	4	3	3	7	4	6	37	30	9	1	...	110	1.50
42,036	Renfrew	7	8	7	4	3	9	27	72	37	17	7	6	204	1.43
24,226	Victoria	2	1	1	2	2	1	7	11	22	12	4	3	68	1.43
23,290	Peterborough	2	3	2	1	1	7	7	13	26	11	13	1	87	1.31
17,150	Prince Edward ..	...	...	2	3	3	1	...	6	16	11	4	1	47	1.31
21,233	Muskoka .....	...	...	4	3	4	4	14	33	27	8	2	1	96	1.23
17,740	Dufferin	5	1	2	6	4	4	9	8	12	5	3	...	59	1.18
22,744	Brant .....	...	1	...	3	...	1	2	16	24	10	...	...	57	1.17
49,464	Northumberland ..	4	4	...	6	2	6	13	25	35	23	7	9	134	1.17
30,528	Elgin .....	...	5	...	1	...	5	3	5	38	22	3	...	82	1.15
50,756	Middlesex	3	1	1	6	4	6	8	17	53	25	5	4	133	1.13
20,386	Lennox & Adding- ton	3	1	4	...	3	2	6	7	15	11	2	1	55	1.08
23,730	Frontenac	4	5	3	3	1	2	7	14	17	5	3	3	67	1.06
52,983	Huron	4	4	4	10	3	9	7	15	36	30	6	3	129	.97
39,317	Wellington	2	4	2	2	3	6	2	6	38	21	3	2	91	.96
36,112	Waterloo	3	2	4	3	1	2	4	24	36	20	3	1	103	.95
50,032	Bruce	2	6	6	8	8	6	4	22	39	36	6	3	146	.95
36,051	Oxford	4	1	2	2	5	...	8	11	32	19	2	4	90	.95
36,236	Perth	1	1	5	2	3	3	2	8	26	24	1	3	79	.85
53,333	Grey	10	3	9	5	6	6	9	19	28	11	2	3	111	.71
10,940	Manitoulin .....	...	...	...	1	...	...	2	1	1	...	...	1	6	.55
5,309	Haliburton .....	...	...	1	1	1	1	2	1	1	1	2	1	12	.46
		185	153	184	206	218	270	772	1,851	1,860	970	233	169	7,064	1.89

2.15 weighted average for Counties.

CITIES OF ONTARIO
 Summary Deaths by Months, 1902-1914
 DIARRHŒA AND ENTERITIS

1914 Assessed Population	City	January	February	March	April	May	June	July	August	September	October	November	December	Total	Average number of deaths per 100 births D. & E.
24,071	Fort William ...	5	5	4	8	9	9	53	127	71	13	14	9	327	6.9
18,025	Port Arthur	7	5	2	1	5	2	14	96	63	16	2	8	221	6.5
100,180	Ottawa.....	40	23	37	34	54	76	450	403	198	93	35	28	1,473	6.2
445,575	Toronto.....	99	94	105	114	124	133	633	1,150	698	297	134	98	3,679	3.95
12,465	Chatham.....	...	1	1	1	2	1	...	22	38	22	1	...	89	3.7
26,454	Brantford.....	...	2	4	6	6	1	28	86	79	29	2	2	245	3.6
11,868	Belleville.....	3	3	2	1	1	3	5	21	23	17	3	1	83	3.4
21,015	Kingston.....	3	3	...	3	1	...	15	73	46	21	4	6	171	3.2
100,808	Hamilton.....	12	6	10	9	8	11	106	254	155	62	20	17	680	3.28
22,080	Windsor.....	2	1	3	3	1	4	34	46	25	14	2	2	137	3.2
55,026	London.....	3	1	5	5	5	10	45	122	94	36	7	...	331	2.7
16,186	St. Catharines..	3	1	1	1	3	...	7	32	29	5	4	2	88	2.6
11,700	Niagara Falls...	...	1	4	1	2	2	9	13	20	5	2	1	61	2.5
16,794	St. Thomas.....	3	1	1	1	2	...	5	19	23	13	17	...	85	2.32
20,150	Peterboro.....	3	...	1	5	...	2	18	40	23	10	4	2	108	2.26
16,319	Guelph.....	1	...	5	2	1	...	5	22	22	18	3	1	80	2.2
10,154	Woodstock.....	1	...	1	...	1	...	2	12	14	11	5	1	48	2.14
16,425	Stratford.....	...	...	3	...	1	4	7	18	13	14	2	1	63	1.71
18,338	Berlin.....	1	1	...	2	1	3	4	20	27	6	5	2	72	1.7
		186	148	185	197	228	261	1440	2,576	1,661	702	266	181	8,031	

4.142 weighted average for cities.

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

CITY OF BELLEVILLE
County of Hastings

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	9,208								1	1				2
1903									2	1				3
1904			1	1	1	1	1	1						5
1905														
1906							2	2	5	2				11
1907								4	1	1	1			9
1908		1	1				1	4	3	1				11
1909		1					1	1	2	2				7
1910		1	1				1	5	1					8
1911	9,876							1	1	1	5	1		8
1912			1				1	1	1	1				6
1913				1			1	3	2	1	1			9
1914					1				2	1				4
Total		3	3	2	1	1	3	5	21	23	17	3	1	83

CITY OF GUELPH
County of Wellington

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	11,496								1	1				2
1903									2	1				3
1904									1	4	2			7
1905									2	1	2			5
1906				1					2	2	2			7
1907														
1908														
1909			1						3	3	3			7
1910		1	3	1					3	3	3			11
1911	15,175				1			1	4	1	2			9
1912														
1913									2	2				4
1914								1	4	2				7
Total		1	5	2	1			5	22	23	18	3	1	80

CITY OF BERLIN
County of Waterloo

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	9,844								1	1				2
1903									3	4	1			8
1904								1				1		2
1905		1					1		2					4
1906								2	1	3				6
1907								1	1					2
1908			1					2	2	4				9
1909						2			1					3
1910							1		3	1	1	2		8
1911	15,196			1	1	1	3	1						7
1912														1
1913								5	10	2				17
1914									1	1	1			3
Total		1	1	2	1	3	4	20	27	6	5	2		72

CITY OF HAMILTON
County of Wentworth

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	52,634	1						1	10	6	1	1		20
1903		2	2					10	8	9	2	1		36
1904				1	1	2		1	19	4			1	22
1905			4		2	1		5	19	12				44
1906		1	1			1		12	13	4	3		3	39
1907			2			1		3	9	10	4	1		30
1908		1	1			1		10	37	23	9	2	1	86
1909				1	1	1		5	28	17	9	1		64
1910				1	1			24	23	14	7	3	1	74
1911	81,969			3				8	24	8	5	1	7	56
1912				1	1	1		3	28	22	9	2		67
1913		4		1	1	2		21	33	13	7	1	2	85
1914		3	1	2		2		3	10	12	6	7		47
Total		12	6	10	9	8	11	106	254	155	62	10	17	680

CITY OF BRANTFORD
County of Brant

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	16,619					1		1	4	6	1			13
1903								1	5	2				8
1904						1		1	1	1		1		5
1905								2	2	6				10
1906								3	7	3				13
1907						1		4	7	1	1			14
1908			1					8	7	4	1			22
1909			1	2				13	2	2				20
1910			2	2			1	6	5	6	7			29
1911	23,132							1	9	8	4			22
1912								1	7	8	3			21
1913			1	1			13	19	15	5				55
1914									2	8	1	1		13
Total		2	4	6	6	1	28	86	79	39	2	2		245

CITY OF FORT WILLIAM
County of Thunder Bay

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	3,997								2	1	1	1		6
1903								1	2	3				6
1904								1	1	1			1	5
1905									6	2			1	9
1906									2	13	9	1		26
1907									15	8				26
1908									9	5	2	2	1	20
1909			1	1				1	3	16	13	2	1	39
1910								1	19	19	6			46
1911	16,499	1	1	1	1	3	6	11	6		3	2		36
1912				3	3	1	2	5	9	5	2	1		32
1913		2	1	2	2	2	18	27	11	2	5	3		76
1914			1	1	1	2	13	17	9	2	1	1		*49
Total		5	5	4	8	9	9	53	127	71	13	14	9	327

CITY OF CHATHAM
County of Kent

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	9,068								2	2				4
1903									1	1				2
1904									1	1				2
1905									13	5				18
1906									2	3				5
1907									2	2				6
1908									1	1				4
1909									2	2				5
1910									3	3	2			8
1911	10,770								3	3	4	1		13
1912									4	3	1			8
1913									1		2			3
1914									4	4				10
Total		1	1	1	2	1		22	38	22	1			89

CITY OF KINGSTON
County of Frontenac

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	17,691								3	2				6
1903									2	9	7	6	1	27
1904									3	3				8
1905									2	9	2			13
1906									9	4	2			15
1907									1	11	2			15
1908									1	14	4			20
1909									3	5	1	2	1	12
1910									3	5	3	2		13
1911	18,874								2	5	3			11
1912											1	1		3
1913									1	5	5	4		17
1914									2	5	1	2	1	11
Total		2	3	3	1			15	73	46	21	4	6	171

* Statistics received too late to be included in totals and averages.

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

CITY OF LONDON
County of Middlesex

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	37,981	1	1	1	1	1	1	1	5	7	1	1	1	19
1903	37,981	1	1	1	1	1	1	1	3	3	4	1	1	14
1904	37,981	1	1	1	1	1	1	1	6	12	4	1	1	26
1905	37,981	1	1	1	1	1	1	1	10	19	1	1	1	27
1906	37,981	1	1	1	1	1	1	1	12	4	2	1	1	23
1907	37,981	1	1	1	1	1	1	1	4	8	6	1	1	19
1908	37,981	1	1	1	1	1	1	1	10	10	6	1	1	33
1909	37,981	1	1	1	1	1	1	1	22	22	1	1	1	33
1910	37,981	1	1	1	1	1	1	1	16	15	5	1	1	36
1911	46,300	1	1	1	1	1	1	1	8	2	2	1	1	12
1912	46,300	1	1	1	1	1	1	1	6	11	6	1	1	24
1913	46,300	1	1	1	1	1	1	1	13	15	6	1	1	39
1914	46,300	1	1	1	1	1	1	1	5	11	6	1	1	26
		3	1	5	5	5	10	45	122	94	36	7	1	331

CITY OF NIAGARA FALLS
County of Welland

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	4,244	1	1	1	1	1	1	1	2	1	1	1	1	5
1903	4,244	1	1	1	1	1	1	1	1	1	1	1	1	1
1904	4,244	1	1	1	1	1	1	1	2	1	1	1	1	4
1905	4,244	1	1	1	1	1	1	1	4	3	1	1	1	8
1906	4,244	1	1	1	1	1	1	1	1	1	1	1	1	3
1907	4,244	1	1	1	1	1	1	1	1	1	1	1	1	1
1908	4,244	1	1	1	1	1	1	1	2	2	1	1	1	8
1909	4,244	1	1	1	1	1	1	1	1	1	1	1	1	8
1910	4,244	1	1	1	1	1	1	1	3	2	1	1	1	8
1911	9,248	1	1	1	1	1	1	1	1	1	1	1	1	4
1912	9,248	1	1	1	1	1	1	1	1	3	1	1	1	4
1913	9,248	1	1	1	1	1	1	1	1	2	1	1	1	3
1914	9,248	1	1	1	1	1	1	1	2	1	1	1	1	4
		1	1	1	1	1	1	1	13	20	5	2	1	61

CITY OF OTTAWA
County of Carleton

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	59,928	1	1	3	2	1	4	10	21	8	4	1	1	56
1903	59,928	3	4	2	3	5	10	18	23	9	4	3	2	113
1904	59,928	5	2	3	3	3	7	27	25	11	4	3	3	93
1905	59,928	3	4	1	6	3	5	44	36	7	3	2	1	115
1906	59,928	3	4	1	3	3	4	30	29	15	7	3	1	99
1907	59,928	3	1	1	1	3	6	30	52	10	8	1	1	96
1908	59,928	3	1	1	1	3	2	32	28	15	3	3	4	95
1909	59,928	3	1	1	1	1	16	42	12	4	1	1	1	82
1910	59,928	6	2	7	3	5	12	43	35	16	10	4	1	144
1911	87,062	5	5	4	6	9	5	52	50	25	5	2	3	168
1912	87,062	4	3	3	4	10	6	25	17	21	10	7	7	111
1913	87,062	4	3	3	2	4	8	48	40	37	21	9	5	177
1914	87,062	4	5	4	3	4	6	43	27	12	10	4	2	124
		40	23	37	34	54	76	450	408	199	93	35	28	1,473

CITY OF PETERBOROUGH
County of Peterborough

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	11,239	1	1	1	1	1	1	1	1	2	1	1	1	3
1903	11,239	1	1	1	1	1	1	1	2	1	1	1	1	6
1904	11,239	1	1	1	1	1	1	1	3	1	1	1	1	6
1905	11,239	1	1	1	1	1	1	1	2	1	1	1	1	4
1906	11,239	1	1	1	1	1	1	1	7	1	2	1	1	11
1907	11,239	1	1	1	1	1	1	1	3	1	1	1	1	5
1908	11,239	1	1	1	1	1	1	1	8	5	5	1	1	19
1909	11,239	1	1	1	1	1	1	1	2	2	1	1	1	6
1910	11,239	1	1	1	1	1	1	1	3	7	4	1	1	15
1911	18,360	1	1	1	1	1	1	1	2	2	1	1	1	4
1912	18,360	1	1	1	1	1	1	1	1	1	3	1	1	7
1913	18,360	1	1	1	1	1	1	1	3	4	1	1	1	11
1914	18,360	1	1	1	1	1	1	1	5	3	1	1	1	11
		3	1	5	2	2	18	40	23	10	4	2	1	108

CITY OF PORT ARTHUR
County of Thunder Bay

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	3,214	1	1	1	1	1	1	1	3	2	1	1	1	5
1903	3,214	1	1	1	1	1	1	1	1	1	1	1	1	1
1904	3,214	1	1	1	1	1	1	1	1	1	1	1	1	1
1905	3,214	1	1	1	1	1	1	1	4	3	1	1	1	7
1906	3,214	1	1	1	1	1	1	1	1	1	1	1	1	26
1907	3,214	1	1	1	1	1	1	1	9	6	4	1	2	18
1908	3,214	1	1	1	1	1	1	1	2	19	6	4	1	39
1909	3,214	1	1	1	1	1	1	1	3	16	3	2	2	28
1910	3,214	1	1	1	1	1	1	1	1	2	13	2	1	19
1911	11,220	1	1	1	1	1	1	1	3	7	2	1	1	14
1912	11,220	1	1	1	1	1	1	1	4	11	11	1	1	32
1913	11,220	1	1	1	1	1	1	1	2	10	7	4	3	31
1914	11,220	1	1	1	1	1	1	1	2	1	2	1	1	*22
		7	5	2	1	5	2	14	96	63	16	2	8	221

CITY OF ST. CATHARINES
County of Lincoln

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	9,459	1	1	1	1	1	1	1	1	1	1	1	1	2
1903	9,459	1	1	1	1	1	1	1	2	1	1	1	1	6
1904	9,459	1	1	1	1	1	1	1	5	1	1	1	1	8
1905	9,459	1	1	1	1	1	1	1	1	1	2	1	1	6
1906	9,459	1	1	1	1	1	1	1	1	3	1	1	1	5
1907	9,459	1	1	1	1	1	1	1	4	3	1	1	1	10
1908	9,459	1	1	1	1	1	1	1	2	1	1	2	1	5
1909	9,459	1	1	1	1	1	1	1	3	3	1	1	1	3
1910	9,459	1	1	1	1	1	1	1	2	2	1	1	1	8
1911	12,946	1	1	1	1	1	1	1	2	5	1	1	1	8
1912	12,946	1	1	1	1	1	1	1	1	2	3	1	1	8
1913	12,946	1	1	1	1	1	1	1	1	9	2	1	1	12
1914	12,946	1	1	1	1	1	1	1	5	2	2	1	1	7
		3	1	1	1	3	1	7	32	29	5	4	2	86

CITY OF ST. THOMAS
County of Elgin

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	11,485	1	1	1	1	1	1	1	2	1	1	1	1	4
1903	11,485	1	1	1	1	1	1	1	4	3	1	1	1	9
1904	11,485	1	1	1	1	1	1	1	3	5	1	1	1	6
1905	11,485	1	1	1	1	1	1	1	1	1	2	4	1	7
1906	11,485													

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

CITY OF TORONTO
County of York

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901	208,040	3	3	6	4	1	4	14	52	32	9	5	6	138
1902	208,040	3	3	6	4	1	4	14	53	31	9	5	6	197
1903	208,040	3	3	6	5	5	6	32	65	31	16	10	9	192
1904	208,040	4	4	6	5	5	6	32	97	49	24	6	7	332
1905	208,040	3	3	6	3	3	4	14	86	48	37	9	9	274
1906	208,040	3	3	6	3	3	4	14	86	48	37	9	9	215
1907	208,040	11	11	12	12	11	10	32	74	43	25	10	4	238
1908	208,040	6	6	5	11	14	10	32	74	43	25	10	4	238
1909	208,040	12	18	19	15	17	15	61	101	37	26	11	17	349
1910	208,040	12	25	15	14	12	15	75	79	42	18	16	4	327
1911	376,538	12	11	4	8	19	17	85	93	73	24	9	10	361
1912	376,538	10	16	19	19	14	7	60	90	67	32	25	7	366
1913	376,538	11	9	14	12	13	25	74	194	132	40	15	18	557
1914	376,538	7	3	7	6	7	13	52	70	65	21	5	3	259
Total	99,941	105	114	124	133	133	1,150	698	297	134	98	3,079		

TOWN OF BROCKVILLE
County of Leeds

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901	8,940								6					6
1902	8,940								6					6
1903	8,940								5					7
1904	8,940		1						5					7
1905	8,940		1						5					8
1906	8,940						3		5					12
1907	8,940								5					8
1908	8,940								5					4
1909	8,940						1		2					13
1910	8,940								2					12
1911	8,940						1		3					8
1912	8,940								3					8
1913	8,940		1						3					6
1914	8,940								6					10
Total	111	2	1	4	9	55	20	5	2	2	101			

CITY OF WINDSOR
County of Essex

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901	12,274								1					3
1902	12,274								1					4
1903	12,274								1					3
1904	12,274								1					8
1905	12,274								1					7
1906	12,274								1					9
1907	12,274	1		1					5					19
1908	12,274								1					7
1909	12,274								1					10
1910	12,274								1					8
1911	17,839	1							1					12
1912	17,839								3					13
1913	17,839		1		1				2					34
1914	17,839								2					14
Total	21	3	3	1	4	34	46	25	14	2	2	137		

TOWN OF COBALT
County of Nipissing

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901														
1902														
1903														
1904														
1905														
1906														
1907														4
1908									1					3
1909									2					18
1910									6					14
1911	5,638	1	1						6					19
1912	5,638								1					6
1913	5,638								7					16
1914	5,638								1					12
Total	111	1	1	2	2	2	2	2	14	4	3	1		80

CITY OF WOODSTOCK
County of Oxford

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901	8,883								1					4
1902	8,883								1					4
1903	8,883								1					4
1904	8,883								2					9
1905	8,883								2					4
1906	8,883	1							2					4
1907	8,883								1					2
1908	8,883								1					3
1909	8,883								1					1
1910	8,883								1					3
1911	9,320								2					4
1912	9,320								1					3
1913	9,320								3					9
1914	9,320								3					0
Total	111	1	1	1	1	2	12	14	11	5	1	48		

TOWN OF COBOURG
County of Northumberland

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901	4,239								1					2
1902	4,239								1					4
1903	4,239								1					1
1904	4,239								1					2
1905	4,239								1					4
1906	4,239								3					8
1907	4,239								1					3
1908	4,239								2					8
1909	4,239								2					6
1910	4,239								3					5
1911	5,074								3					3
1912	5,074								3					2
1913	5,074								1					2
1914	5,074								1					2
Total	111	1	1	1	2	2	2	2	13	15	3	1		36

TOWN OF BARRIE
County of Simcoe

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1901	5,940													
1902	5,940													
1903	5,940													
1904	5,940													
1905	5,940								1					1
1906	5,940								1					5
1907	5,940								1					1
1908	5,940								2					12
1909	5,940								1					1
1910	5,940								5					6
1911	6,420	2							5					2
1912	6,420								1					3
1913	6,420								1					4
1914	6,420								1					1
Total	3	1	1	4	9	13	9	2	42					

TOWN OF COLLINGWOOD
County of Simcoe

Year	Population
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STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

TOWN OF CORNWALL
County of Stormont

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	6,701							2	2					3
1903								2	1					3
1904								4	1					7
1905								2	2					5
1906								1	1					5
1907								6	2					8
1908								1	1					2
1909								3	11	4	1			19
1910								2	2					4
1911	6,598							1	1					2
1912								4	1					9
1913								5	1	1				7
1914								1	1			1		3
							16	40	13	4	2			75

TOWN OF LINDSAY
County of Victoria

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	7,003			1										1
1903									1	1	2			5
1904														4
1905									1	1	1			4
1906														3
1907									2	1				3
1908				1				1	1					2
1909									1	1	1			2
1910								3	3	3	1			6
1911	6,964							1	1	3	3			3
1912								1	3	3				4
1913														1
1914									1					1
			1	2			2	7	11	6	1			30

TOWN OF GALT
County of Waterloo

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	8,051							1	2					3
1903								1	1					1
1904								2	1	1				4
1905								4	1	1				7
1906								2	4	1				7
1907								1	1	2				6
1908								3	1	2				6
1909								1	1					2
1910								1	1	1				3
1911	10,299							4	1					4
1912								3	4	1				1
1913								3	4	1				9
1914								1	2	1				4
							4	20	14	7				45

TOWN OF NORTH BAY
County of Nipissing

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	2,530													3
1903		1						1	1					1
1904										1				1
1905													1	1
1906								5	1	10	1			17
1907								3	4	1				8
1908								3	4	1				4
1909								3	4	2				9
1910								1	3	4				9
1911	7,737							4	3	1	1			16
1912								3	2	3	2			8
1913								5	10	3	2			20
1914								1	2	1	1			18
		3		1	2		15	33	26	6	6	2		95

TOWN OF HAWKESBURY
County of Prescott

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	4,150							1	3	3	2			9
1903								2	8	1				11
1904					1	2		4	1			1		9
1905								7	3	1				15
1906								2	4					6
1907								1	1	1				3
1908								2	5	5	4	1		22
1909								2	1					8
1910								2	2					8
1911								2	1	1	1			5
1912								1	1	1				6
1913	4,371							1	4	1				9
1914								2	1			2		6
		2		4	4	3	36	34	18	7	2	1		101

TOWN OF NORTH TORONTO
County of York

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	862								2		1			3
1903														4
1904									3	1				4
1905														4
1906									3	1				4
1907									1	1				3
1908									2	2		1		5
1909									3	4				7
1910									1	2	3	1		7
1911	5,632								3	2				3
1912									1	2				3
1913														1
1914														1
		1	1				4	17	13	2	1			39

TOWN OF KENORA
County of Rainy River

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	5,302							4						4
1903								3		1				5
1904								3						3
1905								1	2					3
1906								1	6	4	2			13
1907								1	3	3				8
1908								1	6	6				14
1909								3	1					4
1910								3			1			4
1911	6,158							1	1					3
1912								1	1					3
1913								4	4	1				9
1914								2	4	6	3			15
		1		1			4	37	24	4	1	1		73

TOWN OF OSHAWA
County of Ontario

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	4,120							2						2
1903														1
1904									1					1
1905									1	2				3
1906									2	5	1			8
1907								1	1	1				3
1908										1				2
1909									3	1	2			4
1910									3	1	2			6
1911	7,436							1	1	3	1			6
1912								1	1					2
1913								1	5	2				8
1914									1			1		2
		1	1	1	2	1	16	14	9					4

* Statistics received too late to be included in totals and averages.

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

TOWN OF ORILLIA
County of Simcoe

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	3,914	1	1						1					2
1903									2	1				6
1904									1					1
1905								1	1					3
1906								1	1					4
1907								1	1					5
1908								1	1					1
1909								1	1					1
1910								1	1					2
1911	6,828	1		1		1		5	1	1				12
1912								1	1					2
1913								1	1					2
1914		1						1						*2
		2	1	4	2	2	7	18	2					45

TOWN OF SARNIA
County of Lambton

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	8,176							1						2
1903									2					2
1904								3	3					7
1905								1	1	1				5
1906								4	4	3		1		11
1907								1	3	3		1		8
1908								1	5	5		1		10
1909		1						1	1	1				2
1910								1	1	1				3
1911	9,947		1					1	1	1	1			9
1912		1	1					1	1	1			1	8
1913								1	1	1				9
1914								1	1	1				*6
		1	2	1		1	3	12	25	27	9	2	2	85

TOWN OF OWEN SOUND
County of Grey

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	8,776	1										1		2
1903									1					2
1904			1						1			1		7
1905		1							1	3				6
1906									1	8	2			13
1907									2	4	1	1	2	11
1908									3	5	1	1		7
1909									3	5				10
1910									1	1				1
1911			2						4	2				8
1912			2						2	2				8
1913	12,385								6	4	3			15
1914									2					*2
		1	1	5	3	3	1	2	20	31	10	6	3	67

TOWN OF SAULT STE. MARIE
County of Algoma

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	7,196	1						1	12	12			1	30
1903			1						5	3				9
1904									2	1				4
1905				1		1			5	10	4	1		25
1906									7	4	2			14
1907		1							1	4	2			6
1908									1	5	2	1		9
1909									1	3	2			5
1910									3	11	2	1		19
1911	10,948								3	4	5	2	1	16
1912									2	4	2			13
1913									1	1	1			9
1914									2	10		1	1	*17
		2	2	3	3	1	1	3	27	36	10	5	4	163

TOWN OF PEMBROKE
County of Renfrew

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	5,156							2	1					3
1903								1	4					5
1904								1	4		1			6
1905								2	4		1	1		8
1906								2	2	1	1	1		7
1907								6	3	2	1			12
1908			1											3
1909								3	3					6
1910								1	1					3
1911	5,626							1	2	4				7
1912								1	2	1		1		5
1913								1	3	3	1	1		9
1914								5	1	1	2			*9
			1	1			11	30	18	7	4	2		74

TOWN OF SMITH'S FALLS
County of Lanark

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	5,145							1	1					2
1903									3					2
1904									2					2
1905									2	1				4
1906									1	1	3			4
1907									1	2	1			4
1908									2	1				3
1909									2	1				3
1910									2	4				6
1911	5,370								1					1
1912									1		2			3
1913									1	1	1			3
1914									3					*4
			1				7	14	10	5				37

TOWN OF PORT HOPE
County of Durham

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	4,222													0
1903										1				1
1904														0
1905									1					1
1906			1						2	1				4
1907										1				0
1908									1	3				4
1909									1					1
1910									2					2
1911	5,092													0
1912														0
1913									2					2
1914									2					*2
			1				7	5	2					15

TOWN OF WELLAND
County of Welland

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	1,863													0
1903									1					1
1904									1					1
1905									1					1
1906														0
1907														0
1908									2					2
1909														0
1910									6	4				13
1911	5,318	1							3	2	1	2		9
1912														0
1913														0
1914									2	1	1			*5
			1				1	2	10	10	1	2		27

* Statistics received too late to be included in totals and averages.

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

DISTRICT OF MUSKOKA.

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	20,971								2	2	1			5
1903									4	4	2			8
1904						2	1	4	4	4	1			13
1905				1				4	5	3	1			15
1906					1	1		2	8	8	1			20
1907								2	2	1				3
1908				1				1	2	1				6
1909					1	1		5	2	1	1			11
1910				1		1	2	3	1		1	1		10
1911	21,233													0
1912										1				1
1913								1	2	1				4
1914														0
				4	3	4	14	33	27	8	2	1		96

DISTRICT OF NIPISSING

Not including North Bay, Cobalt, 1907-14

1902		1	1	3	2	2	4	4	2	2				20
1903		1	1	1	1	1	3	5	5	1	1			20
1904		1	1	2	1	2	6	2	2	1	1			14
1905		1	2				12	31	9	12				67
1906		1	1	1	1	3	12	12	8	11	1			41
1907		2	1	1	1	1	8	23	7	2	2			48
1908		1	2	2	2	1	9	7	9	2	3	1		39
1909		1			2	2	11	14	15	6	1			50
1910		1			2	2	7	9	4	1	1			26
1911	45,678			1			3	11	5	3	1			24
1912			1		1			2	3	1				5
1913		1				1		4	3	1				10
1914		2	1	1	1		3	5	11	3		2		29
1914	Temiskaming				1	1	3	16	7	5		2		35
		10	7	8	9	13	12	73	147	91	39	10		428

COUNTY OF NORFOLK

1902	29,147			1	1	1			2					5
1903				1	1	2	1	2	1	3				11
1904				2					2	2				4
1905					1				5	6				15
1906								1	5	6				13
1907				1	1		1	1	3	5	1			6
1908								1	3	5	1	1		11
1909								1	3	3				6
1910			1	1	1	1		1	2	3	1			10
1911	27,110							4	3	1				3
1912								1	2	3	1			7
1913				1	2	1		3	3	2				12
1914				1	1		2		1	2				8
			1	3	11	4	4	7	16	35	26	3	1	111

COUNTIES OF NORTHUMBERLAND AND DURHAM

Not including Cobourg and Port Hope

1902	53,588					1	2	4	1	1				9	
1903		2		1	1		2	3	2	2	1			12	
1904						1	5	1	1	1	1			9	
1905		1	1		1	1				1	1	1		8	
1906			1					1	2	5	2			21	
1907				1				1	2	1	1	2		7	
1908						1	1	3	6	4	3			18	
1909			2	3				3	3	2	1			12	
1910		1		1		2		6	6	3	1			20	
1911	49,164							1	1	1				2	
1912								4	7	2				13	
1913								1	1	2	1			6	
1914								3	2		1			6	
			4	4		6	2	6	13	25	35	23	7	9	134

COUNTY OF ONTARIO

Not including Oshawa

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	35,988					1		3		3		2		9
1903									2	6	6			17
1904					1	1		4	2	2	2	1		12
1905			1					1	1	2	2	1		12
1906								3	6	3	6			27
1907								1	1	1				1
1908		1	1			1	2		1	1	2			16
1909		1	1	1	1	1	1	4	2	3	2			17
1910								1	1	3	3	2		9
1911	33,570							2	1	1	1			8
1912						1	2		3	3	1			11
1913		1	1					1	1	6				14
1914		1	1	1				1	3	3		1		*9
		5	2	2	3	8	4	17	19	33	32	3	5	153

COUNTY OF OXFORD

Not including Woodstock

1902	39,521	1							4	2		2		9
1903				1					1	3				7
1904		1		1				1	3	1	1			8
1905						1		2	1	6				10
1906								3	6	4	1			14
1907									1			1		3
1908			1		1			4	4	4				14
1909									2	2				2
1910		1	1					1	2	2		1		8
1911	36,051							1	2	4	1			6
1912									2	2				2
1913						3			2	2				7
1914									1	1				*1
		4	1	2	2	5		8	11	32	19	2	4	90

DISTRICT OF PARRY SOUND

1902	24,936							1	3	2	1	1		8	
1903				1	1			2	5	2				11	
1904				1	1	2			1	1				5	
1905								6	6	1	3	1		21	
1906		1	1					3	9	9	3	1	1	28	
1907			1	1				1	3	3	2			11	
1908			1					1	3	2	1			9	
1909								1	4	3	2	1		11	
1910		1		1					2	3		1		3	
1911	26,547							1	2	5	2			10	
1912			1			1		5	2	2	2			9	
1913								1	3	2	3			9	
1914								2	6	4	2			*14	
			2	2	5	3	3	5	16	48	32	19	4	2	138

COUNTY OF PEEL

1902	21,475							1						1	
1903										4	1	2		7	
1904			1						2	3	1		1	8	
1905								1	1	3	4			9	
1906								1	1	3	4	1		10	
1907									1		1			3	
1908									1	4	2			7	
1909			2						1	1				3	
1910									4	3				7	
1911	22,102								1	1				6	
1912			1		1				4	2	1			4	
1913						2	1	4	2					*9	
1914															
			1	3	1	1	3	4	9	15	23	11	2	1	74

* Statistics received too late to be included in totals and averages.

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

COUNTY OF PERTH
Not including City of Stratford

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	39,912	1	1	2	2	1	1	1	1	1	1	1	1	6
1903									3	5	1	1	1	7
1904									1	1	1	1	1	4
1905									1	1	1	1	1	4
1906									1	1	1	1	1	4
1907									1	1	1	1	1	4
1908		1	1	1	1	1	1	1	1	1	1	1	1	11
1909			2				1							6
1910								1	1	1	1	1	1	14
1911	36,326		1					1	1	1	1	1	1	6
1912														3
1913														*1
1914														6
		1	1	5	2	3	3	2	8	26	24	1	3	79

DISTRICT OF RAINY RIVER
Not including Town of Kenora

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	10,839	1	1	1	1	1	1	1	1	1	1	1	1	2
1903														8
1904				3					5	1	1	1	1	5
1905									1	4	1	1	1	8
1906									1	1	1	1	1	5
1907									1	1	1	1	1	5
1908		1		2				1	1	1	3			9
1909									1	1	1	1	1	5
1910									1	1	1	1	1	5
1911	10,050			1				2	2	1				4
1912			1	1				2	1	1				*2
1913														6
1914														6
		1	1	4	4	1		7	8	7	3		1	37

COUNTY OF PETERBOROUGH
Not including City of Peterboro'

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	24,827	1	1						1	2	3	3		8
1903		1	1				3		3	3	2			12
1904				1					2	1	1			6
1905					1				2	1	2	4	1	9
1906								3	5	6	1			12
1907									1	1	3	1		7
1908								1	1	1				3
1909		1							1	1				3
1910									2	3	1			4
1911	23,290							2	3	3	1			5
1912														2
1913			1							2	1	4	1	10
1914								2	6					8
		2	3	2	1	1	7	7	13	26	11	13	1	87

COUNTY OF RENFREW
Not including Pembroke

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	43,410	1	1	1	1	1	1	3	1	3	1	1	1	10
1903		2	1	1	1	1	4	4	7	1	1	1	1	23
1904		2	2	3	1	1	2	6	3	2	1	1	1	25
1905		1	1	1	1	1	4	3	10	14	3	1	2	29
1906		1	1	1	1	1	1	5	11	4	2	1	1	27
1907		1	1	1	1	1	1	9	2	2	1	1	1	19
1908		3	1	1	1	1	4	3	1	2	1	1	1	15
1909							1	3	9	1	1	1	1	16
1910								2	2	2				5
1911	42,036	1	1	1	1	1	3	7	1	1	1	1	1	13
1912			1	1	1	1	1	1	1	1				4
1913			1	1	1	1	2	4	0	1	0			*8
1914														8
		7	8	7	4	3	9	27	72	37	17	7	6	204

COUNTIES OF PRESCOTT AND RUSSELL
Not including Town of Hawkesbury

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	43,167	1	1	1	1	2	8	17	5	3	3	3	3	39
1903		2	2	2	2	3	6	11	8	2	2	2	2	40
1904		2	2	2	2	3	3	8	8	3	6			29
1905		2	1	4	5	3	10	9	11	7	3	5		60
1906		3	2	2	2	6	1	15	8	6	1	1		46
1907		1	1	1	1	2	5	4	14	10	3	2	3	47
1908		5	1	2	2	8	13	5	2	2	2	3	3	42
1909		1	4	1	1	5	4	14	4	3	3	1	1	36
1910		1	1	2	3	6	5	1	4	1	2			24
1911	62,166	1	3	1	2	4	11	16	11	3	3	2	2	51
1912		2	1	2	5	1	4	8	8	3	3	3	2	41
1913		4	2	1	2	1	5	12	10	10	4			*64
1914														6
		16	18	14	19	22	42	77	143	79	43	20	27	520

COUNTY OF SIMCOE
Not including Barrie, Collingwood and Orillia

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	66,697	1	1	1	1	1	2	5	3	1	1	1	1	15
1903		3	2	2	1	1	1	6	8	7	1	1	3	33
1904		2	2	2	1	1	1	3	3	3	2	1	1	13
1905		1	1	1	1	1	1	2	7	4	6	2	2	23
1906		1	1	1	1	1	1	15	21	17	1	2		67
1907		1	1	1	1	1	1	4	1	1	1	1	1	8
1908		2	1	1	1	1	2	3	2	2	1	1	1	17
1909		1	1	1	1	1	1	2	2	5	2	1	1	14
1910		1	1	1	1	1	1	2	2	5	5	1	1	19
1911	64,805	1	1	1	1	1	1	8	3	3	1	1	1	12
1912		1	1	1	1	1	2	6	8	1	1	1	1	21
1913		1	1	2	3	1	4	7	5	1	1	1	1	*24
1914														6
		10	8	6	5	4	5	15	70	74	54	6	9	266

COUNTY OF PRINCE EDWARD

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	17,864			2										3
1903														2
1904					1					1				2
1905										1	2			4
1906									1	3				6
1907				2						1				3
1908					1	1			1	2	2	1		8
1909									1	2	2	1		4
1910						1				2	1			4
1911	17,150							1	1	1				3
1912										2				3
1913									2	3				*5
1914														6
				2	3	3	1		6	16	11	4	1	47

COUNTIES OF STORMONT, DUNDAS AND GLENGARRY
Not including Town of Cornwall

Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	62,236	1	1	1	2	1	1	9	5	1	1	1	1	21
1903		3	2	2	2	1	1	4	8	3	2	1	1	26
1904				1	1	1	3	8	3	2	2			

STATISTICS, PROVINCE OF ONTARIO.

Deaths from Enteritis and Diarrhoea (under 2 years) by years and by months, 1902-1914, inclusive.

DISTRICT OF SUBBURY														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902														
1903														
1904														
1905														
1906														
1907														
1908														
1909														
1910	34,948	5	2	5	2	3	4	17	6	6	1	1	1	53
1911		2	3	1	1	3	5	9	5	1	1	1	1	31
1912		1	1	1	1	3	5	17	3	3	2	1	1	30
1913		1	2	1	1	3	3	3	3	2	1	1	1	22
1914		1	1	1	1	7	30	17	4	4	2	2	2	*64
		10	3	10	4	1	4	23	76	37	14	6	2	190

DISTRICT OF THUNDER BAY														
Not including Port Arthur and Fort William Cities														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	5,335			1						5				6
1903						1				1				5
1904								3	3	1				15
1905						1		3	2	1	5	3		9
1906		3				2	1	11	8	3				29
1907				1				1						3
1908			1							1				3
1909				1				3	15		2	1		23
1910								7	23					33
1911	11,367							1	1					3
1912				1				1				1		*3
1913									1	2				*4
1914														
		3	1	2	3	9	3	18	58	21	10	4		134

COUNTY OF VICTORIA														
Not including Town of Lindsay														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	24,949	1							2	2				5
1903									3	5	3	2	2	15
1904				1		1	1	1	1	1				5
1905						1	1	1	2	4	2			9
1906				1				1	2	1	3			8
1907												1		1
1908										2				3
1909						1				2	2			5
1910		1	1					1	1					4
1911	24,236									1	3			4
1912			1		1					2				2
1913									2	3				5
1914									1	1				2
		2	1	1	2	2	1	7	11	23	12	4	3	68

COUNTY OF WATERLOO														
Not including City of Berlin and Town of Galt														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	34,796	1								1				3
1903										1	3	1		7
1904										3	1			7
1905			1							2	2	1		9
1906										1	1	7	1	20
1907										3	2	1		8
1908											1	3		5
1909														1
1910		1								2	4	2	1	10
1911	36,112									4	3			8
1912										1	2			4
1913										5	6	1		12
1914		1	1							2	3	1	1	9
		3	2	4	3	1	2	4	24	36	20	3	1	103

COUNTY OF WELLAND														
Not including City of Niagara Falls														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	24,023			1	2	1			3	3	2	2		12
1903									3	3	1	1	2	9
1904									3	5	5	1		8
1905									3	2	7			13
1906		1				1	1	3	4	6	2	1		19
1907								1	2	10	1			14
1908		1					1		3	4	4			7
1909			1						3	3	4	4		12
1910									5	4	4			11
1911	27,597		1						2	2				7
1912							1		6	4	2			11
1913									2	9	12	2		28
1914									1	10	9	2	4	26
		2	1	2	2	2	5	13	44	62	34	8	2	177

COUNTY OF WELLINGTON														
Not including City of Guelph														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	44,150			1			1	1			2	1		6
1903									1	1	2			5
1904		1				1	2		3					7
1905			1						2	4	1	1		9
1906		3							10	5	1			17
1907			1		1				4	2				8
1908			2			1	2		1	3	1	1		11
1909							1	1	1	2				5
1910					1				3					4
1911	39,317								1	2				3
1912			1			1				2	2			6
1913									1	7	1			*9
1914														
		2	4	2	2	3	6	2	6	28	21	3	2	91

COUNTY OF WENTWORTH														
Not including City of Hamilton														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	26,818						1			2				6
1903								3	4	2	1			10
1904										1	1			4
1905									2	1	1	1	1	6
1906							1	1	1	5	6	4	1	21
1907		1	1											5
1908									1	9	14	3		28
1909			1	1	2				2	3	7			16
1910									4	1	1			6
1911	29,677	1	1											2
1912									5	4	10	3	1	24
1913		1	1	1	2	1			4	7	2			19
1914									2	9	2	2		19
		3	4	3	4	5	1	22	38	59	18	5	4	166

COUNTY OF YORK														
Not including Toronto, Toronto North, Toronto West														
Year	Population	January	February	March	April	May	June	July	August	September	October	November	December	Total
1902	63,761						1	1		2	1	2	1	8
1903								1	5		5	1		12
1904		3	1		1					9	3		2	20
1905		1	2						1	3	6	4	1	25
1906									6	18	13	3	1	42
1907									1	12	12	5		32
1908		2	1	1			3	11	14	8	2	2		44
1909		1	1	2			2	4	12	11	7	2	1	45
1910									3	11	8			22
1911	62,064	1							3	8	2	1		25
1912									5	7	3	4		25
1913									5	11	16	1	1	35
1914									2	4	9	7	6	35
		6	6	9	6	8	13	45	120	99	39	13	6	370

* Statistics received too late to be included in totals and averages.

THE DISTRICT OFFICERS OF HEALTH, PROVINCE OF ONTARIO

JOHN W. S. McCULLOUGH, M.D., D.P.H. (Tor.), CHIEF OFFICER.

This is an annual report of the District Officers of Health for the period from the 1st of December, 1913, until the end of the year 1914. During a large portion of this period the Board has been deprived of the services of Drs. Wodehouse and Bentley who went to the front with the First Contingent, and those of Drs. McClenahan and Moloney who were required for military duty in their respective districts. The following reports summarize the work of the District Officers.

DISTRICT NO. 1.

Comprising the Counties of Lambton, Middlesex, Oxford, Elgin, Kent, Essex. District taken over temporarily by Dr. McNally.

DISTRICT NO. 2.

Comprising the Counties of Grey, Bruce, Huron, Perth, Waterloo, Wellington and Dufferin.

THOMAS J. McNALLY M.D.

District Officer of Health, Guelph, Ont.

Following up the work of the previous year, a careful Sanitary Survey of twenty-three towns and villages, three cities, and fifty-three townships has been completed, according to the scheme laid down by the Provincial Board, and in each of these, with very few exceptions, a meeting has been held with the Local Board of Health and, where possible, the Council and Board of Trade.

At these meetings we gave an address on "Public Health," emphasizing the fact that the Public Health Act was designed to form the groundwork of a system of Preventive Medicine to be carried out by the Local Board, backed up by the District Officer of Health and the Provincial Board of Health; the duties thus devolving upon the Local Board were clearly indicated in each case and such special conditions as were revealed during the survey were particularly called to their attention.

A discussion of the local problems and difficulties, with the resultant exchange of advice and assistance in their solution, promoted a very decided increase of interest and initiative on the part of the Local Authorities. Improved conditions and the better enforcement of the Act and Regulations are hoped for.

During the month of January the Moving Picture Exhibit of the Provincial Board of Health was shown in the afternoon to the school children and in the evening to the citizens of Orangeville, Shelburne, Dundalk, Markdale, Chatsworth, Wiarton, Chesley, Cargill, Port Elgin, Drayton, Teeswater, Blyth, Clinton, Mitchell and Sebringville, when we gave a lecture on Public Health, utilizing the pictures to illustrate the different phases of the subject.

The exhibitions and lectures were very largely attended and many very kind expressions of appreciation were given at their close. The beneficial and instructive nature of this phase of our work cannot be lightly passed over. Opinions were so commonly expressed as to this that we are led to the conclusion that it is the representative feeling of the Public. I have found in my district that this interest is generally translated into action, I would suggest and urge that the work along this line should be extended to reach our rural population.

COMMUNICABLE DISEASES.

Smallpox.

In District No. 2 during the year this disease made its appearance in thirteen municipalities, and in each case it was confined to the family in which it first occurred; it is pleasing to note in this connection that though frequently in very mild form it was recognized by the M. O. H. and such careful precautions taken that in no case did it extend to a second family.

Measles.

This disease has been rather widespread in several of the municipalities, due largely to the fact that it was of a mild form and was frequently well established before coming to the notice of the Medical Officer of Health. It is rather difficult to trace the source of this disease positively, but, as nearly as we could make out, most of our trouble with this epidemic was due to a mild form of the disease which developed in a family which came from Hamilton on a visit and did not report the disease.

Though the disease was generally mild, yet there were a few deaths, illustrating how important it is that our people should be required to report every case. Had this first case been reported these lives would have been saved and a couple of hundred families would have been spared the trouble, inconvenience and financial loss of being quarantined.

Diphtheria.

This disease has been kept fairly well under control except in the City of Berlin, where, in spite of very diligent work on the part of the Board of Health and most assiduous care on the part of Dr. McGillawee, it has persisted during the year, due, it appears to me, to carriers. I am pleased to say that, although much too prevalent, it has not been allowed to assume the proportions of an epidemic and at the present appears to be on the decline.

Scarlet Fever.

Scarlet Fever has not, at any point, been allowed to gain any decided foothold, and the few cases that occurred were comparatively mild. I cannot pass this disease over without calling attention to the very helpful work done by Miss Wilson, the school nurse in Owen Sound, in preventing an epidemic of this disease in that town.

Typhoid Fever.

We are pleased to report that there has not been any extensive outbreak of this disease, the cases being isolated except at Erin Village, where it made its

appearance in the form of an outbreak apparently due to milk bottles having become contaminated.

A typhoid patient had come to the Village to convalesce a couple of weeks previous to the outbreak; this is the only source that I was able to discover where this might have taken place. As nearly as I could ascertain three deaths resulted and one secondary case occurred.

In addition to the visits mentioned above to municipalities when the required survey was made, 127 visits were made to 114 different municipalities of the District in connection with special unsanitary conditions and for the control of Communicable Diseases, making in all 206 visits.

Correspondence.

Our correspondence consisted of about 300 letters in reply to enquiries as to various conditions of sanitation, control of communicable diseases, and interpretations of the Public Health Act or Regulations of the Provincial Board, as well as many letters written to Local Authorities calling their attention to unsanitary conditions requiring correction.

Slaughter Houses.

In connection with the supervision of slaughter houses much good has been accomplished by taking the Local Authorities and the butcher to those situated in the municipalities and carefully explaining the Regulations of the Provincial Board in respect thereto. A very general improvement is apparent but much yet remains to be done before conditions are satisfactory.

Water Supply.

The water supply in the following towns has been carefully examined and considered in company with Mr. F. A. Dallyn, the Provincial Sanitary Engineer, and a special report made thereon, viz., Goderich, Seaforth and Mitchell.

The Goderich supply was found to be very seriously exposed to contamination; a system of chlorination was recommended and the construction of a new intake advised.

As Seaforth depends for its supply upon private wells, which, owing to the nature of the soil and the use of outside closets and cesspools for disposal of sewage, are exposed to contamination as evidenced by the outbreak of typhoid during last year, we recommended a municipal supply for domestic purposes from artesian wells; I am sorry to say that so far no steps have been taken to act upon our recommendations.

In Mitchell we found the municipal supply seriously menaced owing to the wells not being properly protected at the top from contamination by flood water in spring and fall. This we recommended to be corrected at once.

We also found that their domestic supply was connected for fire purposes with the dam in the river which is contaminated; this connection is protected by gate valves, which is contrary to law and a serious menace, so we recommended that this connection be discontinued, which has not been done.

With Dr. J. A. Amyot, Provincial Bacteriologist, the water supplies of Owen Sound and Meaford were examined and reported upon.

The Owen Sound supply was found to be satisfactory except that the springs were not properly protected, which, upon our recommendation, is to be done as soon as weather conditions are favorable.

The Meaford supply being scanty from their present system, it was recommended that a further filtration be secured by the construction of another well similar to the one now in use.

When making the sanitary survey of Port Elgin it was discovered that their supply was not of sufficient amount nor properly protected, so it was recommended that they take steps to remedy these defects, but so far this has not been done.

Berlin's supply was investigated, with the result that they found the pond from which part of their supply was derived to be contaminated and its use has been discontinued until a proper filtration plant can be constructed.

Guelph supply was gone over in company with the M. O. H. and we agreed that, owing to the fact of the water from the springs being carried by gravity in mains to the pumping station and these mains not flowing full, there was in case of surface breaks in the mains serious danger of contamination, particularly as this main runs through a part of the City not yet supplied with sewers; this danger has unfortunately been evident though not from the particular source we feared.

Sewerage.

The disposal plants at Stratford, Berlin and Guelph have each been the subject of special examination and investigation, and, while none of them are as efficient as desirable, improvements have been made and are being followed up as the result of our attention backed up by the Provincial Board of Health.

In the townships the efforts of our Local Officers have been especially directed to improving the sanitary conditions surrounding the rural schools, railway depots and the slaughter houses.

Tuberculosis.

Before concluding this report we desire to call attention to the fact that, taking the cities and towns in this District having a population of over 10,000 for the five year period of 1909-1913, the death rate from tuberculosis is one and one-half times as great as from all other communicable diseases combined; yet (so far) there has not been arranged any practicable or efficient method of dealing with this disease so as to effectually prevent its spread. The Public Health Act makes efficient provision for the care of smallpox, yet it is by no means as fatal as tuberculosis, for during the above period there has not been a single death from it recorded, while from tuberculosis there have been no less than 260 deaths registered in these municipalities. The above period has been taken, as it is the last available, and these particular municipalities because they have the highest death rate from other communicable diseases. We would respectfully urge the necessity for such action as would enable us to more efficiently deal with this our greatest problem in Public Health work, as at present it would seem we are at best merely marking time; of course in using smallpox as an illustration it is not to be inferred that a similar method of dealing with tuberculosis is suggested.

All of which is respectfully submitted.

DISTRICT NO. 3.

Comprising Norfolk, Haldimand, Welland, Lincoln, Wentworth, Brant, Halton, Peel, York.

D. A. McCLENAHAN, M.D.

District Officer of Health, Hamilton.

During January of 1914 there was a mild epidemic of diphtheria in Burlington. There had been six or eight cases and they were cropping up here and there, and the M. O. H., Dr. Speers, had difficulty in locating the cause of the outbreak. At my suggestion he took swabs from the throats of all the school children and we found six carriers in the school. These were isolated and kept so until the throats showed two negatives. No subsequent cases developed. During the same month (January) I spent considerable time in the City of Brantford, making a sanitary survey of that place. My report, with recommendations, is already in the hands of the Department. We had some five or six cases of smallpox at or near Caledonia, but the epidemic was well handled by the local Board of Health and did not spread to any extent. We also had one case at Allanburg, but this, by prompt isolation together with vaccination of the contacts, was confined to one household. There were, in addition, a few cases of smallpox in the Township of Lancaster, but happily no serious outbreak. During the spring and early summer I have made visits to a number of towns and villages, and while there have taken up public health matters with the councils and Boards of Health, looking towards the betterment of conditions under which the people live. Among these places were Mimico, Stoney Creek, Thorold, Milton, Stouffville, Merriton, Caledonia, Streetsville, Jordan, Brampton, Mount Hamilton, Oakville, Port Colborne, Burlington, Humber Bay, Weston and other places. Since August I have been engaged on Military duty on the Welland Canal, being Sanitary Officer for the forces guarding the Canal from Port Dalhousie to Port Colborne, and also for the Posts at Queenston, Chippawa and Fort Erie. While doing this work I have spent all the time I could afford around the District, and last week visited Jordan Station and Port Dalhousie.

DISTRICT NO. 4.

Comprising Counties of Durham, Haliburton, Hastings, Muskoka, Northumberland, Ontario, Peterborough, Prince Edward, Simcoe and Victoria.

GEORGE CLINTON, M.D.

District Officer of Health, Belleville.

Detailed reports of all places and institutions visited have been sent to the Department at regular intervals.

During the month of January I met and addressed the County Councils of Peterborough, Victoria, Ontario, Northumberland, Durham and Hastings. In June I addressed those of Prince Edward and Simcoe Counties.

Becoming acquainted with the heads of the various municipalities, I find aids in getting their co-operation in our work.

PUBLIC INSTITUTIONS INSPECTED.

The number of gaols visited were seven, being at Picton, Belleville, Peterborough, Cobourg, Lindsay, Whitby and Barrie.

The Hospital for Insane at Whitby was inspected, also the Home for Feeble Minded at Orillia. I found in the latter institution that no definite steps had been taken for proper disposal of sewage.

The Hospital for Insane at Penetanguishene was visited. Septic tanks have been built and sub-soil form of drainage installed.

Hospitals.

Inspection was made of three hospitals in the city of Peterborough and one in each of the following centres: Belleville, Cobourg, Port Hope, Lindsay, Barrie, Penetang, Orillia, Collingwood, Allandale and Bowmanville.

Sanatoria.

Two sanatoria at Gravenhurst were inspected.

Shelters.

Visits were paid to the Children's Shelters at Belleville and Peterborough.

Houses of Refuge.

Inspection was made of the Houses of Refuge at Picton, Belleville, Lakefield, Cobourg, Lindsay, Whitby and Beeton.

I find that any indigent resident for two years in the counties is eligible for admission to any such institution. The only thing that prevents admission is that he is suffering from tuberculosis or cancer. The physician in charge has no discretionary power when the warrant of admission is signed by the Reeve and Warden of the County.

Each county should be compelled to care for tubercular and cancer cases in an adjoining building under the same management.

Health Exhibit.

During the months of April, May and June the following places were visited with the Health Exhibit and moving pictures:

Deseronto, Madoc, Trenton, Picton, Belleville, Campbellford, Peterborough, Port Hope, Cobourg, Bowmanville, Oshawa, Whitby, Tottenham, Alliston, Creemore, Collingwood, Stayner, Barrie, Orillia, Midland, Lindsay, Bobcaygeon and Uxbridge.

At these exhibits there was an attendance of over 10,000 children and 6,000 adults. These exhibits were well received.

Medical Inspection of Schools.

After the limited experience I have had as Medical Inspector of Schools, it seems to me deplorable that so little attention is being paid to our school children's health, when one considers the amount that is being spent to import thoroughbred animals. Surely the health of the children should have more attention, and

personally I think it should be under the control of the Provincial Board of Health.

The last week in April I visited Orillia and surrounding country with Miss Jean Cameron Smith, making medical inspection of school children. Examined 550 children, and some defect was found in 80 per cent.

Summer Resorts.

During parts of July and August, accompanied by Dr. Bell, I visited all the summer resorts on Kawartha Lakes, Lake of Bays, Fairy Lake, Mary Lake, Peninsular Lake, Sparrow Lake, in all about 125 places.

All had fulfilled the requirements regarding sewage disposal, water supply, care of garbage, and screening windows, with the exception of three places, which were notified that unless required changes were made the places would be closed for 1915.

On three of the passenger boats on Muskoka Lake they have tanks for sewage which is sterilized by steam before discharging into the Lake. The balance of the fleet to be supplied with similar tanks for season of 1915. I understand that this is the first place in America where the problem of sewage disposal for steam boats is as complete as this system. All supply boats were notified that they would be required to have either chemical or dry earth closets.

All the hotels that had waterworks had septic tanks and sub-soil drainage. Others had dry earth closets. No closets were discharging direct into the Lakes.

Slaughter Houses.

Many have been inspected, and very few are found to be up to the requirements. A number had to be condemned. Now that we have new regulations, and a copy given to each butcher, our work along this line should be easier, more especially if we can secure an active local Sanitary Inspector.

Scarlet Fever.

On January 8th made a special trip to Bethany to investigate a report of carelessness in looking after an epidemic of scarlet fever. On reaching there I found Mr. Preston, M.P.P., was Secretary of Local Board of Health, and Dr. Clarke, of Pontypool, Medical Officer of Health.

Everything had been done to stamp out the disease, and the complainant acknowledged his report was only from rumors.

Smallpox.

There have been three outbreaks of smallpox, viz.: Belleville, Bowmanville, and Madoc and surrounding Township. No deaths.

On February 16th I was called to Bowmanville, where I found a severe case of smallpox. Whole body, face, palms of hands, and soles of the feet covered with well developed pustules. Ten young men who were roomers were quarantined for fourteen days and vaccinated. None contracted the disease, but the daughter who attended her mother (the patient) contracted it, and also was a severe case. (Was vaccinated but did not take.)

On March 2nd saw a case of smallpox with Dr. Yeomans, Medical Officer of Health, Belleville. This was a student in the Ontario Business College. Second day saw another case. The college has about 150 students living in different board-

ing-houses. I advised the Local Board of Health to visit the College and explain to the students the true situation, vaccinate all and continue their studies. Less danger in class-room than on the street. None to be allowed to leave the City under penalty, and all that did not report daily were to be visited by the Medical Officer of Health. Results—only one more case, and that was a junior teacher.

On March 4th again visited Bowmanville, and found a young man in papular stage, an employe in rubber factory, and the daughter of former patient mentioned had the disease in pustular stage. Visited the factory, and instructed them to have all the employes vaccinated, about 300, which they agreed to do.

These two cases were isolated and quarantined.

On March 23rd, I was again called to Bowmanville, where I found the Matron of the Goodyear Club House had a mild attack. This case was isolated. The Manager agreed to furnish a trained nurse, have all vaccinated that had not been previously done, and to report to the Medical Officer of Health each morning each absentee from factory, and pay him for work done.

Results—only one more case developed. The factory was not closed, and the disease soon stamped out.

From the results of this epidemic in Belleville Ontario Business College and Bowmanville Rubber Company, I think it inadvisable to close factories, schools, etc., in urban places, losing all control of pupils and employes. Rural districts are different because they are more isolated. I would suggest that all absent pupils and employes should be reported daily during any epidemic, and then the Sanitary Inspector, or better, District Nurse could investigate cause of absence, and in the majority of cases stop an epidemic in its incipient stage.

In Madoc the High School was closed (contrary to the advice of the Medical Officer of Health) when some pupils and one teacher developed smallpox, and the pupils were allowed to go home. Result, had several cases in all adjoining municipalities. In July saw six cases in Trenton quarantined.

Diphtheria.

In October an outbreak of diphtheria occurred in Peterborough. Supposed to have originated in an adjoining township, and not reported. Then it appeared in Separate school.

When found, School and District nurses were appointed, and Dr. McPherson was alert. Nevertheless about 80 cases developed before it was stamped out.

A number of cases also in Penetanguishene, Midland and surrounding country.

In all those places the Medical Officers of Health were active, and did everything possible to eradicate the disease.

All of which is respectfully submitted.

DISTRICT NO. 5.

District No. 5 comprising the Counties of Addington, Carleton, Dundas, Frontenac, Glengarry, Grenville, Lanark, Leeds, Lennox, Prescott, Renfrew, Russell and Stormont.

PAUL J. MOLONEY, M.D.

District Officer of Health, Cornwall.

The following is a résumé of the work performed in District No. 5 by me under the supervision of and by the direction of the Provincial Board of Health.

The work may be classified under the headings of: (a) Public Lectures, (b) Inspection of Public Institutions, (c) Sanitary Survey of cities, towns, villages and rural Municipalities, (d) Investigation of special conditions and correspondence with matters relating to public health.

PUBLIC LECTURES.

These were delivered at the County Council meetings, teachers' conventions and associations connected with social work, but particularly in connection with the Public Health Exhibit which is specially referred to under a separate heading. The lectures dwelt chiefly on the provisions of the Public Health Act; our duties and obligations as District Health Officers; the work the Government had undertaken to eradicate tuberculosis, typhoid and other communicable diseases; and as a public health measure to see that citizens were supplied with as pure a water supply as possible; the duties and obligations of local boards of health and general topics with reference to the public health.

Public Health Exhibit.—The Public Health Exhibit of the Provincial Board of Health was placed under my charge on February 26th, and during the succeeding weeks meetings were held in all the principal towns in Eastern Ontario. An endeavor was made to have the coming of the exhibit well advertised. The Municipal Council and more particularly the local Board of Health were urged to take an active interest in the success of the meetings in their particular locality. The co-operation of the school boards and teachers was also sought. If there were any active ladies' organizations at the advertised place it generally proved fortunate, as they helped materially in making the meetings a success. In a great number of instances influential residents who were not attached to any of the official bodies were asked, and readily gave their assistance in promoting the objects of the meetings. Besides my own lecture in each case an endeavor was made to have a local speaker also take part, and at times some sanitary authority who might be available also gave an address. An effort was put forth to make the meetings as interesting as possible. Vocal and instrumental selections were generally supplied by local talent and choruses by the children at their special meetings.

Owing to the fact that the meetings were generally well patronized, and that the halls available were not large enough to accommodate all at one meeting, two, and in some cases three and four meetings were held in the same day.

GENERAL RESULTS.

As an educator I think that the exhibit will show the most profitable result of any of our efforts. The audience, being secured by proper advertising and by the reputation the exhibit had already earned, was generally very large. The moving

pictures in themselves taught a lesson, more especially so when the lesson desired to be conveyed was emphasized by the lecturer. The audience being in a receptive mood, the lecturer had a splendid opportunity for securing effective results. The mere matter of bringing together the leading men of the municipality to discuss public health matters had a good effect, and after every lecture an additional interest in public health matters seems to have been engendered in each town. This interest would appear to be permanent judging from the amount of correspondence coming in from the different towns and villages in which meetings were held. I would strongly recommend that the exhibit be again sent, at a future time, to this part of the Province. The following meetings on the dates and with the attendance mentioned were held:

Date.	Place.	Number of Meetings.	Attendance.
26th February	Napanee.....	3	1,100
2nd March.....	Kingston.....	2	1,200
3rd ".....	Gananoque.....	2	1,100
4th ".....	Brockville.....	2	1,200
5th ".....	Morrisburg.....	3	900
6th ".....	Cornwall.....	2	1,500
11th ".....	Smith's Falls.....	2	900
13th ".....	Perth.....	2	1,400
16th ".....	Carleton Place.....	1	700
17th ".....	Almonte.....	2	1,200
18th ".....	Arnprior.....	2	1,400
19th ".....	Renfrew.....	2	1,300
20th ".....	Eganville.....	2	1,100
23rd ".....	Pembroke.....	2	650
25th ".....	Hawkesbury.....	2	1,100
27th ".....	Rockland.....	3	1,150
30th ".....	Prescott.....	2	1,500
4th May.....	Ottawa.....	6	6,000

INSPECTION OF PUBLIC INSTITUTIONS.

This included an inspection of the two asylums (Brockville and Rockwood), hospitals, houses of refuge, old people's homes, orphanages, county gaols, and also the schools in the large centres.

SANITARY SURVEY OF MUNICIPALITIES.

This consisted of a systematic examination and report on the sanitary conditions of the municipalities visited. The number of municipalities visited and inspected this year was much less than in previous years, as after the first week in August I was assigned by the Military Authorities to special work in connection with the St. Lawrence River Canal Patrols and the securing and examination of recruits for Overseas service. Detailed reports of the results of my inspections of the different municipalities visited are on file with the Department.

INVESTIGATION OF SPECIAL CONDITIONS.

Under this heading might be placed:

(a) Investigation and action taken with regard to the outbreaks of communicable diseases.

Smallpox Outbreak.—Smallpox has been somewhat prevalent in the eastern part of my district. The outbreaks, however, have been very mild, and for this reason, perhaps, harder to control. A good deal of aversion to vaccination has been apparent in this district, more particularly among the French-Canadians. Some of the influential papers circulating in this district are opposed in principle to vaccination, and this, no doubt, had much to do with the feeling which is prevalent. Very few of the outbreaks got beyond the initial house in which it first appeared.

The following is a list of the outbreaks with the number of cases:

Place.	No. of Cases.	Place.	No. of Cases.
Clarence.....	12 (2 deaths)	W. Hawkesbury.....	5
Alfred.....	14	Vankleek Hill.....	10
Hawkesbury.....	5	Nepean.....	1
Rockland.....	8	McNab.....	3
Ottawa.....	25	Charlottenburg.....	4

Scarlet Fever has been endemic in several parts of this district during the year, and the efforts of the local health authorities and myself in stamping it out have met with only indifferent success. The most stubborn outbreaks centred around Cornwall, Prescott and Athens. In all cases, however, it was effectively got under control.

Typhoid Fever.—No very severe outbreaks of typhoid have occurred in the district, most of the cases being sporadic, except when at the close of the year an epidemic appeared in the Town of Brockville, which during the next succeeding months assumed very serious proportions. The general public has been educated by means of public lectures and articles in the Press to guard their municipal water supplies with varying success.

Tuberculosis.—Much educational work has been done in this district with regard to this disease, and I think there can be no doubt that this disease is now being controlled in a fairly satisfactory manner. The sanatorium at Kingston and those at Ottawa are doing good work.

INVESTIGATION OF NUISANCES.

These matters form a large part of the daily mail. The complaints vary in importance from an infected water supply down to the most trifling matters. A great number of complaints have reference to slaughter-houses. Those in the immediate vicinity of the City of Ottawa being the chief offenders, although those near Hawkesbury are very little better. Piggeries, especially the Brockville Municipal Piggery, is another source frequently complained of. A dead horse on the roadside, a neighbor's unsanitary backyard, and scores of other complaints have been received and dealt with: a great majority by letter to the local health officer (previously often not informed of the nuisance), but who in practically every case when notified by me saw that it was abated.

WATER SUPPLIES.

A more or less thorough examination of the water supply of all towns using the St. Lawrence River as a source of supply has been made, and the whole river seems to be contaminated. I failed to find any samples free from colon bacilli in 50 c.c., while infection in 5 c.c. was exceedingly common. The Ottawa River also was subjected to considerable analysis; while it was found largely infected, it was not as bad as I expected it to be, except in certain localities where there was a strong source of local infection the pollution seemed to be about the same as in the St. Lawrence.

In connection with the water and other bacteriological analyses, I wish to recognize the courtesy and promptness shown by Dr. Connell of the Kingston Laboratory. Many of our local officers also availed themselves of the courtesy of the Bacteriologist of the City of Ottawa, and also of the Ottawa Experimental Farm.

CORRESPONDENCE.

An important part of my work is carried on by means of correspondence, which has now reached large proportions. Since last August I have not been able to visit the different localities as formerly owing to my military duties, but I have been able to attend to the more pressing calls. I have been able, however, to attend to all my correspondence, although not as regularly as heretofore, and in this way have been able to accomplish a good deal in the interest of public health.

MILITARY SERVICE.

I have been connected with the Militia, both as a regimental and staff officer, for the past fifteen years. On the outbreak of the war I tendered my services to the Government, and I was directed to take charge of the patrol lines of the St. Lawrence Canal and I have been attached here ever since. We have in patrol about 300 men, consisting partly of infantry and partly of mounted troops. Besides being medical attendant to the troops and their families, I have charge of the sanitation of the patrol lines. I have had to deal with outbreaks of diphtheria, scarlet fever, smallpox and mumps among the troops, but owing to the military discipline which prevailed it was easy to stamp out every outbreak without its spreading among the men. I have been able to do considerable missionary work in sanitation by object lessons of cleanliness among the troops. I am also preparing a table for the Department showing the effects of smallpox vaccination on a definite number of men; the percentage of failures in the unvaccinated and the percentage of failures in those who have been previously vaccinated at different periods. Also the result of typhoid inoculation. This district also gave a surprising number of men for first, second and third contingents, who were sent forward, subject to my examination.

DISTRICT No. 6.

Comprising the districts of Nipissing, Parry Sound, Sudbury, and Temiskaming.

W. EGERTON GEORGE, M.D.

District Officer of Health, North Bay.

The second annual report of Health District No. 6 from the 1st of January, 1914, to the 31st of December, 1914, inclusive.

This has been a very encouraging year in this district, and I am able to report progress in many lines.

It must, however, be pointed out at the beginning that the figures given in this report are not absolutely correct. The chief factor in influencing these totals has been the absence on military duty during the latter part of the year of Dr. R. E. Wodehouse, of Port Arthur, officer of Health District No. 7. This necessitated my making three trips into his territory to encourage and enforce efficient means for the control of smallpox at Fort Frances and typhoid at Little Current (two trips).

I travelled 25,790 miles during the year, which incurred an expense of \$743.45. One hundred and fifty-two official visits were made and over four hundred written notices were served. These visits were distributed as follows:

- 12 Visits—Sudbury.
- 11 “ —Haileybury, Cobalt.
- 9 “ —South Porcupine.
- 8 “ —Cochrane, Timmins.
- 7 “ —North Cobalt.
- 6 “ —Parry Sound.
- 5 “ —New Liskeard, Iroquois Falls, Swastika.
- 4 “ —Schumacher, Sturgeon Falls, Englehart, Webbwood.
- 3 “ —Callander, Dome Mines, Kearney, Conniston, Scotia.
- 2 “ —Matheson, Sandy Falls, Magnetewan, Ahmic Harbor, Sprucedale, Copper Cliff, Elk Lake, Depot Harbor.
- 1 “ —Pickerel, Spanish, Bruce Mines, Sault Ste. Marie, Bovin's Camp, Wawaiatin, Bennett House, Deer Lake, Milberta, Bourkes, Hailey Twp., Nushka, Sundridge, Sprucedale, South River, Port Arthur, Fort William, Rainy River, Chapleau.

I regret that death returns are so imperfectly sent in by the secretaries of local boards in their weekly reports that it is impossible to strike a rate that would in any way accurately represent the facts.

The amount of correspondence has greatly increased during the year. Health officers and local boards have been quick to avail themselves of an officer who is not hampered by local business connection. Indeed, in some cases it has been quite difficult to get local boards to do a reasonable amount of their own work and assume a reasonable amount of their own responsibility.

Between seventy and eighty cases were prosecuted in police-court and a considerable sum collected in fines. One or two of these cases were appealed to the Division Court and judgments of magistrates set aside. The argument for

dismissing the cases was most instructive and threw considerable light on the Public Health Act. It happened that the informations were laid under Schedule B. The judge held that as Schedule B was a by-law in force in every municipality, it was under municipal jurisdiction only: that is, it is outside the jurisdiction of provincial officers. I brought this matter to the attention of the Provincial Board at the joint meeting of the Board with the district officers in December, and they agreed to have Schedule B made a regulation of the Provincial Board.

FOREIGN BOARDING HOUSES.

Cobalt takes the plum for having provided the most disgraceful over-crowding conditions during the past year, and forty prosecutions were instituted in this town alone against a similar number of boarding-house proprietors. It was asserted in some quarters that the responsibility for these bad conditions rested upon me. But when it was pointed out that this over-crowding had been corrected the previous spring by a number of police court cases, it became apparent that local Boards of Health and not provincial officers must be held responsible for the maintenance and supervision of correct local conditions after once having been put right. However, it became necessary to enforce a second time compliance on the part of the boarding-house keepers by a restriction of the numbers in their houses; so the machinery of the police court was again resorted to in such wholesale manner as to leave no doubt in any one's mind that a reasonable amount of air-space must be provided for each inmate. One or two interesting points came out in the proceedings which, I think, are worthy of mention. Evidence was not wanting to show that these places soon became as bad as ever after the first correction, and that the moral standard of the keepers was not very high. Many of these places had double beds where there was only room for one inmate. It was found that the extra bed accommodation in many of these places was so great a temptation to the proprietor that he could not resist filling them up when he thought that he could safely do so. In fact this circumstance was so generally found that it became apparent to me that the extra bed accommodation was really acting as a cause of the over-crowding. I pointed this out to the magistrate, who took the same view, with the result that all bed accommodation which was provided in excess of the amount of air-space in each room was ordered out. It is now being made possible for the Medical Officer of Health to order the removal of extra beds when in his judgment more accommodation is provided than corresponds with the air-space.

Cochrane, Sudbury and North Bay also present problems with regard to foreign boarding-houses. During the latter part of the year when so many people were out of work, especially in localities where there were large numbers of Austrian-Poles, the possibility of obtaining employment was removed almost to the vanishing point. Comparatively few of them had any money. Many people of the same nationality, therefore, gathered into houses with inadequate air-space, pooled their finances, and in this way sought to keep the wolf from the door until spring. Under these circumstances it was impossible to enforce the regulations regarding air-space. To drive them out of these dens meant that they would become a charge on the respective communities which were already over-taxed. For these reasons cleanliness was about the only sanitary measure required of them, but with very indifferent results.

COMMUNICABLE DISEASES.

During the year there were reported in this district 83 cases of typhoid, 67 of scarlet fever, 49 of diphtheria, 15 of measles, 8 of tuberculosis, 7 of smallpox, 2 of German measles, and 1 of cerebro spinal meningitis. A casual survey of these figures would suggest to one's mind that all cases of communicable diseases were not reported. For example, it would appear that there must have been more than 15 cases of measles. This discrepancy is due on the one hand to neglect on the part of the physicians to report cases, and on the other to neglect on the part of the Secretaries of Local Boards to make returns. In Cobalt, Haileybury, Parry Sound, and Sudbury it was necessary to notify physicians that they would be held responsible for the non-reporting of all cases; while in Cobalt and New Liskeard not one return was sent in by the Secretaries of the respective local boards during the whole year. Distasteful as it is, it would seem almost imperative to take some strong action to force physicians to report their cases, unless the same result can be attained by paying physicians, say 25c., for each case reported.

The following epidemics received personal attention within the year:

Typhoid: Iroquois Falls, Pickerel, Sudbury, Timmins and Haileybury. Also Little Current in District No. 7.

Smallpox: Schumacher, Burk's Falls and Cobalt. Also Fort Frances in District No. 7.

Scarlet Fever: Powassan, Hailey Twp., Parry Sound.

Measles: Timagami.

Diphtheria: Parry Sound.

Pediculosis: Parry Sound.

Of the number of typhoid epidemics quoted above, all were due to polluted water supplies. This seems to suggest that towns should be warned that the pollution of public waters cannot longer be viewed complacently. Regarding the cause of the Haileybury outbreak it appeared to me that there was nothing wrong with the filter plant in use at that place. The water was very low, due to the dam going out last spring at the lower end of the lake. This caused such a concentration of harmful bacteria coming from the septic-tanks of both New Liskeard and Haileybury, some also from surface drains, that the filter plant working 99 per cent. proof was not sufficient protection, there being still enough germs going through to produce many cases of typhoid. After going over the plant with Dr. Amyot they were advised to put their chlorination plant into operation. Even with this precaution a number of new cases developed. The dam has been repaired at the lower end of the lake and the lake level is now several feet above datum, so that if our observations have been correct there ought to be a distinct falling off in the cases.

In Timmins the prevalence of diarrhoea during the past summer caused me to advise them to protect themselves from typhoid by installing a chlorination plant. They were not easily convinced that their water supply was at fault. No plant was installed, with the result that thirty cases of typhoid subsequently developed.

I have been greatly impressed with the difficulties in the way of providing perfect isolation with regard to diphtheria, scarlet fever and measles, as set out

in Regulation 4. As soon as the patient is well enough to be out of bed isolation ceases. I have never yet seen a case where the patient was so completely isolated that I was convinced that there was no danger of transmission. It seems to me doubtful whether the Medical Officer of Health should have discretionary powers with regard to isolation, which is so seldom perfect.

The persistent use of roller towels and the common drinking-cup in hotels and railroad coaches demands a strict ruling by the Provincial Board against these nuisances, which are well known to be such fruitful causes of the transmission of disease.

WATER SUPPLIES.

A very few remarks regarding water supplies will cover what has not already been referred to.

Cochrane gets its water supply from Spring Lake, which is separated from Mill Lake by a high ridge. The sewerage of the town empties into Mill Lake. Bacteria of intestinal origin have continually been found in Spring Lake (their water supply) throughout the year, and the chlorine content has been steadily rising. This would seem to suggest that there is some underground connection between the two lakes, as it is almost impossible for surface drainage from the town to reach this lake. The town has dammed off the outlet of the springs and is using spring water entirely. In case of fire, water from the lake is required to meet the demands. Thus a menace arises in consequence. The anticipated typhoid has not yet appeared.

In the early winter of 1912-1913 I tried to impress Sudbury with the fact that they are endangering their water supply by permitting it to be used as a summer resort. They claimed to have the best water in Canada, and for this reason ignored the warning to buy all vacant land about the lake in order to protect it from this danger. The result is that they have had between forty and fifty cases of typhoid this year.

SEWERAGE AND DRAINAGE.

Only one new sewer system was installed in this district during the past year. This one is located in Englehart. The disposal system approved in the plans submitted to the Provincial Board has not been installed, yet the sewers are being used. It is to be hoped that the disposal system will be completed during the coming summer.

Webbwood left the completion of their town drain so long that the frost forced the abandonment of the work until spring. The Council of that town was urged by the Chief Officer of Health to hasten the completion of this project before cold weather, but with little effect. I am informed, however, that the town intends to proceed with the matter early in the spring.

Before leaving the subject of sewerage, some mention should be made regarding the condition of closets. North Bay, through the energy of the able Sanitary Inspector, must be given credit for having attained some distinction in this matter. Nearly all closets are now fly-proof and are supplied with galvanized iron receptacles. I am informed that the few yet remaining incomplete will be standardized during the coming summer. Sudbury, Timmins, Haileybury, Parry Sound, Cobalt and New Liskeard require urgent attention in order that these focuses of infection

may be made fly-proof. The first four of these have had epidemics of typhoid within the year which would seem to necessitate immediate action in order that all causes of dissemination be controlled. It is a serious thing when one can go into these towns and find closets located over small streams, or without receptacles, barely acting as screens from public view.

SLAUGHTER HOUSES.

All slaughter houses which failed to comply with the new regulations were closed. One only in this whole district was allowed to pass inspection. Six of the new standard (North Cobalt, North Bay, Magnetewan, Elmsdale, Kearney and Burk's Falls) were completed last fall, and others are expected to commence building next spring. Certain butchers have continued to use the old buildings after being notified that these did not meet specifications. I am convinced that one or two examples will be required to remedy this. The Parry Sound butchers have been the worst offenders in this regard.

The new slaughter-house regulations have been well spoken of by many of those who are alive to the advantages of clean meat. This guarantee of cleanliness stands next to the guarantee of inspection.

The question of the farmers selling dressed meats on the markets of a number of Northern towns might be dealt with under this head. These markets are established at Haileybury, Cobalt and Sudbury. The meat is frequently poorly killed, and after appearing on the market is mauled over by many people until it is absolutely unfit for use. The Council in Haileybury were asked to provide tables which would sit well back in the stalls, so that the meat would not run the risk of being handled. This was done immediately, but there were so many farmers that the number of stalls would not go round. Those not provided for continued to have meat exposed to this kind of contact upon open tables. It will be necessary for the Council to provide sufficient stalls or the farmers will have to take their meat home. I think it is a very doubtful question whether farmers should be allowed to sell dressed meat on open market without having to comply with the regulations regarding the slaughtering of the same.

Sudbury market is a very unsatisfactory affair, as there are no stalls, and it is therefore impossible to remove the meat from exposure to handling.

DAIRIES AND MILK SUPPLIES.

The dairies in this district have made notable improvement within the year. In North Bay, Timmins and Cobalt this improvement is particularly noticeable with regard to the provision of new modern buildings. In Sudbury and Cobalt, and McDougal's dairy in Haileybury, the dairies are provided with steam sterilizers which guarantee clean bottles. Cobalt has a milk depot where the bottles are sterilized with steam. A large proportion of the town's supply is brought here, bottled, and sent out to the customers. One or two in this town have private plants. J. Lorne McDougal's dairy at Haileybury continues to be the representative of the highest standard of construction and equipment in this district.

It is a matter of some regret that I am not able to report on the standard of cleanliness of the product, as few towns have made it a custom to have all milk brought in for local consumption tested frequently for dirt. The test is such a simple one and the results are so uniformly good that all towns cannot be

too strongly urged to put it into use. In this way the record of each dairy can be conveniently kept and a process of whittling off the worst ones instituted. The advantages to be gained by holding the dairymen strictly to account for dirt in the milk are such as will show a decreased infant mortality, especially during the summer months.

A very evident difference has been noted in the relative cleanliness of the various dairymen. Indeed, there are several cases where milk coming from very inferior cow-byres has been of a more excellent quality, judging from the dirt content, than some from the best stables.

Too many Local Boards are not willing to assume the responsibility of forcing dairies to maintain sanitary conditions and hold them responsible for unclean milk. While I am willing to give such cases all the time that I can spare, yet in such a large territory, where the only health enforcement must be done by Provincial Officers, time has been so scarce that certain towns which have requested assistance in making a clean-up in their dairies have delayed the proceedings indefinitely, awaiting my convenience. The dangers of this indefinite delay are so evident that no comment is necessary.

PLUMBING.

This matter requires to be dealt with by new legislation which will embody the latest and most up-to-date plumbing requirements. In many places they have no by-law and the plumbing supervision has usually been very inadequate; thus the plumbing has generally become a second-rate article by unscrupulous contractors.

SANITARY INSPECTORS.

Sanitary inspectors have been subject to all sorts of unjustifiable pressure by members of councils. This has been a matter of very frequent complaint, so much so that I decided to ask the Provincial Board to make the appointment and tenure secure, subject to the approval of the Local Board. There are many advantages to be gained, a few of which are mentioned below:

1st. The Sanitary Inspector holding his office from year to year is encouraged to improve himself and become acquainted with the Health Acts and by-laws. In this manner he attains greater efficiency.

2nd. A higher type of man is obtained for this office which has frequently been used by the townships to bestow charity.

3rd. Security of tenure permits ends to be caught up from year to year.

4th. The officer is independent of designing councillors.

5th. Members of Boards of Health are as a rule selected because of their interest in health matters, and being responsible for the health administration will naturally be painstaking in securing the best man.

Before I had the opportunity of bringing this subject to the attention of the Provincial Board, Dr. Clinton, District Officer of Health (District No. 4), had urged on the members the necessity of this change from observations made in his territory. The Board, after hearing the argument, decided to make the change.

DISTRICT NO. 7.

Comprising the districts of Kenora, Rainy River, Thunder Bay, Algoma, Manitoulin and Patricia.

Dr. R. E. Wodehouse, Major Canadian Army Hydrological Corps. On active service. District taken over by Dr. George.

REPORT OF PROVINCIAL SANITARY INSPECTOR.

GEORGE E. YOUNG.

NORTH BAY, Ont., July 23rd, 1914.

I beg to submit a report of my work in the lumber, mining and construction camps in unorganized territory for the season of 1913 and 1914, as the lumbering operations in the bush of Northern Ontario practically begin about July 1st, and the operations of 1913 and 1914 are now over.

It has been my practice to secure the signed medical contract, medical reports, sketches of new camps and general information at as early a date as possible. Where I get these and they are satisfactory, I have not visited unless some trouble has arisen, it being impossible to reach all the large number (some of them being almost inaccessible) in one season.

This territory covers an area from east to west of about twelve hundred miles and from north to south of three hundred miles. The number of men employed in lumber camps I have estimated to be 19,563. Of these there are in the Porcupine District, 120, Parry Sound, 2,125, Peterborough, 628, Fort Frances, 1,745, Sault Ste. Marie, 1,750, Webbwood, 900, Port Arthur, 1,316, Thessalon, 2,260, Sudbury, 2,810, New Liskeard, 450, Arnprior, 450, Gowganda, 340, Kenora, 1,971, North Bay, 2,698. This number was housed in 288 camps, averaging 67 men each. This number does not include a few individual concerns which I was unable to enumerate or small camps of from 6 to 10 men near town who were able to reach their homes over Sunday, making possibly 2,000 more. In nearly every case a medical contract covers the jobbers (if any) as well as the concerns; a number of these have sent in their information directly to you, but I have secured during this past lumbering season: medical contracts, 82; medical reports, 86; plans of camps, 114; general information, 79.

I have inspected 78 lumber, mining and construction camps in the Districts of Pembroke, North Bay, Gowganda, Transcontinental Railway, Georgian Bay, Parry Sound, Porcupine, Sault Ste. Marie, Sudbury, Schreiber, Port Arthur and Fort Frances.

The location, construction and ventilation of the new lumber and mining camps have greatly improved within the last two years, pole floors, etc., being now nearly a thing of the past.

With the exception of the camps on the Canada Northern east and west from Oba belonging to Foley, Welsh & Stewart, and J. O. Giroux in the Algonquin Park, the majority of the others were very indifferent.

Some of them were not fit for habitation and had to be vacated, while others had to be entirely remodelled.

Many of the camps or groups of camps are provided with a building that can be used as a hospital and others have tents.

The construction of bunks parallel with walls of building has appreciably remedied the overcrowding and some of the companies are introducing iron bedsteads. As these men are out in the open air all day I have not enforced the full 600 cubic feet per man but have insisted on having ample roof as well as gable ventilation.

The slops, garbage, etc., are usually disposed of in an open pit or cesspool during the winter and covered with earth in the spring when breaking camp.

With the exception of the Georgian Bay district, cases of smallpox and other contagious diseases have been greatly reduced in number and those occurring at points east, south and west contiguous to our neighbors whom I understand have not used strict enough quarantine regulations. I believe the appointment of immigration agents by the Dominion Government at Rainy River, and Fort Frances was the means of stopping a large amount crossing the boundary from Minnesota where I understand it was almost epidemic in places.

On account of the wrong diagnosis of a case at Collins' Inlet thirteen cases developed there, spreading to Beaverston and Bay of Finn. Any others were individual cases that occurred in the camps, showing that the companies and contracting physicians were acting promptly.

Many of the lumber companies establish laundries in the camps, which tend greatly towards cleanliness.

I have laid very few informations this season against lumbermen for non-compliance of the regulations, the small operators being the worst offenders. Taking the past season as a whole, a steady improvement has been made from a sanitary point of view in the lumber and mining camps.

I have to thank the Crown Timber Agents and others for valuable assistance and the invariable courtesy shown me by the different concerns with whom I have come in contact.

While visiting the different districts mentioned in my camp work, attention has also been given to the sanitary condition of the towns and villages. A supply of good water and sewage disposal are the first and most important matters coming before the different municipalities. Indifference has been shown in these matters by many towns at the first, consequently epidemics of disease overtook them, but this is being remedied as quickly as time and finances will permit.

In many towns during the past it has been customary for the police to attend to the scavenger work and disposal of garbage with what little time they may have had to spare from their other work, but I am pleased to inform you that by-laws controlling these matters are being passed and permanent sanitary inspectors appointed.

Making the appointment of local Medical Officers of Health permanent has been a decided improvement, as they are now acting with more force knowing they cannot be removed without cause. Putting the local sanitary inspector on the same footing would, in my opinion, be a further improvement, as a large amount of the work falls on him also.

On account of nearly every municipality having different methods of doing their plumbing and a large number having no inspection whatever, one of the

most important branches of sanitation is not receiving the attention it should, and I think a standard by-law should be passed by the Province controlling this work, also licensing of competent plumbers.

I have been giving this matter attention, especially where large numbers of people congregate, such as in hotels, restaurants, etc., and accompanied by the local Boards of Health we have made several smoke tests. One large hotel in North Bay had sewer gas escaping all over the house, consequently the whole plumbing had to be renovated at a cost of over \$2,000.00, and we closed the house during repairs. Alexander White, Sanitary and Plumbing Inspector, has rendered me great assistance in this work.

The milk supplies for the different towns and villages have been accepted from dairies with stables almost entirely unfit for the purpose. Recently, however, some very excellent milk by-laws have been passed by a number of municipalities, but it will take some time yet either by improvements or elimination to get the milk up to the required quality.

With the exception of almost five months in the year, the meats used in the North are shipped in dressed, from Ontario points. Formerly it was handled like cordwood, exposed to dust and every dirt, without any covering. This practice has been stopped.

I have closed a number of slaughter houses on account of poor construction, flies and dirt, the worst ones being in Oba, Gowganda and Sprucedale.

A great many hotels and restaurants had poorly equipped and badly ventilated kitchens. The usual remedy ordered was: concrete floors, screens and roof ventilation with suction fan in pipe.

On account of the partial closing of public works on the different railways, large numbers of foreigners were gathered in the different towns, causing serious overcrowding, but by constant attention I am glad to say this is now considerably relieved.

It is customary for fruit vendors to expose fruits and vegetables outside their premises with little or no protection from dust, etc. This is hard to combat in the police courts as injurious to health without a bacteriological examination.

I have assisted the local Boards of Health in a large number of their prosecutions, having laid very few myself and those mostly in the townships where it was inconvenient to reach the local board. One information which I laid under Schedule "B" was appealed from the decision of the Police Magistrate to a higher court, where the judge ruled that this by-law was no part of the Public Health Act and that I acted without authority, thereby quashing the lower conviction.

All of which is respectfully submitted.

Reports of Medical Inspector, Dr. R. W. Bell

REPORT *RE* SMALLPOX AT EXETER.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—As directed by you, I proceeded on March 7th to Exeter to advise with Dr. McNally, District Officer of Health, *re* suspected cases of smallpox in that town. I was informed there that for two or three months past there had been several cases of "rash" in town, all of which had been diagnosed as chickenpox, but about this time Dr. McNally had discovered cases which he regarded as smallpox.

I saw four cases in three families; one of these was just developing, another was fully developed and had the rash out several days, having at least 3,000 or 4,000 pock on him, the other two were in one family and pretty well recovered. *All were undoubtedly smallpox.*

There was an apparent inclination on the part of friends to conceal information such as might indicate the severer disease. The local medical men said they believed all cases were the same disease.

The Local Medical Officer of Health and the Board of Health immediately undertook to take all requisite steps to stamp out the disease.

R. W. BELL,
Provincial Inspector of Health.

Toronto, March 10th, 1913.

REPORT *RE* SCHOOL BUILDING AT PORT DOVER.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—Yesterday, April 3rd, I visited Port Dover and, as instructed, looked over the building occupied by the High and Public Schools and have no hesitation in reporting it in a most unsanitary condition.

It is a very old two-storey brick building with one wall badly bulged, in fact I should fear in a dangerous condition if much pressure against the building from a strong gale, etc. Inside the rooms are heated by gas stoves. There is no proper provision for ventilation. The air was foul in all rooms at the time of my visit (the noon hour) and could only be cleared out by opening the doors and slits in window sash, thus creating strong draughts and chilling the rooms. The walls were very dirty, cracked and plaster off in many places. The floors are much worn and shrunken so there is a large accumulation of disease-carrying dust which cannot be got out by scrubbing, while sweeping will constantly stir it up.

I fear the walls and floors, etc., are so saturated with germ and disease borne odors and gases that they cannot ever be made sanitary.

I do not see any way of remedying the matter in the building as it is. The whole inside would have to be torn out and renewed, in fact the whole building should be pulled down as it can scarcely be made fit for occupation by children in school rooms nor even for residential purposes.

R. W. BELL,
Provincial Inspector of Health.

Toronto, April 4th, 1913.

RE NUISANCES FROM ABATTOIRS IN WEST TORONTO.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—As instructed by you we, on the 25th inst., proceeded to investigate complaints *re* nuisance from abattoirs situated in West Toronto. The main ground of complaint, we understand, is in regard to foul odors emanating therefrom, and from our investigation we find it to be well founded. Although not continuous, most disgusting, sickening odors escape at frequent intervals, and with the wind are carried long distances.

We visited the abattoirs of the Swift Canadian Co., Gunn's, and Harris, also the surroundings, and so placed ourselves with a south to south-westerly breeze blowing at mid-day as to be certain where the odors came from, and assured ourselves they were all at fault. The worst odors apparently arise from tanks wherein the offal, etc., is converted into fertilizer, and the fats removed. Efforts are made to hold the escaping gases in solution, and carry them to the sewers; but as some of them are not condensable, they escape and cause the nuisance complained of.

The Swift Co. have installed a pipe to carry these to the furnaces, but evidently do not accomplish all necessary, as apparently some pass up the smoke stack and are carried to great distances. Other foul odors we found escaping from doors and windows.

The Harris Co. force the non-condensable gases from the tanks into the sewers, and these, finding their way into the man-holes or gratings, escape and pollute the atmosphere.

The manure fresh from the offal, we found in all cases being discharged through pipes directly into open railway cars or carts, and was most offensive.

Cement floors have been laid in Swift's and Harris', and in the latter premises the odors were not so bad, as it is a new plant, only in use about three weeks.

In Gunns' the floors are of wood, saturated with blood and filth, and are certainly impossible to clean properly. At the present time about 5,000 head of cattle are being slaughtered weekly in these abattoirs, besides hogs, sheep, etc., so the quantity of manure and offal to be disposed of is enormous. It is quite evident all is not being done that is necessary to abate the nuisance.

Officials and other employees working on the premises seemingly become accustomed to the offensive odors and do not realize how disgusting they are to others living within reach of them, rendering life almost unendurable.

R. W. BELL,
Provincial Inspector of Health.

D. A. McCLENAHAN, M.D.,
District Inspector of Health.

November 28th, 1913.

RE PROPOSED ROMAN CATHOLIC CEMETERY AT DIXIE.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—Application having been made to the Provincial Board of Health by the Roman Catholic Episcopal Corporation for the Diocese of Toronto, for the approval of the location of a proposed cemetery on the south-easterly five acres of the northerly 150 acres of lot number 11, in the first concession north of Dundas

Street in the Township of Toronto, County of Peel. I visited the proposed site on December 2nd, inst., accompanied by Mr. Chas. H. Gill, Secretary of the local Board of Health.

Objection, I understand, has been made by residents in the near neighborhood because of residential district; because undesirable to have the location adjoining a public road, possible depreciation in value of nearby property, and increasing unsanitary condition.

The locality can scarcely be designated as residential as the nearest house, (now building), is distant 125 yards, and only four or five residents within 500 or 600 yards. The second and third objections may have an element of truth in them, but I do not suppose they come under my purview, although I may here state that an old established cemetery already exists a few hundred yards distant, in a much more public place on the corner of Dundas Street and this same concession line. With the fourth I cannot agree as I do not see any likelihood of causing unsanitary conditions, the soil and nature of the ground being almost ideal; and as this is the only point of view with which I have particularly to deal I cannot see that there is any valid objection to its establishment to be embodied in this report.

R. W. BELL,
Provincial Inspector of Health.

December 6th, 1913.

NOTE.—The above reports were inadvertently omitted from the Annual Report of 1913.

REPORT RE SUMMER RESORTS.

GENTLEMEN :—By direction of your Secretary, I made an inspection of a great number of our Summer Resorts during the months of July and August. As all these were in District No. 4, I was accompanied by your District Officer of Health, Dr. Clinton, under whose supervision these will come more directly for the future. He has already dealt with most of those on the Kawartha Lakes during the past year or two, but most of the others were new to him, and as I have had them under supervision for eight or nine years it was expedient that I should go carefully over them with him and indicate what had been accomplished and confer as to what should be done to still further improve their sanitary surroundings. The conditions to-day as compared with a few years ago are very much improved and with a few isolated exceptions all are in a fairly good sanitary condition. It has taken, however, a lot of advising and occasional threatening to bring about these improvements. The season is short, two months, or a little more—and many of the proprietors think it is unnecessary to make the provisions we require for this short period. Little can be accomplished during the season as all are so busy, but I nearly always met with fair promises for the next season, only to find that they were frequently forgotten or broken on my next visit. However, several years have brought about a great change for the better. During our inspection we did not visit private cottages, as a rule, unless there were specific complaints in regard to them, but all hotels and boarding-houses on the lakes, so far as we could get a

list of them, were inspected. In all we visited 122 places—116 being hotels and boarding-houses and 6 private cottages, as follows:

	Hotels, etc.,	Private Cottages.
Muskoka Lakes	56	1
Lake of Bays, etc.	33	2
Sparrow Lake	15	1
Kawartha Lakes	3	0
Georgian Bay	9	2
	116	6

A list of the resorts visited may be of use for future reference and is herewith given in detail according to location:

MUSKOKA LAKES DISTRICT.

LAKE MUSKOKA:

Beaumaris.
Roseneath.
Milford Bay.
Cedar Wild.
Hutton House.
Scarcliffe.
Rossclair.
Wingberry House (closed).
American House.
Acton Island Farm.
Dudley House.
New Windsor (Bala).
Swastika (Bala).
Bala Park House—14.

Royal Muskoka.
Earnsliffe.
Clement House.

LAKE ROSSEAU.—*Con.*

Maplehurst.
Rossmoyn.
Monteith (Rosseau).
Rosstrevor.
King's Park.
Waskada.
Maple Leaf.
Windermere.
Fife House.
Ingleside—22.

INDIAN RIVER:

Endiang.
Havington Farm.
Beverley Lodge.
Port Carling House.
Algonquin.
Oakcrest—6.

JOSEPH RIVER:

Clover Hill Farm—1.

LAKE JOSEPH:

Prospect House.
Pinelands.
Belmont.
Elgin House.
Hamill's Point.
Staney Brae.
Barnsdale.
Gordon Bay.
Dixon House (Closed).
Summit House.
Stanley House.
Cragie Lea (Closed).
Carlingford—13.

LAKE ROSSEAU:

Nepahwin.
Gregory.
Woodington.
Clevelands.
Cheltonia.
Paignton House.
Thorel House.
Morinus.
The Bluffs.

LAKE OF BAYS DISTRICT.

MARY LAKE:

The Grunwald.
Bellevue.
The Balsams.
Lakenweld.
Lakeview.
Clyffe House—6.

PENINSULAR LAKE:

Deerhurst—1.

LAKE OF BAYS:

Gouldie House.
Dwight House.
Pine Grove Inn.
Norlock Lodge.
Britannia.
Point Ideal.
Port Cunningham.
Island View.
The Hemlocks.
Ronville.

FAIRY LAKE:

Fairyport Inn.
Hollingshead.
Haverland.
Grandview—4.

LAKE OF BAYS DISTRICT.—*Continued.*LAKE OF BAYS.—*Continued.*

The Narrows (Dorset).	Glenmount.
Gonoseyo.	Grandview.
Bay View Farm.	Point Pleasant.
The Maples.	Langton House.
Garryowen.	Idlewyld.
Wawa.	White House—22.

GEORGIAN BAY.

The Penetanguishene.	Cottage Resort.
Minnecognoshene.	Wyn-Sea-Ona.
The Royal (Honey Harbor).	Beuna Vista.
Victoria (Honey Harbor).	Tuttipom Pom—9.
Pleasant Point.	

SPARROW LAKE.

Lake Shore House.	Del Monte.
Sparrow Cottage.	Wiancko.
Stanton House.	Uneeda Rest.
Massey Camp.	Wenona.
Roehls.	Lakeview.
Vanomi Point.	Idlewyld.
Mount Royal.	Peninsular Farm—15.
Franklin House.	

KAWARTHA LAKES.

Buckhorn.	Oak Orchard—3.
The Windsor.	

Water Supply.

All use lake water for cooking and washing, etc., but for drinking many have spring and well water as follows:

	Spring or Wells.	Lake Water Only.
Muskoka Lakes	20	36
Lake of Bays District	31	2
Sparrow Lake	9	6
Kawartha Lakes	2	1
Georgian Bay	0	9
	62	54

Disposal of Sewage, Garbage, etc.

There has been a great improvement here in recent years. Where seven or eight years ago the usual closet accommodation was of the outside pit variety, to-day there are a large number of flush closets inside—some outside—with septic tanks and subsoil drainage wherever sufficient or suitable soil is obtainable—particularly on the Muskoka Lakes. Eight or nine years ago there were not more than five or six with subsoil disposal, now there are thirty-two. A few cesspools are in use where subsoil drainage is not available, but we satisfied ourselves that these were safe. Dry earth closets are also in use in several places and are strongly advised where a proper flush system cannot be had. I regret to say we still found thirty-five places provided with the pit closet only, out of the 116 places visited. A number of those with flush closets had also a pit closet outside for the hired help. All these pits we condemned and ordered abolished, the dry earth, box or bucket system to be substituted where flush not available. Scarcely any closets were screened or fly proof. I may say that in two instances we found chemical closets in use and giving fair satisfaction. In no instance did we find any likelihood of the water supply being polluted from this source.

The following table will show the locations, etc.:—

	Septic Tanks and		Dry Earth or	
	Subsoil Drainage	Cesspools	Chemical	Pits
Muskoka Lake	32	7	6	11
Lake of Bays, etc.	7	6	4	16
Sparrow Lake	5	3	3	4
Kawartha Lake .....	..	1	..	2
Georgian Bay	4	..	2	3
	48	17	15	36

Laundries.

In the great majority of cases we found the laundries in separate buildings in rear of the premises, occasionally the work done in the kitchen or back verandah and all water scattered over the ground, but in a few instances the work was done on the lake shore with building partly over the water and waste emptied into it. All these conditions we ordered to be remedied before next season. One glaring instance was where the laundry slop was reaching the lake within about 60 ft. of the intake of one of the largest hotels on the lakes. This condition I have been trying to get the proprietor to remedy for three years, but whether from stubbornness or negligence he has failed to comply so that he was notified that if not changed so as to avoid pollution of the water by the opening of next season his place will be condemned and he will be prosecuted.

Garbage.

In nearly all cases we found the kitchen garbage either fed to animals, buried or burned, but there was lack of care in keeping it screened or covered from flies until removed. In all cases protection was ordered.

In very few instances were the kitchen windows found screened, while frequently the exposed garbage was close by, as also non fly proof closets, and manure piles of not distant stables. Closets which are not fly proof and manure piles should not be tolerated near the kitchens, that is to say, within 75 yards in a direct line. Strange to say, the bedroom windows were frequently screened and sometimes the dining-room windows as a concession to the æsthetic sensibilities of the guests, while the kitchen windows were wide open inviting the flies to wander in and contaminate the food. All these matters I have been trying to get remedied during past years, with a reasonable amount of progress from year to year by continual suggesting, advising, expostulating, and occasionally threatening the delinquents.

In the interests of the summer tourists and the general public we will have to continually keep these resorts under a vigilant eye and have all laxness observed corrected without delay.

Vessels.

Before closing this report I may say that the pollution of our lakes from the passenger vessels has been a source of worry for years past, but the trouble seems in a fair way of solution. Most of the boats are now equipped with steel tanks to receive the lavatory discharges which are treated with live steam for a sufficient time to render them perfectly sterile and innocuous before being discharged into

the open lake. It is hoped to have all boats so-equipped before the opening of next season.

On the whole I believe our summer resorts will compare very favourably from a sanitary point of view with any of this continent, but our constant effort must still be to see that there is no retrograde step permitted, but always advancement until the proprietors of these resorts learn that they must take every precaution and provide everything necessary to make their premises sanitary and safe for their guests.

R. W. BELL.

September, 1914.

REPORT RE SMALLPOX.

To the Secretary of the Provincial Board of Health, Ontario.

SIR:—During the year just closed smallpox has been somewhat prevalent in the Province but a considerable drop from the previous year is shown, viz.: 263 fewer cases reported. In both years as well as in 1912 the cases were pretty well distributed, no one section showing a great predominance, although the older portion of Ontario, west of Toronto, probably furnished most; the County of Middlesex was in the van, followed by Wentworth, Welland, Brant and Haldimand. To the east of Toronto, Prescott and Russell and Hastings furnished the majority of cases. During the previous year (1912) Prescott and Russell and Carleton showed up worst in the east, while Wentworth, Welland, Waterloo, Wellington, Essex and Grey all furnished more or less in the west. It will be noted that Northern or New Ontario has been comparatively free, except a few cases about Rainy River. The disease continues of the same mild type with few fatal cases.

I may also add here that I believe few if any of the cases developed in persons who were ever vaccinated, or at least vaccinated in recent years. None of those seen by me claimed to have ever been vaccinated.

The following shows a comparison of cases and deaths in the Province for three years:

	Cases	Deaths
1912	535	3
1913	774	3
1914	511	3

Where assistance was required from the Provincial Board of Health it was generally rendered by one of the District Officers of Health, but in a few instances I was sent out to investigate and advise with the local Medical Officer of Health and Board; this as a rule was as to questions of diagnosis.

January 20th—I visited Guelph and with Dr. H. O. Howitt saw one case in the City.

January 27th—I again visited Guelph and with Dr. Roberts, Medical Officer of Health, visited a case in Guelph Township. In both cases proper care was being taken to prevent further spread of the disease, but later on I believe quarantine was broken in the second case, resulting in prosecution.

April 24th—I was called to London to diagnose cases which had developed in the Victoria Hospital and also visited an infected house in the city. These patients were removed to the Isolation Hospital.

December 5th—Suspicious cases having occurred in North Cayuga and Seneca Townships, I visited these on the named date and confirmed the diagnosis of smallpox and advised with the former Board of Health.

December 9th—On this date with Dr. McNeil, Medical Officer of Health I visited several families in the south-eastern section of London Township, and found without doubt that a mild type of smallpox had been prevalent there for at least three months, members of infected families frequently visiting the city, market, etc. The presence of the disease had only been brought to the attention of Dr. McNeil, who lives several miles to the north-west of the city, a couple of days before. He had at once closed one of the schools until further investigation could be made. We got trace of the disease in at least nineteen families. Very few had been ill enough to call in a physician, but those had been quieted by the statement that it was a "Fruit Rash" or "Apple Rash" and other infected neighbours concluded they had the same and so the disease spread. These blunders were made by city physicians and at the time of my visit the city authorities were up in arms against the township for permitting such a state of affairs to exist, which was most unfair as their own physicians who practised in the infected district were largely to blame. However, Dr. McNeil took vigorous measures to prevent further spread of the disease.

December 14th—In company with Dr. J. A. Cummings of Bond Head, I visited an isolated but well-marked case in the Township of West Gwillimbury. This case was well isolated and looked after, being one of the most satisfactory cases to deal with in my experience and resulted, I understand, without any further spread.

December 16th—I was called to Morrisburg to consult with Dr. P. J. Moloney, District Officer of Health, and who is on service as Medical Officer with the troops guarding the St. Lawrence Canals. The patient was one of the soldiers and he was well isolated in a cabin on the bank of the Canal.

This covered all my connection with the disease for 1914.

R. W. BELL.

December 31st, 1914.

REPORT *RE* POLLUTION OF ASHBRIDGE'S BAY NEAR CARLAW AVENUE.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—Complaint having recently been made about the pollution of Ashbridge's Bay in the neighborhood of Carlaw Avenue, Toronto, more particularly with

reference to the destruction of fish therein, supposedly from the Canadian Ammonia Company's plant, I visited the locality this afternoon, May 20th, and looking over the situation, I found this plant located in the block east of Carlaw Avenue and south of Eastern Avenue, close to an indentation of the Bay. The plant has been established there only a few months. The raw product used is obtained from the gas works and in extracting and concentrating the ammonia considerable quantities of lime are used. Small quantities of the lime unfit for use are occasionally dumped out in rear of the premises where filling is being done and a little of it had got into the marshy water among the rushes and discolored it for a distance of 15 or 20 yards, but not within 200 or 300 yards of the Bay proper. A little lubricating oil was also seen on the water for a few feet out, it reaching the shore line with water from the condensers.

Possibly a half dozen dead fish were seen among the rushes and there was more or less bad odor, I think from them. There was some stagnant water close to the west side of the building but the proprietors are filling in the low ground all around their buildings on their premises as rapidly as possible, loads coming in during my visit.

The waste bi-products, such as phenols, carbonates, etc., from the works are discharged into the sewer running down Eastern Avenue to the Sewage Disposal Plant.

I scarcely think the destruction of the fish can be from anything I saw about the ammonia plant.

I next went to the foot of Carlaw Avenue, which I reported on twice last year, and there found a most abominable state of affairs, the Carlaw Avenue sewer apparently discharging as much, if not more, sewage than last year. The concrete sewer as before described extends out 30 or 40 yards into the Bay. Sewage lumps of excreta in hundreds were floating on the water both above and below the sewer, and carried back towards the shore as a gentle south-west breeze was blowing at the time. Many boats—launches, sailboats, skiffs, etc., were floating in this mess in rear of Rickey Bros. boat works. This is a disgrace to the City of Toronto. In Court last October I heard the City Commissioner of Works state that all this would be put an end to within three or four weeks, but to-day the condition is worse than ever.

Probably this has far more to do with the destruction of the fish than the ammonia works.

All of which is respectfully submitted.

R. W. BELL,

Toronto, May 20th, 1914.

RE COMPLAINTS OF PORCUPINE MINERS' UNION.

As the Townships of Whitney and Tisdale in which the mining camps are situated are organized the regulations for unorganized districts do not apply and the companies are not required to furnish either medical attendance or hospital accommodation. The hospitals at the Hollinger and Dome Mines are provided for their own protection with their own physicians and the charges connected therewith are their own concern and under their own control. The admission of patients from other mines is purely a voluntary matter and by private agreement.

The companies at Iroquois Falls in unorganized territory should have their own hospitals.

The establishment of a Public General Hospital in the Porcupine District is desirable, and with the installation of a water and sewer system at the Town of Timmins, that appears to be the most desirable site. The surplus from the Fire Fund, held for this purpose, I believe could be usefully expended here.

R. W. BELL,

Toronto, June 17, 1914.

RE POLLUTION OF WATER SUPPLY, VILLAGE OF WESTON.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—The Corporation of the Village of Weston having applied to the Provincial Board of Health for an examination of the waters of the Humber River beyond the point from which their domestic supply is obtained, with the object of having any pollution thereof controlled under Section 93 of the Public Health Act, I, in accordance with your instructions, visited the location yesterday, July 3rd. I find the pump house with a sedimentation basin situated a short distance outside the village limits and on the east bank of the River. The River at this point is only a few yards wide, and has a depth of from six inches to two feet, with low banks. On the west side there were a number of horses and cattle pasturing with direct access to the stream. While a portion of the land for several miles up stream is under cultivation, much of it is under pasturage, and within the first two miles, over one hundred head of stock pasture on its banks without being fenced off, and wading in its water pollute it to a considerable extent. This same condition exists up the main stream to the village of Woodbridge seven miles, and also along the west branch of the river which empties into the main stream a mile or so above Weston. Many persons also bathe in the river within a short distance above the intake.

From my investigation I recommend that the Corporation of Weston be given sanitary control of the banks of the Humber River both main stream and west branch, and any other entering streams for a distance of four miles above the village limits, and if it later be found that the public water supply is still polluted, the control be extended beyond the Village of Woodbridge, which I fear is a greater source of danger than the farms described.

R. W. BELL,

July 4th, 1914.

REPORT RE NUISANCE AT 508 DOVERCOURT ROAD.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—As instructed by you, I proceeded to investigate a complaint *re* pollution of the air said to be caused by some chemical manufacturing on the premises 508 Dovercourt Road, in this City.

I found the premises occupied by Mr. H. B. Latimer, and in a small building on the rear of his lot the manufacture of silver nitrate was conducted on a small scale. Bar silver by the aid of heat was dissolved in concentrated nitric acid, and the complaint is that during this process gases in the form of heavy brown fumes are discharged from the chimney and being blown by varying winds into neighboring houses become a nuisance, both from injury to health from their inhalation and from the disagreeable odor. At the time of my visit, September 11th inst., there was nothing disagreeable to be found, as no solutions were being made, the only evidence of the manufacture being several vessels with nitrate of silver in various stages of crystalization. These were in both the ground floor and cellar of the rear building. Mr. Latimer assured me that he carried on no other manufacture but that of silver nitrate, and that only once in two or three weeks or not so often he dissolved the silver, when he admitted there would be disagreeable fumes from the chimney for an hour or so and if the atmosphere was heavy they would be held down and with a breeze might be carried into some of the nearby houses. This gas, I believe, is mainly nitrous oxide, and is certainly disagreeable and also injurious for inhalation. Possibly the situation might be relieved to some considerable extent by the chimney being raised several feet and extended still further by a high smoke stack. However, as this is a residential district a city by-law may perhaps be invoked to have the nuisance abated.

Since visiting the premises I have been informed the brown fumes have been seen issuing from the chimney of Mr. Latimer's residence on the front of the lot, which would indicate that some chemical manufacture is going on there also, but this was not indicated to me during my visit, only the building in rear being pointed out as the factory premises. Mr. Latimer has, however, promised to let us know when he next will have the work in operation so it can be visited and seen at its worst, probably within three or four weeks. Meantime I suggest waiting for this further investigation.

R. W. BELL.

September 16th, 1914.

REPORT RE MIMICO PIGGERY.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—As instructed by you, I made an inspection yesterday of the Mimico Piggery, situated on the bank of Mimico Creek and south side of College Street. This is the same as was twice reported on in October and November, 1912. At the time of my visit there was apparently no person about the premises. The surroundings were as at my previous visits, but in several respects conditions were much improved. There is now apparently no discharge into the creek and provision appears to be made for pumping the liquid filth from the tank and carting it away. The pens are all quite dry and comparatively clean. Each building is divided into twenty-four pens, and in the westerly one there were about 150 hogs, while in the easterly one only three, but there were a large number of hens which left it in a rather filthy condition. Two or three smaller sties in other parts of the premises were empty. East of the main buildings were two or three small slimy pools which ought not to be there. Close to the south-easterly corner of the east building there was a pile of solid manure which had been accumulating for probably several

weeks. There were indications that a portion of it had been recently removed, probably within a few hours, and here the odor was disgusting.

In the slaughter house cooking of feed was going on and the smell therein was sickening, but all of this offensiveness was only perceptible to the south of the premises, as the wind was from the north at the time of my visit. Two nearby residents told me the odors were most disagreeable when the wind blew in their direction, and almost unbearable when the filth was being carted away and the manure pile stirred up, as it had been that day. This I am informed occurs three or four times a year, and is carted to the farm of Mr. Collins, a few hundred yards west, and there Dr. Bull, M. O. H. of the Township, had given orders for it to be ploughed in immediately.

Take it all in all, there is a decided improvement over the conditions existing at the time of my previous inspections, but notwithstanding this, the place must at times be an almost unbearable nuisance to the nearby residents, who are rapidly becoming more numerous.

R. W. BELL,

Toronto, September 26th. 1914.

REPORT RE ANTHRAX AND POLLUTION OF STREAM AT ACTON.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—Dr. J. R. Nixon, M.O.H. of Esquesing Township, having reported several cases of Anthrax in that township, possibly caused from pollution of stream by tanneries at Acton, I, with him, visited that village and looked over the situation on September 15th inst.

The stream is known as the west branch of the Credit River and is very small at this season of the year.

Dr. Nixon had a record of at least ten animals that have died since the latter part of July, all along this stream and all having had access to it and all with symptoms very suspicious of anthrax. R. Sproule, living one mile down stream, lost two head of cattle in July, but did not report at the time; W. Dobbie, one and one-half miles down, lost three animals in July and early August; W. & C. Scott, two miles down, lost one but not reported; Herb. Bessey, five miles down, lost one, and Jno. Bessey, five miles down, lost three. Veterinary Surgeon John Standish performed a post-mortem on these last and a few days afterwards died with symptoms of Anthrax. A Dominion Veterinary Inspector made an investigation and sent a specimen to the Department of Agriculture at Ottawa which proved to have Anthrax; specimens were sent to our Provincial Laboratory, but no indications of Anthrax in them. I find on information from Veterinary Surgeon Cox, of Acton, who has been in touch with some of the cases, that the animals were buried where found dead on the farms and covered with quick lime. Dr. Nixon says: "There have been occasional outbreaks of this trouble along this stream for many years, but this last one is the worst ever."

With the idea that possibly the trouble might have arisen from the tanneries, I visited them with Dr. Nixon. There are two, viz., Beardmore's and the Acton

Tanning Co. The former use principally imported dry hides, the latter all green hides—about 4,000 per month—from Chicago and Canadian Swifts. The last case of Anthrax in any employee was fifteen years ago. Both plants are large and are comparatively clean. The former is a few yards farther up stream, but both get their water supply from above the upper one beyond a dam, the supply being brought down through a small flume beside the stream. The waste liquids are carried off through a small box drain parallel to and above the bed of the stream to a tank at the lower corner of the lower tannery and from there pumped over a hill into two ponds, natural depressions in the ground, about three acres each in extent. These are used alternately, one evaporating more or less while the other is in use. There is no discharge from these ponds. There are no animals pasturing about these premises whatever.

Some years ago filter beds were in use beside the stream a short distance below the tannery, but being too small, the ponds over the hill were formed. Apparently much trouble and expense has been gone to, in order to get rid of the waste without creating a nuisance. However, we found the waste box drain, which is an open one, leaking more or less, also broken on the side, and if at all choked or dammed up (as we were told occasionally occurs) even for only a few minutes, it overflows into the stream underneath, increasing its pollution which is more or less constant from the leakage even if small. Of course, if any anthrax germs from the hides get into the stream, the trouble below can easily be accounted for; but, if any of the hides were infected, it would be almost a miracle if none of the employees handling them contracted the disease. It almost seems to me that the infection is from previously buried animals not being properly destroyed, as the liability to cause trouble under these conditions for years after is well known.

A bacteriological examination of several samples of water from springs on the farms adjoining and also from the stream does not show any anthrax germs, but colon bacilli and chemical pollution are indicated to a dangerous extent.

I have advised steps to further protect the stream, and also the burning of all animals infected with or where suspicion of Anthrax.

R. W. BELL,

September 28th, 1914.

REPORT *RE* TYPHOID FEVER IN TOWNSHIP MAIDSTONE.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—On 20th inst. I visited the Township of Maidstone in Essex County and with Dr. Millen, Medical Officer of Health, drove through the Township, visiting seven families where there had been recently twelve cases of typhoid fever, with the object of determining the cause if possible. The majority of the cases were convalescent or entirely well, seven being in adults and five in children from 8 to 14 years of age. There had been one death of an adult after four weeks illness.

These cases were distributed over a considerable area, but all within a reasonable distance of Lake St. Clair and not far from the mouth of Belle River. There did not appear to be any direct connection between the cases. Most of the families had wells, but in several instances they had gone dry, and the owners had been compelled to draw water from the lake close by Belle River for domestic use.

In all instances, but one, we found the lake water had been in use even where wells were not dry, and in the one case not traceable, there was a strong probability the patient had drunk lake water not knowing it, as he was travelling about with a threshing outfit and had been at houses where lake water was being used. There is very little doubt but that the lake water was the source of infection, as there was liability to its pollution where it was being obtained. Dr. Millen, however, was taking all necessary precautions to stamp out the disease.

R. W. BELL,

October 24th, 1914.

REPORT *RE* POLLUTION OF CREEK FROM ASYLUM DRAIN, LONDON,
ONTARIO.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—As instructed by you on 19th instant I enquired into the pollution of the creek in London Township, just east of the Asylum where it crosses Dundas Street and runs south through the property of Mr. Gervin. I was accompanied by Reeve Hodgins, Township Clerk Grant and Dr. McNeil, Medical Officer of Health, who were the complainants. We found a drain from the Asylum, which runs under Dundas Street and into Mr. Gervin's property, entering the creek about 40 yards south of the street crossing. This is a large arched brick drain with one tile at its outlet and was the original drain for all the Asylum sewage, but for many years past only supposed to be used for storm water and boiler washings. Mr. Gervin asserts that there is much dirty water from it and his cattle pasturing on the banks of the creek will not drink it. This pollution he asserts is visible sometimes daily for a week or two, and occasionally dry for several days. At the time of my visit there was some dirty grey coloured discharge coming from the drain and there was much slimy grey deposit clinging to the grass and watercress close to and below the outlet. The water above it was clean. Fish were seen swimming in the clear water above, while only dead ones were seen below.

Having satisfied myself as to the pollution I visited the Asylum and went over the situation with Dr. Robinson, Superintendent, and Dr. Ross, Assistant Superintendent. We opened manholes in the Asylum yards where the drains are 12 to 14 feet deep, and found no flushings from the laundry, etc., and apparently no connection except from roof pipes. We could not test the flushings from the north building as repairs were going on and pipes cut for a day or two, but Dr. Robinson and old employees assured me all connections, except for roof and surface water and boiler washings from the furnaces, which were turned in once a week, had been cut off when a new sewage disposal system to the farm lands had been put in many years ago. However, I arranged that as soon as possible a test be made with a good heavy flushing from the baths, etc., at each end of the north building, colouring the water with Methylene blue or Permanganate of Potash, as I feared at the time of the supposed change some connection had been overlooked or deliberately left by the contractors to save work, and probably soapy water from some of the baths was causing the trouble.

Since drafting the above portion of report I have, October 24th, received a letter from the Superintendent of the Asylum saying that on investigating, as I suggested, he has discovered that the baths, etc., at one end of the north building are still connected with this drain and evidently the cause of the trouble. This will be remedied without delay. I have suggested a similar investigation into the connections from the main and other buildings, as possibly the same conditions may be found to exist.

R. W. BELL.

October 27th, 1914.

REPORT *RE* PROPOSED INCREASE IN WATER SUPPLY AT
GEORGETOWN.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—On Wednesday, the 28th inst., as instructed by you, I visited Georgetown, to investigate a proposed additional water supply.

Accompanied by Dr. McAndrew, M. O. H., I went over the situation. The present supply is obtained from springs some three miles out in the country and stored in a small pond close by the roadside of a leading street in the outskirts of the Town, where it is always open to much pollution.

The proposed source for increased supply is from springs situated in a small swamp a few hundred yards west of the reservoir, the water from which now runs down close by the storage pond. This streamlet has been deepened to some extent alongside of the new electric railway line, from which it is liable to contamination.

At the time of my visit I found the whole vicinity of the larger springs tramped and messed about by cattle coming from the adjoining fields for water. Even if stock were shut off from access to them, the springs are liable to pollution from the adjoining pasture lands and from drainage from barnyards.

Under these conditions I cannot but report adversely to this proposed source of supply, as I do not see that there is any possible way of protecting it so that it will be fit for domestic use.

R. W. BELL,

Toronto, October 30th, 1914.

REPORT *RE* ABATTOIRS AT WEST TORONTO.

To the Secretary, Provincial Board of Health, Ontario.

SIR.—On Monday, October 24th, 1914, the undersigned visited the slaughter houses of the Harris Company, the Gunn Company and Swift Canadian Company at West Toronto.

Previous to going to the abattoirs we visited three points in the town—one point on Annette Street where a large sewer is being constructed, one point farther

west on Annette Street, and one at the corner of Dundas Street and High Park Avenue. At all of these points there was a distinct slaughter-house odor; it was not extremely obnoxious as an odor to be borne for a short time, but if long continued would be very decidedly a nuisance, not necessarily directly injurious to health but indirectly a health reducer and a very considerable sentimental nuisance. We were told by those who accompanied us that it was frequently much more pronounced and had given rise to very vigorous protest by the people in the neighborhood of these points. Though the wind was from the direction of the abattoirs we did not notice any pronounced odors in the general air away from these manhole areas, except when we went in the street on which the abattoirs are located. Here the odors were quite distinct and specific from each of the establishments, acrid oily odors and the odors of cooked flesh.

On several occasions while going along Dundas Street through West Toronto during the Encampment at Long Branch, Dr. Amyot personally noticed very decided, strong abattoir odors, once or twice objectionably strong.

We then made visits to each of the three abattoirs. Harris Abattoir: Last winter we visited this establishment; at that time it had been in operation but a short time; the paunch manure was being handled very objectionably and was giving rise to bad odors. This has been corrected satisfactorily. On that occasion also the slaughtering-room floors were soaked in blood and not washed down frequently enough; this has been corrected by thorough washing, and at the time of our visit no objectionable odors were being given off. During the winter inspection the section where offal is treated was in bad condition, as it was now and not yet properly constructed for good sanitary cleansing; this also has been corrected. The cooking apparatus was not hooded and this might be done now with beneficial results to get rid of the odors given off. Formerly the windows used to be left open, giving an opportunity for the gases to escape into the outer air; they are now being kept closed pretty generally, but should be so arranged that they cannot be opened. The windows in the rendering section are now being kept closed most of the time; these also should be sealed tight so that the strong odors here produced might all be removed by the fans. If the fans at present in use cannot remove the odors, larger ones should be installed. An acrid, disagreeable odor was coming from the cotton-seed oil distiller, to correct which some device should be adopted.

In the city abattoirs of New York it is required that all windows be sealed and that the odors from the chief producers be collected by means of hoods and led to a strong exhaust and thence underneath the furnace fires; the rest of the air is exhausted and passed through water-scrubbers, the effluent gases from these being then treated with a tar-cresote preparation which oxidizes in part the remaining odors and masks the remainder. This arrangement has been found to work very satisfactorily.

In the Harris plant most of this is being done, and with some more adjustment and perfecting should soon be satisfactory. Eternal vigilance should be enjoined on those in charge to see that these appliances are not rendered futile by negligence.

The catch-all in the basement before their sewage enters the sewer gave off putrid odors. They were attempting to chlorinate it before putting it into the sewer; we did not think the method was efficient. If they chlorinated thoroughly, the sewage carried down the sewers would not give rise to a nuisance as early as it does now, for putrefaction would be delayed until the dilution by the common sewage was extensive enough to prevent the development of specific abattoir putre-

factive odors; this is the plan adopted in New York to get over this nuisance. Again, improvement would be made if some such revolving self-cleansing screens were put in, such as are being used by the Swift Company farther along the line to prevent any possible gross material getting into the sewers. Altogether, the Harris people seem to be making an honest effort to minimize and remove their nuisance.

Referring to a report of Dr. Bell made last winter we now find that most of the wooden floors in Gunn's have been replaced by cement floors. Also in their catch-basin a revolving screen has been put in as in the Swift Company's plant. We are glad to report also that serious work towards closing of windows and putting in exhaust fans was in progress, and when these are completed and the scrubbers are installed much improvement should result.

The Swift Company are more advanced in their improvements; there is hope that they will soon be in a much more satisfactory condition than at present.

The following we consider absolutely necessary as preliminary measures to correct the nuisances arising from such establishments:

(1) That hoods connected with strong exhausts be placed over the chief odor-producing apparatus, these to lead to the underside of furnace fires.

(2) All rooms in which objectionable odors are produced, in addition, must have windows and doors tightly sealed and the air exhausted by adequate fans; the air to be treated by scrubbing and afterwards by some satisfactory deodorizers such as creosote tar with treatment to neutralize and mask odors not already neutralized.

(3) That screens capable of treating all effluents from the factories be installed in order that no gross material enter the sewers; that the liquid effluent be strongly chlorinated that putrefaction will be so delayed that dilution is brought about before characteristic putrefaction takes place in the sewers close to the establishments or in remoter residential sections.

(Signed) J. A. AMYOT,
R. W. BELL.

Toronto, November 3rd, 1914.

REPORT *RE* TANNERY ON OSSINGTON AVENUE.

To the Secretary, Provincial Board of Health, Ontario.

SIR,—Complaint having been made *re* an alleged nuisance created by a tannery at 118 Ossington Avenue, I investigated the condition existing on November 28th inst. This tannery owned by A. T. Howe & Sons is situated in a hollow on west side of Ossington Avenue, between Shannon Street and Churchill Avenue, and consists of a group of cheap and not very substantial buildings; the main one used for tanning, etc., being a three story roughcast with basement, the others much smaller are used as work-rooms and for storage. The chief productions are mats and insoles as only sheepskins are used. In the main building these skins are first washed in clean water, after which sodium sulphide is applied to loosen the wool before it is pulled, then lime is used, after which they are washed

in the basement, in a solution of some patented combination of salts and finally with sulphuric acid and salt. Everything about the premises was as clean as could be expected in an establishment of this kind and no offensive smell was noticed until the basement was reached; but here in the west end where the washing of the skins was in process in the patented salt solution there was certainly a most disagreeable odor, and this was the only place there was anything offensive. This I was informed lasted about two hours each forenoon. Outside I went all around the premises and the adjoining streets but at the time of my visit (10 a.m.-noon) I could not detect any odor as coming from the tannery. This tannery has, I understand, been in existence about twenty-five years and at the time of its establishment there were no nearby residences and the location was a most suitable one, but now the surrounding streets are closely built up with dwelling houses. I was informed that, with the basement windows open and the wind from that direction, occasionally the odors reached some of the adjoining residences to such an extent as to be offensive, but at the time of my visit there was nothing on which to ground any complaint.

R. W. BELL,

Toronto, November 30th, 1914.

Report of the Provincial Sanitary Engineer

F. A. DALLYN, B.A.Sc., C.E., (Tor.)

To the Chairman and Members, Provincial Board of Health, Ontario.

GENTLEMEN,—I have pleasure in presenting herewith my Annual Report for the year 1914, together with the laboratory report of Dr. De Fries upon the Sault Ste. Marie water supply and two reports of Mr. A. V. De Laporte, B.A.Sc., one upon the chlorination of the water supply at Port Arthur and the other in connection with trade waste from the paper mills at Georgetown.

During the year the Board was honored by a request from the International Joint Commission that your Engineer should be present at a meeting in New York, at which some six representative Engineers, viz., George C. Whipple, George W. Fuller, Earl B. Phelps, W. S. Lea, T. J. Lafreniere, and myself, were consulted in connection with the Commission's examination into the pollution of Boundary Waters.*

The Annual Meeting of the American Water Works Association was attended in May at Philadelphia.

In order that the Department might take a fuller advantage of the information presented by the municipalities in connection with applications for approval of sewerage and water works, and in order that the Act might be more carefully complied with, considerable effort was spent in preparing a form of application which would in a general way be suitable for the various classes of work submitted for the consideration of the Board. The form of these applications, together with the proposed regulations governing the same, were submitted to some of our municipal engineers before being submitted to your body for approval as a regulation under the Act. The city engineers very kindly gave the matter their careful attention and the result has been a form which is now in general use without occasioning municipalities any serious inconvenience. The Regulations are so arranged that the information submitted to the Board is such as should rightly be in the possession of the engineer when designing the work. The proposed materials and estimate of cost submitted with the applications has already begun to show us how in various ways the supervision of the Board can be turned to the advantage of the municipalities. The information which previously was of a general character has now become rather minute and permits of special study.

Some municipalities have not as yet conformed to the amendment of 1911 to the Ontario Statutes, which provides that no by-law shall be passed for the raising of money for sewerage or water works purposes until the proposed water supply or sewerage system, as the case may be, has been approved by the Provincial Board of Health. This comment naturally applies solely to those municipalities which have a local sale for their debentures. Practically all of the larger municipalities have realized that the Act cannot be evaded, since the debenture solicitors invariably advise them that the debentures are not validated until the approval of the Board has been received. This co-operation on the part of the debenture

*Minutes of this meeting appear in a publication of the International Joint Commission, Ottawa and Washington, copies of which may be obtained.

solicitors is proving of material assistance to the Board, and the use of the new forms will doubtless greatly assist the Ontario Railway and Municipal Board in the examination of proposed debenture issues in connection with new sub-divisions.

It will be noticed that a sub-section has been inserted in the regulations with reference to sewerage work, requiring municipalities to pass by-laws for the removal of outhouses and privies on those premises abutting on streets having sewerage facilities. This section was deemed advisable in view of the fact that in many municipalities sewers have been laid without compelling the property owners to take advantage of them. This is lack of foresight on the part of the municipal council. The idea of the regulation is to override such backwardness.

The Regulations are as follows:

REGULATIONS GOVERNING THE PREPARATION AND SUBMISSION
OF PLANS AND SPECIFICATIONS RELATING TO A SEWERAGE
SYSTEM, SEWAGE DISPOSAL SYSTEM, COMMON SEWER
OR EXTENSIONS TO THE FOREGOING.

Approved by the Lieutenant-Governor-in-Council on the 5th day of October, 1914.

SECTION A

An application for the approval of a sewerage system shall be accompanied by:

(1) A topographical map covering the entire municipality or sewerage district, together with contours indicating the nature of the adjoining watershed. This map shall clearly show the existing, proposed and ultimate main sewers intended for the area. The sizes of sewers must be plainly written along the lines of the sewerage system,

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(2) Profiles of all sewers proposed for immediate construction, which shall show by means of figures and other suitable symbols the sizes, lengths, gradients, surface elevations of the sewer invert, elevation of sewer inverts at manholes and the material and nature of the sewer construction. Gradients ensuring self-cleansing velocities will be expected when obtainable by the nature of the topography of the section to be seweraged. It is further required that the elevation of the floor of the lowest cellar be mentioned on the profile drawing. Test hole information showing character of subsoil and such other information necessary to aid contractors in bidding will be required for new sewerage systems, new sub-divisions and for larger undertakings. Test hole information is not required for small jobs where the nature of the sub-stratum is known.

(3) Plans of all sewer appurtenances, such as manholes, lampholes, flush tanks, siphons, unusual features, pumps, etc., shall be required. It is suggested that details of manholes, flush tanks, catch basins, etc., be placed on the profile drawing or that they be standardized and bound together with the standard specifications.

(4) Specifications or allusions to a Standard Specification already filed with the Board, together with a copy of the Engineer's preliminary estimates of cost subdivided into the various main headings, shall be required.

(5) Further the Corporation shall produce evidence that by-laws either have been passed or will be passed forthwith, providing that all outhouses and privies shall be removed or destroyed on those premises abutting on streets which have sewerage facilities or upon those premises which by reason of their situation may connect to existing sewers, and that such premises are required to connect to the adjacent sewer.

SECTION B

An application for the approval of common sewers or sewer extensions shall be accompanied by:

(1) Plans and specifications or plans together with an allusion to a standard specification previously submitted as required for subsections 2, 3 and 4 of Section (a), relating to the particular extension. It is suggested that when several profiles are being submitted at one time these be blue-printed on a single, long sheet, instead of in sections. (Filing and examination is thereby much simplified.)

(2) A report in the case of new outlets showing their relation to the existing system and setting forth the reason why existing outlets are not used.

SECTION C

An application for the approval of a sewage disposal works shall be accompanied by:

(1) A small scale topographical map showing the main collectors, together with the situation and size of the disposal area.

(2) An Engineer's report upon the proposed works, describing the necessity thereof and the benefit to be derived therefrom.

(3) An actual estimation of the existing flow of sewage from various districts or at convenient outlets made by means of weirs or other suitable measuring devices must be included with the description of the works.

(4) Detail plans and specifications for the construction of the proposed works, together with the Engineer's preliminary estimate of cost.

(5) It is recommended that no disposal works other than the acquiring of land and the construction of sedimentation tanks be provided for at the time of construction of the main drainage scheme, but that suitable experiment and research be made as to the proper methods of disposal after actual conditions of flow have been established, the results from these experiments and researches being used in final design of the disposal works.

SECTION D

An application for the approval of combined systems or storm sewers shall be accompanied by:

(1) A set of topographical maps of the natural surface water drainage divisions of the municipality. These may be enlargements taken from the general topographical map, upon which shall be shown the proposed storm sewers. The sizes of the sewers must be plainly written along their lines of direction.

(2) Profiles, specifications and a plan showing typical sewer cross sections, man-holes, etc., for that portion of the system covered by the construction by-law.

(3) An Engineer's report of the proposed system, which report shall be in detail and shall include the information relating to sub-strata and ground water level, areas paved, nature of ground surface, local by-laws affecting collection and separation of roof water, mean slopes affecting run-off, and the area of each natural division, together with a complete record of data relating to precipitation affecting the municipality.

(4) A plan showing the locations of connections between the sanitary and storm sewers, together with a report upon the mean flow and its relation to the excess flow which operates the separating weir.

SECTION E

Completion of work:

(1) Upon completion of the work a revised plan showing the alterations and deviations from the original plans, together with a final estimate of cost, shall be forwarded to the Board.

REGULATIONS GOVERNING THE PREPARATION AND SUBMISSION OF
PLANS AND SPECIFICATIONS AND AN ENGINEER'S REPORT
OF THE WATER SUPPLY, WATER WORKS SYSTEM,
WATER PURIFICATION PLANT, EXTENSION
OF, OR CHANGES IN EXISTING
INSTALLATIONS OF THE
FOREGOING.

Approved by the Lieutenant-Governor-in-Council on the 5th day of October, 1914.

SECTION A

An application for the establishment of a source of water supply shall be accompanied by:

(1) A map showing the location of the source of supply and having plainly marked thereon the position of the intake, location of drains and water courses affecting the quality of the water, together with the location of common sewers, dwellings or pasture lands adjacent to the water courses or affecting or liable to affect the watershed, well or spring serving as a source of supply.

(2) A report upon the quality of the water by a responsible sanitary expert. The Board may upon the receipt of a request from a Municipal Council of Commission or Private Company cause such report to be made by one of its own officers. (See Section 90, Chapter 218, Revised Statutes of Ontario.)

(3) An Engineer's report upon the quantity of water available from the source of supply together with suggestions as to the conservation and augmentation of the same. This report shall be in detail and shall include the information relating to area of the watershed, precipitation, evaporation and run-off used in its compilation.

(4) A contour map and profile showing the proposed location of the pipe line, together with detail plans and specifications for the pipe line, intake and other structures used in the conveyance of the water until it reaches the water distribution mains of the municipality. The detail plans and specifications shall not be required for preliminary reports, but must be presented before by-laws for establishment have been finally passed.

SECTION B

An application for the approval of a water works system shall be accompanied by:

(1) A map of the municipality upon which is clearly shown the position and size of the mains together with the location of intakes, pipe lines, pumphouses, reservoirs, elevated tanks, hydrants, valves and valve chambers, etc.

(2) An Engineer's report upon the proposed system, a report upon the present condition of the source of supply (see Section (a)), together with detail plans, specifications and estimate of cost for the various works by reason of the establishment of a waterworks system.

(3) A plan showing the layout of the pumphouse, together with a statement of style, make and capacity of the various pumps and means of operating them. (Where pumps are operated by steam, the make, style, horse-power, grate area and heating surface of the boilers shall be given upon completion of the work) (Section (e)). This application shall include preliminary estimates and the specifications for the proposed construction.

SECTION C

An application for the approval of extensions to an existing distribution system shall be accompanied by:

(1) Extensions may be completely described by use of the identification form and shall include the information relating to proposed materials and estimate of cost. Applications wherein the description is seriously lacking will be referred back to the municipality for such details.

(2) The material therein described must be according to specifications. When tenders are to be called for according to the Standard Specifications of the Canadian Society of Civil Engineers or according to Standard Specifications of other Associations,
6 B.H.

or according to specifications adopted by municipalities, for cast-iron water pipe and special castings, it shall be necessary that the class required under those specifications be described in the application, and that copies of any special municipal specification accompany the application or be on file in the office of the Provincial Board of Health, and that such specification must be for better material and workmanship than the before-mentioned standard specifications, otherwise their use will not be permitted. All pipes for services mains shall be tested to a pressure not less than 300 pounds per square inch at the factory.

(3) The municipality need not present plans for the extension with each application under Section (b), but shall be required each year to prepare a plan showing the extensions to the system for the preceding year, and to file same with the Board not later than May 1st of each year.

SECTION D

An application for the approval of a water purification works shall be accompanied by:

(1) An Engineer's report upon the proposed system, describing the works, the necessity thereof, and the benefit to be derived therefrom, which report shall include preliminary estimates of cost for the various works mentioned.

(2) A general plan showing the main conduits, the general arrangement of the proposed purification works and accessories. Reserve areas shall be indicated on the plan, together with the probable positions of extensions.

(3) Detail plans, specifications and estimates of cost for the various works whose immediate construction is proposed in the application.

(4) An Engineer's report upon the operation of the proposed works after construction, which report shall describe in detail an organization and operating arrangement which should ensure continuously efficient service.

SECTION E

Completion of work:

(1) Upon completion of the work a revised plan showing the alterations and deviations from the original plans, together with a final estimate of cost, shall be forwarded to the Board.

CANADIAN FIRE UNDERWRITERS' ASSOCIATION REQUIREMENTS.

(a) No mains for fire protection purposes shall be less than 6 inches, except that short lengths of 4-inch pipe may be placed on side streets to connect to larger mains, but no hydrants shall be placed on them.

(b) No wood mains shall be allowed except where they are gravity mains, under a constant and unvarying head, such as from a reservoir to a pump suction well or from springs to a reservoir, and they shall never be used as pressure mains.

(c) All mains shall connect at intersections, and shall have sufficient number of valves, so that in case of accident not more than one block, or say about 600 feet, will be out of service at any one time; and they shall be laid well below the frost line.

(d) Hydrants: It shall be specified that hydrant valves shall close with the pressure, and that each hydrant shall be fitted with an independent valve on the pipe leading from the mains to the hydrants, especially in the business section. Further, that in business sections, the distance apart of the hydrants shall not exceed 250 feet.

(e) Where elevated tanks or standpipes are installed in connection with any system, they shall be fitted with an automatic valve capable of being operated from the pump house, which valve should be closed on every alarm of fire.

(f) Filters: The Canadian Fire Underwriters' Association have no special stipulation as to the capacity for filters, but they should be equal in the capacity to that required by the C.F.U.A. standard for a duplicate pumping system, plus one filter and the plant should be so arranged that any one filter can be cut out without affecting the others and be capable of giving their full capacity at such pressure as will give on the discharge side at all times the necessary pressure for fire service. If these conditions cannot be complied with, a suitable reservoir should be provided in accordance with Section 7 of the C.F.U.A. standard, under the heading of "Reservoir for visible supplies to pumps."

(g) All valves on water mains shall be placed on the street line of the intersecting streets.

Applications relating to approval of sewerage and water works systems were received and reported upon from the following municipalities. Those receiving approval of the Board are listed as follows:

SEWAGE DISPOSAL.

Municipality.	Date of Approval.	Municipality.	Date of Approval.
Ridgetown (Royal Bank Building)	Feb. 2	Whitby	June 6
Englehart	April 9	White River (C.P.R. septic tank)	" 30
Canadian Kodak Co., Mount Denis	" 11	Bracebridge (Public School)	Aug. 17
Trenton	May 6	Graham (G.T.P. septic tank)	" 17
Swansea (J. Rennie)	" 9	Redditt (G.T.P. septic tank)	" 17
Carleton Place	" 18	White River (Y.M.C.A. Building)	Sept. 23
Forest (Forest Canning Co.)	" 19	Cornwall (passenger station)	Oct. 7
Stratford	" 22	Dundas	Nov. 12
		Whitby	" 27
		Whitby	Dec. 8

SEWER EXTENSIONS.

Municipality.	Date of Approval.	Municipality.	Date of Approval.
Berlin	Jan. 7	Ottawa	May 1
Kingston	" 10	Sarnia	" 1
Galt	" 19	Ottawa	" 2
Fort Frances	" 19	Brampton	" 8
Galt	" 28	London	" 11
Niagara Falls	" 28	Ottawa	" 19
Hamilton	" 28	Kingston	" 19
Peterborough	Feb. 2	St. Thomas	" 20
Sandwich	" 3	Chatham	" 20
Oshawa	" 7	Ottawa	" 22
Ottawa	" 7	Niagara Falls	" 22
Galt	" 19	Berlin	" 22
Fort William	" 21	Stratford	" 22
Windsor	" 26	Ottawa	" 23
Barrie	" 28	Guelph	" 30
Stratford	March 2	Waterloo	" 30
Toronto	" 5	Sandwich	" 30
Oakville	" 6	Barrie	" 30
Sandwich	" 11	Sudbury	June 2
Russell	" 12	Ottawa	" 2
Hamilton	" 13	Fort William	" 2
Smith's Falls	" 16	Ottawa	" 4
Barrie	" 20	North Bay	" 6
Windsor	" 27	Belleville	" 10
Ottawa	" 30	Ottawa	" 10
London	April 3	Fort Frances	" 10
Barrie	" 4	Hamilton	" 10
Sandwich	" 14	Peterborough	" 10
Sarnia	" 15	Smith's Falls	" 11
Windsor	" 16	Peterborough	" 11
Welland	" 21	Berlin	" 16
Sault Ste Marie	" 23	Hamilton	" 17
Kingston	" 24	Guelph	" 24
Hamilton	" 25	Hamilton	" 26
Galt	" 25	Toronto	" 26
Ottawa	" 27	Hamilton	" 26
Brampton	" 28	Toronto	" 26
Stratford	" 28	Kingston	May 27
Berlin	" 29	London	" 30
Ottawa	" 30	Windsor	" 30
Toronto	May 1	Smith's Falls	July 3
Kingston	" 1	Ottawa	" 3

SEWER EXTENSION.—Continued.

Municipality.	Date of Approval	Municipality.	Date of Approval
Sandwich	July 3	Hamilton	Oct. 22
Stratford	Aug. 12	Kingston	" 23
Ottawa	" 17	London	" 24
Hamilton	" 17	Oakville	" 24
Oshawa	" 17	Pembroke	" 26
Windsor	" 17	Hamilton	" 26
Galt	" 18	Township of York	" 26
Waterloo	" 31	Toronto	" 27
Peterborough	Sept. 3	Pembroke	" 28
Hamilton	" 3	Englehart	" 29
Ottawa	" 3	Kingston	" 30
Township of York	" 3	Brampton	" 30
Peterborough	" 4	Galt	" 30
Ottawa	" 5	Berlin	Nov. 4
Arnprior	" 10	Waterloo	" 4
Kingston	" 10	Windsor	" 4
New Liskeard	" 10	Ottawa	" 6
Smith's Falls	" 15	Smith's Falls	" 6
Township of York	" 15	Hamilton	" 10
Ottawa	" 22	Stratford	" 10
Ottawa	" 23	Toronto	" 10
Township of York	" 23	Windsor	" 10
Kingston	" 24	Galt	" 16
London	" 24	Port Hope	" 23
Sudbury	Oct. 5	Port Hope	" 25
Toronto	" 7	Galt	" 25
Kingston	" 7	Toronto	" 25
Ottawa	" 7	Ottawa	" 27
London	" 7	Toronto	" 28
Hamilton	" 7	Kingston	" 28
Township of York	" 7	Thorold	Dec. 3
Galt	" 7	Sault Ste. Marie	" 3
Guelph	" 7	Township of York	" 8
Ottawa	" 9	Sandwich	" 10
Waterloo	" 10	Hamilton	" 10
Arnprior	" 15	Berlin	" 12
Smith's Falls	" 15	Niagara Falls	" 15
Hamilton	" 15	London	" 16
Ottawa	" 17	Niagara Falls	" 18
Cobalt	" 20	Township of York	" 22
Hamilton	" 21	Ottawa	" 24

NEW WATER SUPPLIES.

Municipality.	Date of Approval	Municipality.	Date of Approval
Point Edward	Jan. 23	New Toronto	June 2
Whitby	" 23	Toronto	" 15
Streetsville	Mch. 15	Elmira	" 16
Englehart	April 9	Elmvale	Aug. 26
St. Catharines (Chlorination Plant)	" 15	Grimsby	Sept. 3
		Port Hope	Nov. 4
		Guelph	" 23

WATER WORKS EXTENSIONS.

Municipality.	Date of Approval	Municipality.	Date of Approval
Hamilton	Jan. 14	Sandwich	Mch. 11
Toronto	" 19	Hamilton	" 13
St. Catharines	" 22	Guelph	" 30
Orillia	" 27	Rainy River	" 18
Brockville	Feb. 2	Hamilton	" 19
Toronto	" 6	Chapleau	" 19
St. Catharines	" 7	Smith's Falls	" 19

WATER WORKS EXTENSIONS.—Continued.

Municipalities.	Date of Approval	Municipalities.	Date of Approval
Hamilton	April 4	Hamilton	Aug. 17
Peterborough	" 9	Toronto	" 17
Sandwich	" 14	Galt	Sept. 3
Hamilton	" 17	Hamilton	" 3
Hamilton	" 20	Toronto	" 10
Burlington	" 28	Smith's Falls	" 15
Windsor	" 30	Mitchell	Oct. 7
Oshawa	May 1	Kingston	" 7
Hanover	" 5	Leamington	" 8
Toronto	" 6	Wingham	" 15
Hamilton	" 19	Hamilton	" 15
Orillia	" 22	Smith's Falls	" 15
Burk's Falls	" 22	Burlington	" 16
Tottenham	" 23	Kingston	" 23
Galt	" 30	Englehart	" 29
Hamilton	June 2	Hamilton	" 30
Hamilton	" 10	Penetanguishene	" 31
Timmins	" 13	Toronto	" 4
Toronto	" 16	Essex	" 25
Hamilton	" 17	Woodstock	" 28
Gravenhurst	" 24	Dunnville	Dec. 2
Carleton Place	" 26	Toronto	" 4
Hamilton	" 26	Thorold	" 12
Hamilton	" 26	Fort William	" 15
Kingston	Aug. 17	Fort William	" 23

REPORT RE SAULT STE. MARIE, ONTARIO, WATER SUPPLY

BY ROBERT D. DEFRIES, M.D., D.P.H.

January 26th, 1914.

In accordance with instructions received from the Chief Officer of Health, I proceeded to Sault Ste. Marie on January 9th, 1914, with full laboratory equipment for sanitary examination of water. Suitable quarters for the laboratory were obtained on January 10th and the first samples were collected on January 11th in company with the Medical Officer of Health, Dr. A. S. McCaig.

The City of Sault Ste. Marie receives its water supply from the Tagona Water and Light Company. The present source of supply is from the Canadian Ship Canal, just above the upper gate of the lock, by a wooden pipe line. The usual source of supply is from a canal which runs parallel to the ship canal and which supplies power to the above company and also operates the Pulp and Paper Mill adjoining. This is usually spoken of as the "Power Canal."

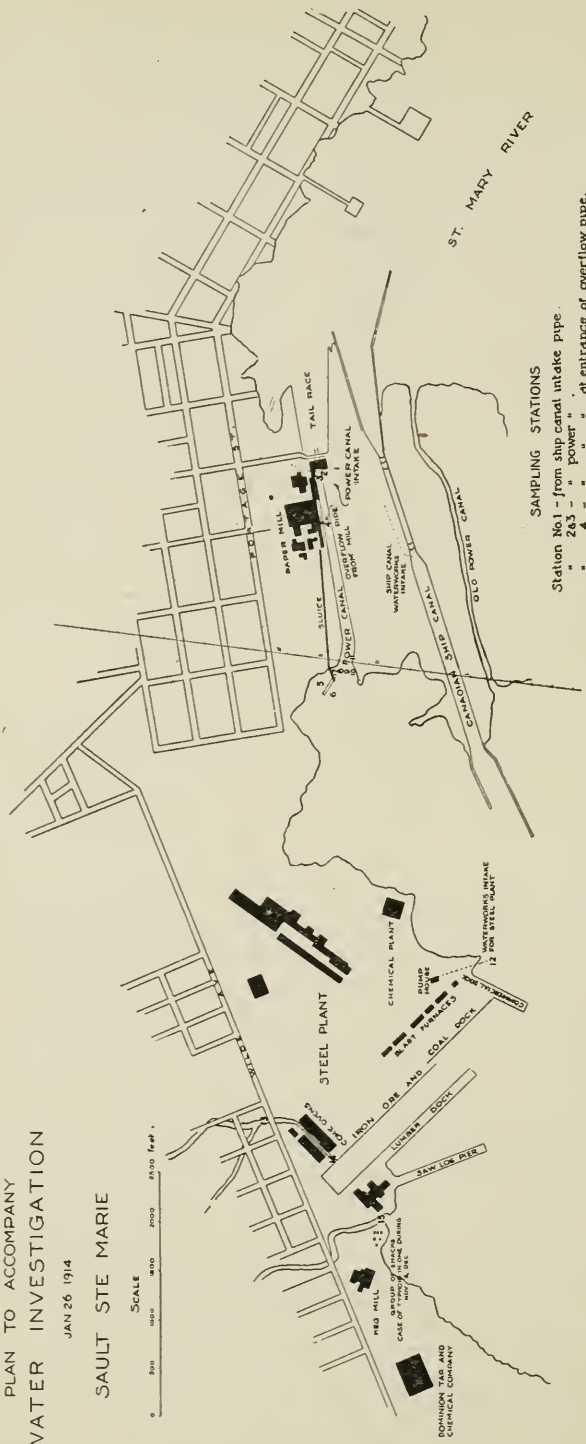
Owing to extensive dredging operations in the bay above the entrance to the Power Canal, the emergency supply from the ship canal has been in use since last August. At present active operations are being carried on at the entrance to this canal and it is understood that extensive dredging will be carried on during the spring, summer and fall. Owing to the frequent discoloration of the water caused by this work the ship canal supply is used. A small sketch is appended, which gives the lay-out of these canals.

Samples of water were examined from the supply of the Algoma Steel Co., whose supply is independent of the city. An enormous quantity of water is required in the various departments of the plant and about 30,000,000 gallons are

PROVINCIAL BOARD OF HEALTH OF ONTARIO

PLAN TO ACCOMPANY
 WATER INVESTIGATION
 JAN 26 1914
 SAULT STE MARIE

SCALE
 0 500 1000 2000 4000 Feet



SAMPLING STATIONS
 Station No.1 - from ship canal intake pipe.
 " 2&3 - " power " at entrance of overflow pipe.
 Others - as indicated.

ST. MARY RIVER

TAIL RACE

PAPER MILL
SLUICE
POWER CANAL
SHIP CANAL
WASHBURN CANAL
IRON ORE DOCK
COAL DOCK
STEEL PLANT
CHEMICAL PLANT
12 TON STEEL PLANT

OLD POWER CANAL
CANADIAN SHIP CANAL

IRON ORE DOCK
COAL DOCK
SAW LOG RIVER

DONNISON TAP AND CHEMICAL COMPANY

pumped daily. The intake is placed at the west end of the Company's property. This supply is subject to pollution by two streams.

The first stream after draining a well-populated, non-sewered district passes through the Steel Company's property and empties into the dock slip. The second stream of considerable size, as shown in the photograph, flows into the bay a short distance west of the slip. The territory drained by this stream is also thickly settled. At the mouth of the stream are a half dozen or more shall shacks, all of which are occupied in the summer. *In one of these a case of typhoid fever existed for six weeks last fall; all of the excreta from this patient was thrown into the bay.* Samples of water from these streams showed marked pollution and seemed to account for the contaminated samples obtained from the taps at the steel plant.

The ship canal and its immediate surroundings are deserted at present, but it is expected that the city's ice supply will be shortly harvested from this canal about one-quarter of a mile above the present intake. In contrast, the power canal is much more subject to pollution. There is a driveway along the north bank and loads of pulp wood are being daily brought in and piled alongside. At the west end of the canal extensive work, already mentioned, is being carried on and about one hundred men, chiefly foreigners, are at present engaged. The surroundings of the power canal are thus far from being all that is desired for a public water supply. In addition, all the water from the sluices (when in operation) which convey the logs from the west end of the canal to the pulp mill is returned to the canal. Samples examined on three occasions from two pipes which carry off the warm overflow from a large tank—172 feet long—in the pulp mill where the logs are sorted showed very marked pollution. The presence of feces on a few of the logs entering this tank may account for this contamination. Once a day about one-half of this water is run off into the canal.

CHLORINATING PLANT.

This consists of two wooden tanks, each of 320 U.S. gallons capacity, and a small tank for primary mixing of the "bleach" and water. The tanks are used alternately, one being ready when the other is empty. The flow of bleach solution is regulated by an adjustable orifice, situated in a porcelain-lined box, and a six-inch head is maintained by a float valve.

The tanks and orifice box are situated at one end of the pumping station at a high elevation and the flow from here is by gravity to the suction pipes at the opposite end of the station.

The amount of bleach added was thirty pounds (30 lbs.) per day during December and till January 20th, when the amount was increased to 40 lbs. per day. The total pumpage (calculated less slippage) is stated to be 3,500,000 gallons U.S. per day.

The taste of the water, which was the cause of complaint during the fall, seemed not to be due to the amount of bleach used, as this was only 30 lbs. per day, but to irregularity in the method of application. It was admitted that the regulation of the orifice was in more hands than one during the fall. A re-organization of the staff was effected in January and a Mr. Beckstedt was given charge of the chlorinating plant. He has carefully watched the orifice box, and as a result the taste has disappeared. At present the amount of bleach added gives .5 parts available chlorine per million and there is no objectionable taste.

The Company is installing a duplicate orifice box, and this will allow daily cleaning of the orifice and a much more reliable discharge should result. Another cause for the irregularity of application was apparently due to a broken segment of the orifice, thus allowing a more rapid flow than was calculated. The placing of the tanks and orifice box at the opposite end of the building to the pumps gives a very long flow for the bleach solution before reaching the suction pipes, with danger of plugging. It also necessitates the pump man walking the full length of the building and ascending a flight of stairs to make any change in the orifice to correspond to changes in the pumpage.

BACTERIOLOGICAL REPORT.

Samples of water were examined from the following sources:

- (a) Ship Canal.
- (b) Power Canal.
- (c) Power Canal at headquarters.
- (d) Steel Plant taps.
- (e) Streams near Steel Plant.
- (f) City Tap.

POWER CANAL.

Colon Bacilli.

0 = Negative Reaction.

+ = Positive Reaction.

Date.	Sample Point Number. see map.	Hour.	Serial Number.	1 c.c.	5 c.c.	25 c.c.	50 c.c.	Bacteria per c.c. 37° C.	Remarks.	
Jan. 10.	11	11.30	201 A	—	—	—	+	2	Below railroad bridge south bank.	
Jan. 12.	3	11.30	201 B	—	—	+	+	0		
	2	12.00	202	—	—	—	—	0	North bank.	
	2	2.30	203	—	—	—	—	0		
	2	3.00	204	—	—	—	+	0		
	2	3.30	205	—	—	—	+	0		
	2	4.00	206	—	—	—	—	0		
	2	4.30	207	—	—	—	—	0		
Jan. 13.	2	11.00	208	—	—	—	—	0		
	2	11.30	209	—	—	—	+	0		
	2	12.00	210	—	—	—	—	0		
	2	12.30	211	—	—	—	+	0		
Jan. 14.	2	1.30	212	—	—	—	+	0		
Jan. 14.	2	2.00	213	—	—	—	—	0		
	2	2.30	214	—	—	—	—	0		
	2	3.00	215	—	—	—	—	0		
	2	3.50	216	—	—	—	—	0		
	2	4.30	217	—	—	—	—	0		
Jan. 15.	2	4.00	218	—	—	—	—	0		
	2	11.30	219	—	—	—	—	0		
	2	12.30	220	—	—	—	—	0		
	2	12.50	221	—	—	—	—	0		
	2	3.45	222	—	—	—	—	0		
Jan. 16.	2	3.00	223	—	—	—	—	0		
	3	4.00	224	—	+	+	+	2	Pulp Mill Gate.	
	2	4.00	225	—	—	—	+	0	South side.	
	2	5.00	226	—	—	—	—	0		
	6	3.30	227	+	+	+	+	8	Near sluice intake.	
	7	4.10	228	0	+	+	+	0	North end of bridge.	
	8	4.20	229	0	+	+	+	0	Centre of Bridge.	
	7	4.30	230	0	0	0	+	2	North end of bridge.	
Jan. 17.	2	11.10	231	—	—	—	—	0		
	2	12.30	232	—	—	+	+	1		
	2	1.00	233	—	—	+	+	0		
	2	1.30	234	—	—	—	—	0		
	7	12.10	235	—	+	+	+	0	North end of bridge.	
	8	12.15	236	—	+	+	+	1	Centre of bridge.	
	9	12.20	237	—	broken	—	—	—	South end. "	
Jan. 18.	2	11.00	238	—	—	—	—	3		
	2	12.30	239	—	—	—	+	0	North side of Power Canal.	
	3	12.40	240	—	—	—	—	—	Canal.	
	2	12.55	241	—	—	—	+	0	South side "	
	7	12.00	242	—	—	+	+	0	North end of bridge.	
	8	12.05	243	—	—	—	—	0	Centre of bridge.	
	9	12.10	244	—	—	—	—	0	South end of bridge.	
	10	12.15	245	—	—	—	—	1	Near dredge on south end of bridge.	
Jan. 20.	2	3.00	246	—	—	—	—	0		
	2	3.30	247	—	—	—	—	5		
	7	3.45	248	—	—	—	—	2	North end of bridge.	
	8	3.55	249	—	—	—	—	0	Centre of bridge.	
	9	4.05	250	—	—	—	—	0	South end of bridge.	
	10	4.10	251	—	—	—	—	0	" near dredge.	
	8	4.30	252	—	—	—	—	0	Centre.	
	9	4.40	253	—	—	—	—	0	South end.	
	7	4.50	254	—	—	+	+	2	North end of bridge.	
Jan. 21.	2	4.50	255	—	—	+	0	0		
	2	5.05	256	—	—	+	+	0		
	5	5.10	257	Effluent from pipe on Power Canal given elsewhere.						
		5.15	258							
	6	5.25	259	—	—	—	—	0	Sluice intake.	
	5	5.30	260	—	—	+	+	2 spr.	Near "	

POWER CANAL.

Colon Bacilli.

0 = Negative Reaction.

+ = Positive Reaction.

Date.	Sample Point Number. see map.	Hour.	Serial Number.	1 c.c.	5 c.c.	25 c.c.	50 c.c.	Bacteria per c.c. 37° C.	Remarks.
Jan. 21.	7	5.40	261	—	—	—	+	3 spr.	North end of bridge. Centre. South end.
	8	5.50	262	—	—	—	—	5	
	9	6.00	263	—	—	—	+	0	
Jan. 22.	2	4.35	264	—	—	—	—	0	Sluice intake. Water in tank in pulp mill given elsewhere. Sluice Pond. North end bridge. Centre. South end.
	2	5.00	265	—	—	—	—	0	
	6	5.20	266	—	—	—	—	4	
			267	—	—	—	—	—	
	4	5.30	268	—	—	—	+	5 spr.	
	7	5.40	269	—	—	—	—	2	
	8	5.50	270	—	—	—	—	3 spr.	
	9	6.00	271	—	—	—	—	4	

Total number of samples—Power Canal, including samples at the head of the Canal taken from bridge 68
 Total number showing pollution 26
 Total number of sample days 12

STEEL PLANT TAP.

Samples taken in Superintendent's office unless stated otherwise.

Sample Point No. 12.

Colon Bacilli.

0 = Negative Reaction.

+ = Positive Reaction.

Date.	Hour.	Serial Number.	1 c.c.	5 c.c.	25 c.c.	50 c.c.	Bacteria per c.c. 37° C.	Remarks.
Jan. 13.	4.30	800	—	—	—	—	0	Machine shop. Store-room.
“ 14.	11.00	802	—	—	—	—	0	
	11.30	803	—	—	—	—	0	
“ 15.	2.30	804	—	—	+	+	19 spr.	
“ 16.		805	—	—	—	+	2	
		806	—	—	—	+	4	
“ 17.	4.50	807	—	—	—	—	0	
	5.15	808	—	—	—	+	0	
	5.45	809	+	+	+	+	3	
“ 20.	6.10	810	—	—	—	—	2	
	3.00	814	—	—	—	—	2	
	3.15	815	—	—	—	—	4	
	3.30	816	—	—	—	+	2 spr	
	3.50	817	—	+	+	+	1	
	4.05	818	—	—	—	+	0	
	4.15	819	—	—	—	+	0	
	4.25	820	—	—	—	+	13	
	4.35	821	—	—	—	+	0	
	4.55	822	—	—	+	+	3	
5.05	823	—	+	+	+	59		
5.20	824	—	—	—	+	3		

Total number of samples 21
 “ showing pollution 14
 “ sample days 6

Samples taken at head of gates (from railroad bridge)

North end of bridge (Sample Point No. 7)

Date.	Hour.	Serial Number.	1 c.c.	5 cc..	25 c.c.	50 c.c.	Bacteria per c.c. 37°C.	Remarks.
Jan. 16.	4.00	228	—	+	—	+	0	
	4.30	230	—	—	—	+	2	
" 17.	12.10	235	—	+	+	+	0	
" 19.	12.00	242	—	+	+	+	0	
" 20.	3.45	248	—	—	—	—	2	
	4.50	254	—	—	+	+	2	
" 21.	5.40	261	—	—	—	+	3 spr.	
" 22.	5.40	269	—	—	—	—	0	

Total number of samples..... 8
 " showing pollution..... 6
 " sample days..... 6

Sluice intake (Sample Point No. 6).

Jan. 15.	.....	1,003	—	+	+	+	0	
" 16.	3.30	227	+	+	+	+	8	
" 21.	5.05	259	—	—	—	—	0	
" 22.	5.20	267	—	—	—	—	4	

Sluice Pond. (See diagram.) (Sample Point No. 5).

Jan. 21.	5.20	260	—	—	+	+	2 spr.	
" 22.	5.30	268	—	—	—	+	5 spr.	

Taken from Railroad Bridge.

Centre of Bridge (Sample Point No. 8.)

Jan. 16.	4.20	229	—	+	+	+	0	
" 17.	12.15	236	—	+	+	+	1	
" 19.	12.15	243	—	—	—	—	0	
" 20.	3.55	249	—	—	—	—	0	
	4.30	252	—	—	—	—	0	
" 21.	5.50	262	—	—	—	—	5	
" 22.	5.50	270	—	—	—	—	5	

Total number of samples..... 7
 " " showing pollution..... 2
 " " of sample days..... 6

South End of Bridge. (Sample Points 9 and 10)

Date.	Hour.	Serial Number.	1 c.c.	5 c.c.	25 c.c.	50 c.c.	Bacteria per c.c. 37°C.	Remarks.
Jan. 19	12.00	244	—	—	—	—	0	
" 19	12.15	245	—	—	—	—	0	
" 20	4.00	250	—	—	—	—	0	
" 20	2.10	251	—	—	—	—	0	
" 20	4.40	253	—	—	—	—	0	
" 21.	6.00	263	—	—	—	+	5	
" 22.	6.00	271	—	—	—	—	4	

Total number of samples 7
 " " showing pollution 1
 " " sample days 4

Effluent from "Sorting-Vat" in Pulp Mill. (Sample Point 4.)

Date.	Hour.	Serial Number.	1/10 c.c.	1 c.c.	5 c.c.	25 cc.	50 c.c.	Bacteria per c.c. 37 C.	Remarks.
Jan. 14	3.45	1,001	+	+	+	+	+	980	East overflow pipe.
" 19	1,006	.....	+	+	+	+	320	West overflow pipe from vat in pulp mill—frozen.
" 21	257	+	+	0	+	+	3,500	East overflow pipe.
	258	+	+	0	+	+	Too high to count.	Sample from source of above pipe.
" 22	265	.....	.....	+	+	+	31	Sample from source of above pipe.

Incubated only 30 hours.

Streams above Steel Plant Intake. (Sample Points 13, 14, 15.)

Date.	Hour.	Serial Number.	1/10 c.c.	1 c.c.	5 c.c.	25 c.c.	50 c.c.	Bacteria per c.c. 37 C.	Remarks.
Jan. 17	13	811	+	+	+	+	+	145	1st stream outside Steel Co.'s property.
.....	14	812	+	+	+	+	+	137	Same stream just as it flows into dock-slip.
.....	15	813	0	—	+	+	+	15	Second stream—sample through the ice.

Discharge from pumps removing water from excavation at bridge.

Jan. 15	1,002	0	+	+	+	+	4 spr.	
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Bacterial counts were made of 1cc. quantities on standard nutrient agar 10 acid to phenolphthalein after being grown for 24 hours at 37° C.

The fermentation tests were made on standard lactose bile. These tests were made from quantities varying from 1/10 cc. to 50 cc. in the following proportions, viz., 1/10 cc., 1 cc., 5 cc., 25 cc., 50 cc. They were incubated for 48 hours at a temperature of 37°-40° c.

One hundred and seventy-three samples from all sources were examined during the fourteen days the laboratory was in operation.

Table I. gives a summary of the results, showing the number of positive fermentation tests, bacterial counts, the number of sample days and the total number of samples from the location specified.

SUMMARY.

TABLE I.

Dilutions and number of times Colon was found in same.

—	1 c.c.	5 c.c.	25 c.c.	50 c.c.	Bacteria present 37° C. 1 c.c.	No. of days ex- amined.	Total samples.
Ship Canal			1	3	8	12	56
Power Canal.....	1	6	14	26	20	12	68
North end of bridge.....		3	4	6	4	6	8
Centre of bridge		2	2	2	4	6	7
South end			1	1	2	6	7
Sluice Intake	1	2	2	2	2	4	4
Steel Plant Tap.....	1	3	5	14	13	6	21
City Tap					3	3	10

Table II. gives the percentage of samples showing pollution from each location.

TABLE II.

Percentage of samples showing pollution.

—	Polluted Samples.	Total Samples.	Percentage showing pollution.
Ship Canal.....	3	56	5.3 %
Power Canal.....	26	68	38.2
North end of Bridge.....	6	8	75.0
Centre of Bridge.....	2	7	28.5
South end of Bridge	1	7	14.2
Sluice Intake	2	4	50.0
Steel Plant	14	21	66.6
City Tap	0	10	0

The comparative absence of pollution in samples from the intake in ship canal during the absence of navigation for the period of observation is in contrast to the samples from the power canal.

The necessity for chlorination of the water is apparent when it is realized that the supply is not obtained continuously from the ship canal but occasionally from the power canal, and no notice of such change is given.

In view of these facts and because of the method of administration of the bleach solution, it does not seem advisable in my opinion to reduce the amount now added. This amount, namely 40 lbs. for 3,500,000 U.S. gallons, with proper supervision did not in my opinion give any objectionable taste.

The Company have a second intake from the power canal. This is situated a few hundred feet above the one formerly mentioned and is the old emergency supply in case of an ice jam. There is no provision for chlorinating this supply, but it is stated that there is very little chance of it ever being called into use as long as the ship canal supply is available.

With the opening of navigation, the ship canal supply will be subject to very grave pollution, as well as the power canal.

A number of photographs will assist in making clear the situation.

All of which is respectfully submitted.

ROBERT D. DEFRIES.

REPORT RE CHLORINATION OF PORT ARTHUR WATER SUPPLY.

BY A. V. DE LAPORTE, B.A.Sc.

November 24th, 1914.

SIR,—As instructed, I conducted a series of laboratory determinations at Port Arthur to discover the effects of liquid chlorine on the new water supply for that city.

The results of the examination show that the liquid chlorine does not appear to be as effective a disinfectant as the advertisements would lead one to expect. It required 0.5 parts available chlorine per million to ensure sterilization. This is the quantity previously required for the old supply, using bleaching powder.

The Port Arthur apparatus was supplied by the Leavitt-Jackson Company of New York, and was designed for a pumping installation delivering a constant amount of water. This is not the case at Port Arthur, and it seems almost impossible to ensure safety without frequently causing disagreeable taste in the water supply.

The pumps are centrifugal pumps and operate normally at the rate of about 2,500,000 gallons per day. A variation of 500 gallons per minute frequently takes place in a period of ten minutes almost any hour of the day. The rate of pumpage is approximately 1,500 gallons per minute at night and 1,750 gallons per minute during the day. The exceptional rate in the morning is about 2,000 gallons per minute.

Chlorine gas is very corrosive. The apparatus at Port Arthur gave considerable trouble both on account of escape of gas and due to improper administration of gas. The apparatus, which had been set up one month, had a needle point valve so badly corroded that when set to deliver apparently 0.4 parts it was in reality delivering 5.0 parts. The water became unfit for use before the trouble was observed. The loss of weights was then determined by weighing the condenser and the rate of feed calculated. On this occasion the valve permitted the escape of over 90 lbs. into the mains in 24 hours. This naturally caused considerable annoyance to the City Engineer owing to the complaints of water-users throughout the city.

When the mechanical parts of the apparatus are perfected I would recommend the use of 0.4 parts per million. It is doubtful, however, if this quantity will be

*Corrosion takes place due to the back pressure forcing water to the valve; usually this is due to a faulty check valve; the pure gas does not corrode.

sufficient for the very turbid water which has been shown to exist on several occasions.

In this connection I would recommend that the apparatus for addition of the chlorine be set to deliver 0.4 parts per million for a daily pumpage of 2,800,000. The average pumpage per day was ascertained to be 2,448,000, the maximum being about 2,800,000 and the minimum about 2,260,000 gallons per day, by using this dosage, the maximum quantity delivered amounts to 0.5 parts per million.

A. V. DE LAPORTE.

Chemist-in-Charge of Experimental Station.

REPORT RE NUISANCE AT THE PUMPING STATION (8th LINE) OAKVILLE

SIR,—This pumping station and overflow was inspected February 25th, 1914. This station is at present entirely underground, only two man-hole covers being visible at the surface. These are placed slightly above the surface, probably about eight inches, on the grade of the street which is surveyed for the water front. This street at present crosses through the lawn of Mr. Wood's residence; it has not been opened up nor is it used at the present time, but in event of its construction the levels of the man-hole covers appear to be correct.

There was no odor whatever around the pumping station; in my opinion, it is not possible that there should be any odor which could be classified as a nuisance. There would not be more odor about the man-hole over the sewage tank than is present in connection with any man-hole throughout the system. The gas vent in the man-hole cover is very small and absolutely prohibits much circulation of the gases into the air. The two vents which are placed on a pole on the side of the street cannot possibly give rise to odor; they merely ventilate the pump chamber, which is entirely separate from the well where the sewage is confined. The only odor in the pump chamber itself is due to the oil which is used in oiling the bearings of the motor and pump.

The real difficulty is in the overflow pipe, which unfortunately has been connected directly with the sewer, and when for any reason the pumps are not operating permits the by pass of all gross floating matter in the sewage. This overflow should properly be connected with the storage well so that in event of its use only a clear effluent would find its way to the lake.

The pumping system itself seems to be very adequate for the service required of it. Pumps and motors are both in duplicate, either one having a capacity in excess of the duty which it is required to perform. The pump attendant, Mr. McLaren, reports that at this time of year the pumps do not operate more than probably once a day; in the summer, he is of the opinion that they operate only twice a day. He also reported that, in event of the pumps not operating at the proper time, the sewage would not back up into the sanitary conveniences and sinks in the neighborhood, owing to a very long stretch of pipe and the high position in which all the traps are placed.

It is difficult to determine just what the maximum interruption of electric current would be, but in view of the fact that they are on the main transmission line of the Hydro-Electric, it does not seem at all probable that any interruption would occur for more than a 12-hour period. The transmission company has, of course, made every provision for taking care of interruptions.

It is a question whether an extra stand-by tank might not be recommended for this place. Personally I am of the opinion that the system as installed is quite adequate and that the construction of an extra tank would not be of any material advantage. I learned from the chairman of the Sewerage Commission and from the Board of Health Inspector, Mr. McLaren, that Mr. Wood's residence has sewerage connection with a septic tank. This is possibly one of the reasons why he deemed it unnecessary to place a sewer in his vicinity. I would certainly recommend that the pumping station as it exists be approved of, with possibly the proviso that if conditions arise to cause the well to overflow frequently, the extra stand-by tank be guaranteed by the town.

While in Oakville, I took occasion to look over the other pumping station (I think it is on the first line) and over their disposal works. The tanks and system constructed by Mr. Murray's engineer appear to be operating very well. The chlorinating device does not seem quite adequate. They were administering the chlorine by a strong solution, adding a continuous drop into the sewage effluent channel from the tank. The channel was about 12 inches wide and about 8 feet long, giving the solution an opportunity to mix. I do not think mixture is possible with a strong solution dropping in such fashion into this channel. I recommended to their operator the use of a more diluted solution and to run his orifice faster.

BELLEVILLE.

April 23, 1914.

SIR,—Visited Belleville as directed, April 23rd. I beg to report in connection with their water situation, which Mayor Wills had me examine into, that I am of the opinion that the use of Swick's Island for purposes of locating infiltration gallery thereon is not at all advisable. The formation at the Island is a coarse gravel containing considerable fine material and some clay. There would be considerable loss of head in filtering water through such a formation. The available head is probably not more than seven feet. Further—→ from the topography of the Island heavy excavations would be required to construct such beds and on which account the cost of construction would be considerable. A pipe line would have to be constructed to convey this water from the island through the bay to the present pumping station. The situation is one which could, in my opinion, be readily handled by means of a mechanical filter plant located in the vicinity of the present pumping house arranged with a suitable storage reservoir cross-connected to the pump suction to provide for fire underwriters' requirements. I think the pressure type of filter would probably give the most satisfactory results for this installation on account of the amount of organic matter in suspension in this water and the lack of any considerable amount of infectious material in the raw water. In connection with such a plant it would be advisable to construct a more adequate receiving well with screens conveniently arranged so that the greater part of the coarse suspended matter, floating sticks, weeds, etc., might be withheld from the filters.

SEWERAGE.

In connection with some paving which was to be done on Front Street between Dundas and Foundry Streets, my opinion was asked as to whether the existing sewers on that street would be adequate for future requirements. I am of the opinion that the sewers shown to exist on these streets

would be adequate only for the sanitary sewerage of the district which will ultimately feed it and a provision must be made in addition for storm water. I have discussed this matter with the City Engineer, Mr. Evans, and we are of the opinion that probably two shallow drains on either side of the Street connected with the sewer at Bridge Street or one main storm drain would fulfill the requirements economically. Due provision being made for taking care of the flood water that will be received from Victoria Avenue and Bridge Street in event of these Streets being paved in the future. A question was raised in connection with the sanitary sewer on Front Street as to whether the grades were properly maintained and as to whether it is now in a proper sanitary condition. I advised the Mayor that in this connection he would do well to leave the whole matter to his Engineer, Mr. Evans, to take the necessary levels of the various man-holes, so as to determine whether the original grades as shown by the plans in their possession had been observed. This can be readily done. The present condition of the sewer can also be reported upon by their City Engineer, who is fully competent so to do. From conversation with Mr. Evans and the Surveyor of Roads, Mr. Henderson, it would appear that the bottom of the man-hole at the inter-section of Bridge and Front Streets had dropped. It is quite possible that the difference of opinion arising in connection with that portion of the sewer has arisen from this fact. If this is the case the matter can easily be rectified by reconstructing the lower portion of the man-hole. From the original plans it would appear that proper grades have been provided for the sewer on Front Street. The general sewerage scheme of Belleville has, in my opinion, been rather neglected in past years. The files on record in the City Hall are most incomplete, it being very difficult to determine just what sewers have been laid and the present grades and elevations. I should urge upon Belleville the advisability of instructing their Engineer to prepare a topographical map of the City and lay out thereon such information as exists in connection with the sewerage system and to make the necessary surveys to complete his information. It appears from what information I have that the system as laid out is entirely a sanitary system and in view of this the By-law in relation to the separation of the roof water from the main house drain should be enforced so that in laying storm water drains for future pavement construction it would not be a difficult matter to take most of this water and connect it with the storm drains instead of over-burdening the sanitary sewers. The portion of the City on the west side of the River has not been sewerred, with the exception of several private drains which give rise to some nuisance in the summer by emptying through old rubble drains intended to take care of the surface, drainage.

I am convinced that the reason that the water-works has not been supporting itself, and even yielding a revenue, is due to the fact that sufficient sewerage has not been provided to take care of the discharges from modern sanitary conveniences. The Waterworks Department reported that there were only some 2,308 services, and this is a very low number for a city the size of Belleville. I think the finances of the waterworks should be examined into to see whether a re-adjustment of the rates or the installing of meters could not change their revenue for the better. It is to be observed that while the total tax rate has increased during the last ten years from 23 mills to 26 mills the general rate including local improvements has decreased from 19 $\frac{7}{10}$ in 1900 to 16 mills in 1913.

GODERICH WATER SUPPLY.

June 27th, 1914.

SIR:—

A visit was made to Goderich, on request of Dr. McNally, to examine into the present condition of the water works system with special reference to the measures that should be taken on account of the frequent occurrence of pollution of the water supply.

The water supply is taken from Lake Huron by means of a 12-inch intake which extends some 900 feet out into the water from the shore. The intake pipe is about 1,400 feet long altogether. The conditions of the intake have never been ideal owing to the fact that to the north the Maitland River and the waters of the harbor discharge, and to the south about a mile and a quarter distant they have an outlet for the sewerage system, which enters the lake at this point without treatment of any kind.

The new works now under construction, by the Department of Public Works, Canada, upon the harbor improvement consists mainly of erecting breakwaters to make this a port of refuge in time of storm. These works upon their completion will restrain the normal movements of the harbor water and place the existing intake in a very bad position, and one in which it will be subject to very considerable contamination, mainly from boats. The water will also be practically turbid owing partly to the condition of the water there normally due to the wave action and the Maitland River, and to the mud stirred up by the boats manoeuvring within this breakwater.

The Department of Public Works, through Mr. J. J. Sing, District Engineer, have very kindly furnished us with a plan of their proposed breakwater.

At the time of my visit the Hydro-Electric Commission were considering the advisability of installing electric units to supplant the existing steam plant used for pumping water through the city mains. Upon request the Hydro Commission have furnished us with drawings and specifications and a report upon this work. This report indicates that the installation proposed by the Commission is of considerably smaller capacity than the existing works, although double the capacity required for the domestic requirements for 24 hours. The capacity of the electrically driven pumps is less than one-half that required by the Fire Underwriters, and about one-third of the present maximum pumping capacity.

In the report of the Hydro Commission mention is made of the present condition of the intake. I find upon examination that a 7 ft. drop in the level of the suction well over that existing in the lake would only permit approximately 2,000,000 gallons per 24 hours passing through the intake. I am not aware whether a greater difference in level than this is permissible, since it creates a suction lift of about 22 feet.

The following is recommended:

1.—A chlorination system to treat the raw lake water be immediately installed, to add a quantity of bleaching powder (Hypochloride of lime) ranging between 1 to .75 parts per million of available chlorine to the water before it enters the existing sedimentation basin.

2.—Plans and estimates be prepared for a new intake for the water works system of the said town, which intake shall not be less than 20 inches in diameter and carried to a point beyond the south end of the existing south-west breakwater, and that the said plans and estimates be filed with the Board within a period of 60 days.

3.—That plans and estimates be prepared at an early date for laying an additional force main from the pumping station to the centre of the distributing system in the above Municipality.

There is no question but that with the present conditions existing at the intake that Goderich is liable at any moment to be affected by a serious epidemic of "water-borne" disease. The chlorination plant is most advisable.

REPORT Re WASTES FROM THE WOOLEN MILL AT MITCHELL, ONT.

May 19, 1914.

SIR:—

I have inquired into situation resulting from the discharge of the waste liquors from the woolen mills at Mitchell in the River Thames, and beg to report that as a result of such discharge a nuisance exists in the vicinity of the Mitchell Woolen Mills.

There are two types of wastes at present being discharged. One is the waste dye liquors, which at the present time amount to 1,916 gallons per day; this liquor contains a large amount of colouring matter, which creates a visual nuisance in the immediate vicinity of the mill but disappears upon dilution farther down the stream. The other is the waste from the rinsing machines and is a soap solution containing considerable amount of oils and grease coming from the wool, which is scoured and rinsed before being dyed; this waste amounts to 1,815 gallons per day. The grease from the rinsing operations is quite buoyant and deposits in the river along the sides of the stream, creating upon decomposition in the warm weather a very objectionable odor and a rather unsightly appearance in the immediate vicinity of the mill.

TREATMENT ADVISED.

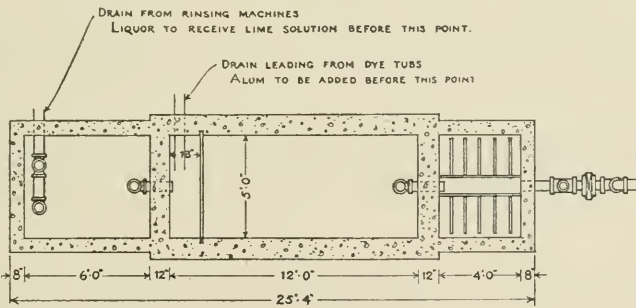
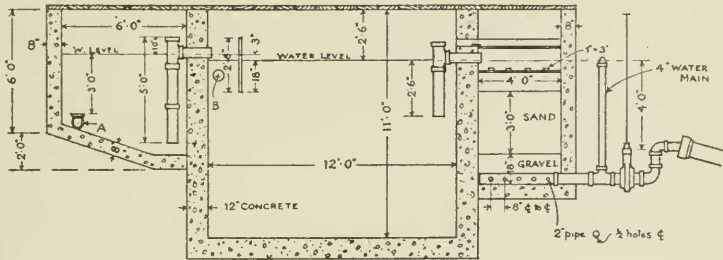
The removal of grease and fatty acid present in the liquors from the rinsing machine may be accomplished by adding excess lime and cooling the solution. The lime reacts with the fatty acid present to form a calcium solution which is light and rises as a curd. To remove this curd, the liquor after receiving the lime solution is led to a chamber arranged as a grease-trap from whence it overflows to the sedimentation chamber proper, as indicated in the drawing accompanying this report. The liquor entering the second chamber should be sufficiently alkaline so that, after reacting with the acid dye liquors, the contents of the tank remain perceptibly alkaline.

Decolourization of the dye wastes can be accomplished in two ways: by dilution, which can be effected by combining the liquors from the mill in one tank and holding it for a number of hours, or more preferably by adding a coagulant such as alum to the acid dye liquid and making same alkaline by the addition of the liquors from the rinsing machines. A considerable precipitation of Aluminium Hydrate is thus brought about; the Aluminium Hydrate absorbs practically all the colour present and upon sedimenting leaves a fairly clear liquor. To effect this the alum should be fed to the drain pipe leading away from the dye tub (as indicated in the sketch) and the liquors then led into a sedimentation tank which also receives the alkaline liquors from the rinsing machines.

The overflow from the sedimentation tank proper which contains the combined wastes from the mills can then be led through tile placed in a plot of ground and laid in rows about 40 feet long and with 14 inches of surface on top; possibly about 480 feet of 4-inch tile would be sufficient.

THE PROVINCIAL BOARD OF HEALTH OF ONTARIO.

DISPOSAL TANKS AND BED
FOR
THE WOOLEN MILL AT MITCHELL ONT



Designed by *Ed. Dally*
Oct 14/1914

James M. Fullen
Chief Officer
Approved

If it is more convenient and the necessary grade cannot be obtained from the tile area to the river, an artificially constructed filter might be made by placing a collecting system in the base of a concrete chamber (2-inch pipe arranged 8 inches apart into a 6-inch header with $\frac{1}{2}$ -inch holes bored in the 2-inch arms about 8 inches apart). On top of this should be placed about 18 inches of gravel which should be covered by 3 feet of coarse sand; ordinary sand will not do for this purpose but can be used if thoroughly washed in some apparatus which carries off the finer sand; a sand being of an effective size of .4 millimeters is suitable.

The effluent from the tank is fed to the bed through a wooden trough having openings, 1 inch by 3 inches, placed along the side on the bottom. By carrying this trough up and putting in a false bottom two feet from the surface of the sand, it can also be used for carrying off the wash water in back-washing the artificial filter. In order to effect this back-washing the trough collecting the wash water should be high enough so that the wash water liquor can run back into the sedimentation tank, raising its level possibly eight inches for the wash, the treatment works remaining idle for not less than fifteen minutes before being put in use again in order to allow the greater portion of this material to settle in the sedimentation tank.

It is quite possible that the filter, either when constructed by means of tile or the artificial one, will not be a necessary part of the installation. By using a large tank such as outlined in the sketch, the liquor may be so cleared as not to require this. The construction of the concrete tank to contain a filter is, however, advisable so that in the event of the liquors not being sufficiently clear the filter may be completed and operated as outlined.

It is rather difficult to estimate the cost of this work, but I believe it can be done for something in the neighborhood of \$300.

MEMORANDUM Re TOWN OF COBALT INTERCEPTING SEWER ALONG WESTERLY SHORE OF COBALT LAKE

October 13th, 1914.

SIR:—

Examination was made of the route of the proposed sewer together with position of the outlet and conditions surrounding it, on October 12th, in company with Mr. Code, Town Engineer. After going over the matter carefully I would recommend:

(1) That this intercepting sewer be continued from Lang Street to the flats in J. B. 4, and the Chambers-Ferland Mining properties in the north limits of the town.

(2) That a sedimentation tank of not less than 3,000 cubic feet capacity and of a depth not less than five feet (5 feet) below water level be constructed.

To me it appears advisable that the intercepting sewer be constructed on the west side of the T. & N. O. station on account of the very bad conditions existing between the tracks and Cobalt Lake at this point.

I had a conversation with Mr. Gordon, Superintendent of the Cobalt Lake Mining Company, who informed me that the intention of the company in lowering the lake was to pump the water through a wooden pipe to a point opposite the culvert under the T. & N. O. Railway into the above mentioned flats. In consequence of this the sewage would not be diluted at Lang Street, as it now is, and the presence of undiluted sewage in the ditch which at present carries off this water would not be without its menace, as it is just below a row of cottages in-

habited by the poorer class who are usually careless or unable to afford protection against flies and other insects which would breed along this ditch. The continuance of the sewer to the flats is therefore necessary.

At the flats the sewage and the water from Cobalt Lake and from the mills will not readily mix, owing to the outlets being some hundred feet apart; consequently, the tank is recommended to prevent any visible nuisance on the flat land at this point.

I went over these suggestions with Mr. Code in some detail and he agrees with me and will be glad to see these works carried out as suggested.

CREDIT RIVER—POLLUTION BY THE BARBER PAPER MILLS AT GEORGETOWN.

A. V. DE LAPORTE, B.A.Sc.

May 6th, 1914.

SIR,—I have examined the waste liquors from the Barber Paper and Coating Mills, at Georgetown, and beg to report that any one of the waste liquors, namely:

- (1) The wash water from the beaters,
- (2) The waste from the paper machines,
- (3) The soda liquors from the pulp mill,

would, if turned into the stream, be a serious source of nuisance. I would suggest for your consideration the following methods of treatment:

The Wash Water from the Beaters.—This contains about 0.3 parts per M. of available chlorine and a considerable amount of fibre. It would be profitable to sediment this liquor and recover at least part of the fibre. The effluent from the sedimentation tanks could be turned into the river.

The Water from the Paper Machines.—This contains fibre, kaolin, sizing, etc. This should be collected and either treated with or similar to the wash water from the beaters.

The Soda Liquors from the Pulp Mill.—This is roughly a deci-normal soda solution containing resin and gum. Evaporation to recover the soda would require expensive apparatus and would be somewhat costly, as the accompanying estimate will show. A better way would be to dilute with the effluent from the sedimentation tanks for the other wastes and gradually run it into the river, trusting to the dilution to render it innocuous. A drawback to this latter method is that if the pulp mill were to be enlarged, the quantity of soda liquor would naturally increase and it may be impossible to obtain the dilution necessary. It appears, in my opinion, advisable to distribute this waste on land and allow the soil to neutralize the harmful matters therein.

The treatment of the waste from the paper machines and beaters during the manufacture of a colored paper would probably be best effected by distribution on the land, or through an artificially constructed filter. The land method is, in my opinion, the simplest.

Calculation of the probable profit or loss for the evaporation of the soda liquors from the Barber Paper and Coating Mills:

EXPENDITURES.	REVENUE
Interest on Expenditures, 6 per cent of \$2,000	Received from recovered soda ash
..... \$ 120 00	—17 boilers per week—200 lbs.
Depreciation (10 per cent.)	58 per cent. soda per boiler—
..... 200 00	88 tons per annum, at \$15 per
Fuel (2700 tons at \$1).....	ton.....
..... 1,080 00	\$1,320 00
.....	
\$1,400 00	
Probable annual loss	\$80 00

This calculation does not allow for wages nor repairs. It appears that with soda ash at its present price (\$15.00 per ton) it would be practically impossible to evaporate at a profit the waste liquor from the pulp mill.

APPENDIX:

February 26th, 1915.

SIR,—In further reference to the matter of the pollution of the Credit River by the Barber Paper Mills at Georgetown, I beg to report that after notification from Mr. Copping that the recommendations of the report of May, 1914, had been carried out, I visited the works in company with Mr. Dallyn for the purpose of examining the apparatus installed. I beg to advise you that the suggestions contained in the report of May, 1914, had been carried out in full.

The alkali liquors carry resin, lignin from the pulp mill, the wash water and bleach liquors, are now being pumped to a basin and spread on the land by means of porous tile piping. The sedimentation tank has been installed for the water from the paper machines, so that no water carrying any matter which was offensive was reaching the river.

At the time of the visit, however, the sedimentation tank had not been cleaned for some time, and it had filled with kaolin and fibre to such an extent that no sedimentation was taking place at that time, and the effluent was carrying to the river large amounts of kaolin and fibre. Approximately 400 lbs. of fibre and 300 lbs. of clay were being discharged into the river daily. The clay sediments readily, but the fibre is carried by the current, and a microscopic examination of the solids in the water at Norval revealed fibre at that point in the river. The improper management of the sedimentation tank is responsible for the escape of this valuable material to the river.

It is recommended that the mills be instructed to operate the settling tanks in a proper manner.

Appended are the results of chemical examination of specimens of river water at Georgetown and Norval, and of sample of waste water from the Barber Paper Mills.

RESULTS OF ANALYSIS (In parts per million)

Substance.	Samples from the River Credit at		Waste from the Paper Mill.
	Georgetown. River water, —miles below mill.	Norval. River water, —miles below mill.	
SO ₂	0.8	8.8	124.8
Al ₂ O ₃	5.4	1.9	152.7
Fe ₂ O ₃	trace	0.3	30.9
CaO.....	101.6	75.4	220.0
SO ₃	111.2	19.2	.....
Cl.....	14.28	6.1	27.1
Total solids.....	394.6	278.0	1,311.0
Loss on ignition.....	118.6	108.0	569.0
Left on ignition	276.0	170.0	742.0
Wood Fibre.....	0.0	traces	397.0

The suspended solids in the river samples examined microscopically. In the waste water, the suspended matter was dried, Gooch crucible, and weighed, extracted with ammoniacal Cuprus hydroxide and washed, dried and weighed, and the difference recorded as wood fibre.

A. V. DE LAPORTE,
Chemist-in-Charge of Experimental Station.

All of which is respectfully submitted.

F. A. DALLYN,
Provincial Sanitary Engineer.

REPORT OF THE LABORATORY OF THE PROVINCIAL BOARD OF HEALTH, 1914.

To the Chairman and Members of the Provincial Board of Health:

GENTLEMEN:—I have the honour to submit to you the following report of the work done in the laboratories of the Board at Toronto.

During the year, 8,528 specimens have been received and examined. During the same period, 4,123 doses of anti-typhoid vaccine have been distributed to the physicians of the Province for use among the civil population and 132,427 doses for the inoculation of our Canadian troops.

The outfits supplied for the collection of specimens are becoming more generally used. During the year 11,055 have been distributed to practitioners throughout the Province.

The Department of Chemistry, under Mr. Lancaster, has recently undertaken the analysis of certain commercial materials that are being supplied to the Government. The value of this is very apparent; contractors will have to live up to contracts, and those who innocently or otherwise endeavour to market a fake can be readily dealt with.

In the following table will be found a synopsis of the activities of the laboratory.

Diphtheria Swabs	3,473
Release from Isolation	1,285
Positive	365
Negative	920
Diagnosis	2,188
Positive	540
Negative	1,648
Tuberculous Sputa	1,866
Positive	394
Negative	1,472
Bloods Suspected of Typhoid	861
Positive Widal	238
Negative Widal	623
Cases given the Pasteur Preventive Vaccine because of exposure to Rabies....	39
Number of Injections Given	688
Numbers of animal brains examined for evidence of Rabies	58
Negri Bodies Present	22
Negri Bodies Absent	36
Milk Analyses done for Local Boards of Health.....	119
Fats	62
Total Solids	6
Preservatives	55
Present	0
Absent	55
Tubercle Bacilli	4
Present	0
Absent	4
Bacteriological Count	46

Water Analyses made		1,718
Bacteriological	1,621	
Chemical	97	
Liquors for the License Department		334
Miscellaneous Specimens		60
Total Specimens Examined		8,528
Outfits sent out		11,055
Water	1,670	
Diphtheria	5,204	
Tuberculosis	2,325	
Typhoid	1,856	
Doses of Anti-typhoid Vaccine sent out for civil use		4,123
Doses of Anti-typhoid Vaccine sent out for Military use		132,427

The use of special outfits for the collection and sending of specimens has undoubtedly been one factor in increasing the number of specimens received during the last two years. Also, every year a few more practitioners are added to the number who find help in certain cases of difficult diagnosis by the laboratory methods which are at their disposal.

The majority of the specimens now arrive in our own containers. This is advantageous to both the physician and the analyst; and eliminates the danger of infection to those handling the mail. Some of those who use the laboratory unfortunately do not like to break away from the old crude and dangerous method of sending samples. Many efforts have been put forward in an attempt to convert such individuals. After trying notification by postal card and letter, we found that the most satisfactory way of bringing the matter to their attention was the mailing of a sample box containing a specimen of each outfit used. A number of such sample boxes have been sent out during the year and in almost every case we have received an order for a further supply.

Anti-typhoid Vaccine.

The manufacture of this product was made a routine measure in the summer of 1912. Since then there has been a constant demand for it. We, however, feel that practitioners have not yet come to realize its wonderful value as a prophylactic for typhoid fever. There is the objection that the immunized may be incapacitated for a day or two due to the local and general reaction. But what is this compared to the protracted sickness of the disease they are protected against? Such uniformly good results have been obtained from its use in the large armies of the world that its efficacy can no longer be doubted. Whenever an individual or the people of a community are seriously exposed to typhoid infection the prophylactic inoculation should be urged most vigorously.

For instance, when a member of a family is found to be suffering with enteric, the other members and any exposed should be immediately inoculated. If this were done secondary cases would be almost unheard of. That which is advised for the family should be advised for the community when there is any danger of epidemic typhoid. The inhabitants of a village, town or city could be immunized with little difficulty.

I am glad to say that already we have received some very encouraging reports of its use in civil life. In one instance the vaccine was used to immunize the members of five different families in which typhoid existed. In several of

the families secondary cases had developed. After inoculation no further cases occurred. The results were so satisfactory that this physician at present always inoculates the healthy members of a family when typhoid fever exists in the home. As a result, no secondary cases have developed, a most unusual thing, as many of the cases were amongst poor, dirty and ignorant people.

Recently a questionnaire was sent to the physicians in the Province who had used our typhoid vaccine, asking for a concise statement as to how it had been employed and the results obtained. Only a few replied, but these are so encouraging and satisfactory, that brief reference must be made to them.

In one town, 500 people were vaccinated during a severe epidemic of typhoid. Among the inoculated, one developed typhoid in the period between the first and second injections. The disease was of very mild type. This is quite in harmony with our previous experience. In fact, a number of observers have noticed that when the disease does follow complete or incomplete inoculation it is almost always very mild in type. Another interesting point is that the vaccine can be safely employed during the course of an epidemic. Undoubtedly quite a few people received the treatment after they had become infected (during the incubation period) yet in only one out of five hundred did the disease develop. In many the disease must have been aborted.

In another case typhoid broke out in a lumber camp, where sanitary conditions were not good. One hundred and forty men volunteered for inoculation. In none of these did typhoid fever develop. Cases continued to crop up among the uninoculated. Another physician states that last year was the first in ten years that the camp had been free from enteric. This he attributes largely to the use of anti-typhoid vaccine. Such cases as these can readily be multiplied.

In a provincial hospital the vaccine was given to a number of nurses who desired to be immunized. A few days after the second inoculation one of these came down with typhoid. The infection had undoubtedly occurred previous to the inoculations. This was as other such cases, of mild type. Another nurse, uninoculated, came down with a very typical case at the same time.

Numbers of children have been inoculated with no ill effects. In fact, the vaccine seems to be borne better by them than by adults.

At present, we have records of about 2,000 people who have been immunized. At the time of writing none of this number has developed typhoid from an infection occurring subsequent to inoculation. Besides the two cases previously mentioned, we have record of a third individual who developed the disease a few days before the last injection. His also was a very mild case, "the fever lasting only eight days."

During the year 4,123 doses have been distributed in the Province for use among the civil population.

Considering this subject one of great importance and desiring to obtain as much information upon it as possible, we addressed a circular letter to all the Secretaries of the State Boards of Health in the United States. Information was asked as to whether the vaccine was being distributed in the State, whether given free, for how many years and with what results. Of fifty State Boards written to, thirty-six replied. Of these fifteen have not attempted anything along this line; of the remaining twenty-one, fourteen supply the vaccine free to any physicians in the State, five give the vaccine free only to indigents, the remaining two Boards sell to the physicians at wholesale prices.

It is interesting to note that the Provincial Board of Health of Ontario was, as far as records show, the third Board of Health on the continent to distribute anti-typhoid vaccine free to the people whose health they protect. In all the States where the vaccine has been used excellent results have been obtained in preventing typhoid. Those States that have not yet taken up this work have failed to do so generally through lack of appropriation.

At the outbreak of the present war the laboratory offered to provide anti-typhoid vaccine for the Canadian Army. The offer being accepted, preparation was immediately made for the production of vaccine on a large scale.

Method of Preparing Vaccine.

The typhoid strain used was the famous Netley strain obtained by the writer from Professor Leishman, of the Royal Army Medical School, London, in 1912. This strain is now being used to produce vaccine for the British, American and Canadian armies. The organism is non-virulent, but produces large amounts of antibodies, more than most virulent strains.

The first step is to make quite sure that the strain is free from contamination.

This is accomplished by inoculating lactose, mannite and glucose. The last two sugars are fermented with acid production, the lactose is not altered. The organism must be Gram negative and motile. The odor produced when growing in bouillon is very characteristic. From a pure culture agar slants are inoculated and incubated for 18 hours. The growth is now washed off with sterile broth, and the suspension poured into a two-litre flask containing 500 c.c. of veal broth plus 10 to phenolphthalein. A small quantity of broth in a large flask should be used, the more aerobic the conditions the better the growth. The flasks are now incubated at 37° C. for 48 hours. When conditions have been favourable a well marked pellicle forms on the surface and a sediment below. For a few weeks we experienced great difficulty in obtaining a good growth, the reason for this could not be accounted for. By the use of an 18 hour agar slant for inoculating the flasks a gain of 24 hours is made over the old methods of using a 48 hour broth culture. Also, a large number of organisms is used in the primary inoculation which is advantageous when rapidity in production counts. After incubation the culture is shaken as well as possible and a few cubic centimeters removed with a sterile pipette.

The flasks are now immersed in a water bath and the temperature raised to 54° C. This temperature is maintained for 1¼ hours. The flasks are now removed and 25 c.c. plated out in agar to determine the nature of the surviving organisms. The temperature never destroys all the typhoid bacilli. Many hundreds per c.c. are still viable. However, the tri-cresol .35% which is added after cooling destroys the survivors. Purity tests are made before and after heating. A gram stain is also made. Guinea-pig inoculations are made when possible. By these methods contamination can always be detected.

Standardization.

Both the Wright method and Harrison's modification of the same have been used, but neither was satisfactory. The count is undoubtedly underestimated, and as a result the reactions were frequently severe.

Before distributing, the vaccine is diluted with 0.4% tri-cresol in normal saline.

Standard Strengths.

Three standard strengths are always kept on hand. The weakest contains 250 million bacilli, per c.c.; the next strength contains 500 million per c.c; the strongest contains 1,000 per c.c.

The demands from the military depots being large, the vaccine was sent in 25 c.c., 50 c.c. and 75 c.c. bottles with Wright rubber caps attached.

When possible, the vaccine was kept for two weeks before using, which lessens the severity of the reaction.

Inoculation.

This was made, either in the subcutaneous tissue of the forearm or in the space immediately below the clavicle. The patient is always advised to remain at rest during the next twenty-four hours. The vaccine should never be taken when the person is fatigued, since a severe reaction may occur. Alcohol must be abstained from during this time.

Dosage.

This has recently been altered to prevent, if possible, severe reaction, which would have a tendency to frighten those intending to be immunized.

Dose.

The dose now commonly used is:—

1st injection	250 million.
2nd injection	500 million.
3rd injection	500 million.

These injections should be given from five to ten days apart. At present, no law can be laid down as to the most suitable dose to employ. No one knows the smallest dose which when taken will produce satisfactory immunity. We do know, however, that the dosage at present employed has given eminently satisfactory results. To materially alter this dosage in order to avoid occasional severe local reactions would be folly, unless done merely in the nature of an experiment.

The immediate results of inoculation have been most satisfactory; no infections have occurred at the sites of inoculation; the more severe types of general reaction always passed away without leaving trace of permanent injury.

Destination of Vaccine. The vaccine has been shipped to the various Provinces throughout Canada, as follows:—

Quebec	60,400
Ontario	45,261
British Columbia	10,750
Nova Scotia	7,391
Alberta	6,000
Manitoba	1,000
New Brunswick	495
Prince Edward Island	130
A supply of 1,000 doses was also sent to Newfoundland	1,000

132,427

Rabies.

This disease is, unfortunately, still present in this Province, and judging from the numbers of animals' heads sent to the laboratory for examination, the prevalence of the disease has not been diminished very materially during the past year.

During the year 1912-13, *fifty* suspected dogs' heads were examined of which *twenty* showed the presence of Negri bodies. In 1913-14, *fifty-eight* heads were examined, *twenty-two* of which were found to be positive.

The heads of suspected animals have arrived at this laboratory in a much better condition than in former years. This is the direct result of our continued appeals to the profession and incidentally to the general public not to shoot the animal through the head, thereby destroying the brain; and also our request that ice should be used in the packing of the heads, especially when shipping in hot weather.

Another unfortunate habit is satisfactorily disappearing, namely, that of destroying a dog immediately it has bitten anyone, and sending the head to the Laboratory for examination.

When a dog has acted strangely and rabies is suspected, the animal should be securely tied, and carefully watched for ten days. If the animal has rabies, the symptoms will develop during this time, and the clinical picture be so unmistakable that a post-mortem examination of the head will rarely be necessary.

If, however, during this period the dog remains normal, the possibility of rabies can be definitely dismissed, and those bitten previous to this period of quarantine need not take the Pasteur treatment.

Pasteur Treatment.

For more than a year this treatment has been obtained from the Department of Hygiene of Toronto University. The results have been in every way most satisfactory. The treatment has been given to thirty-nine patients during the year. A number of patients who took the treatment have not been bitten or injured by a known rabid animal, but due to uncertainty about the animal concerned have submitted themselves for treatment rather than take any risks.

The uncertainty has generally been caused by the fact that the animal concerned was destroyed immediately after the biting occurred, which prevented the discovery of suspicious symptoms in the dog which might have developed subsequently, had the animal been quarantined. When upon examination no Negri bodies are found in the brain cells, symptoms shown by the dog previous to death are all the evidence which remains to determine whether or not rabies had existed. As a result, the person or persons bitten do not know whether their injuries were inflicted by a rabid animal or not and consequently treatment is taken. Thus many persons have taken the Pasteur treatment when bitten only by a playful dog.

Treatment of Suspicious Dogs.

Too much emphasis cannot be placed upon the importance of bringing a suspicious animal under observation for a period of at least *ten days*, especially if such animal has *bitten any person or animal*.

Wounds of Patients.

The wounds of many patients applying for treatment have not been satisfactorily cauterized, in many cases no attempt has been made at cauterization or any preliminary treatment. It should be remembered that commercial nitric acid is superior to almost any other agent in such cases. Care should be taken to see that the acid penetrates to the depths of the wound.

Laboratory Examination for Diphtheria.

The large increase in the number of diphtheria swabs examined by this laboratory is due to the outbreaks of the disease occurring in the latter months of the year and in part also to the increased interest taken by the profession in the early detection and the prevention of carriers in public institutions.

Realizing the very great importance of a quick diagnosis of the disease, direct smears are being made from the swabs sent in for diagnosis. This, unfortunately, can only be done in a limited number of cases, since many of the swabs are frequently absolutely devoid of anything (membrane or exudate) from which a direct smear can be obtained.

The swab should be well applied to the throat of the patient or else a direct smear cannot be successfully made. Reports on direct smear examinations when found to be positive will reach the physician from twelve to twenty-four hours earlier than the usual laboratory report.

Whenever possible, swabs should be mailed so that they will reach the laboratory by the morning mail. When this is done reports can often be sent out by the evening mail, or wired. Swabs arriving later in the day cannot be reported on until the following morning.

These are important points to remember especially whenever an immediate diagnosis is desired.

Mailing Swabs.

Swabs sent to this laboratory should not be registered. When this is done a delay of one or two mails usually occurs. When rapid delivery is desired, a "Special Delivery" stamp should be used.

Water.

There were examined during the year, 1,718 specimens of water. Samples coming from the larger towns of the Province have been exceptionally free from colon bacilli even in large quantities. The well waters coming from country homes and farms are generally bad. In the latter cases the contamination is more frequently of animal origin than human. The erroneous idea unfortunately still exists, that if a suspected water sample shows the presence of colon bacilli, typhoid bacilli are also present and the water is condemned as being the cause of typhoid fever among those who have been drinking it.

Undoubtedly, the water should be considered as dangerous, but not until other possible sources of infection as flies, carriers, etc., have been considered and eliminated should the conclusion be made that the colon-infected water sample was directly responsible for the typhoid.

Milk.

A number of chemical and a few bacteriological examinations have been made. Most of the larger municipalities have their own laboratories. The smaller places generally accept what milk is presented to them without asking for analysis. Consequently, we are not receiving many samples yearly.

Samples are occasionally received with the request that we make an examination for tubercle bacilli. Reliance cannot be placed in the ordinary tubercle stain when applied to milk sediments. This is due to the fact that there are frequently present other acid fast bacilli which cannot be distinguished from tubercle. The only way left is to centrifuge the milk and to inject the sediment and cream into a guinea-pig and await developments. When a cow is suspected to be suffering from tuberculosis, the only satisfactory method of determining this is the tuberculin test.

It is pleasing to notice that preservatives have not been detected in any of the samples examined.

Liquors.

During the year, 334 liquors have been examined for the Liquor License Department.

Research.

The papers printed below contain the major portion of the research work accomplished during the year. The report on Nickel-Chromium was read by Mr. Lancaster before the Canadian Medical Association. The papers on Diphtheria Research and Pulmonary Infection were read by Dr. Schofield, at the meeting of the American Society of Bacteriologists, at Montreal.

The investigations made by Dr. Schofield into "Contagious Equine Abortion" and "Joint Ill in Foals" for the Department of Agriculture have been satisfactorily concluded and the reports published.

All of which is respectfully submitted.

JOHN A. AMYOT,

Director of the Laboratories.

REPORT ON THREATENED WATER SHORTAGE IN GUELPH.

TORONTO, July 24th, 1914.

On July 11th, 1914, together with a sample of water from a spring creek, a letter was received from A. H. Foster, Manager of the Guelph Water Works, telling of the threatened shortage in the city's water supply, and suggesting the turning in of this creek water into the system. Dr. McCullough deemed it advisable to have an on-the-ground inspection of the creek and other points bearing on this threatened shortage and possible remedies.

The visit was made on July 23rd, 1914, in company with Mr. Foster, the manager of the works. The shortage exists. It is probably due to the comparatively small snowfall of last winter and the small rainfall of this last spring.

Additional water is required, probably 400,000 gallons per day.

Street watering has been curtailed and some public fountains cut out.

The normal pumpage is about 2,200,000 gallons per day. It is now reduced to 1,800,000.

To meet the situation a deep well has been drilled. Water was got at 198 feet. The water is slightly sulphuretted. It shows 1,486 parts per million of soap-consuming power, 163 of temporary hardness or alkalinity, and 4 of chlorine per million. It is free from infection with intestinal bacteria. It is not an unpleasant drinking water. Thoroughly mixed with the present 1,800,000 gallons of town water it will be so diluted that no objection can be made to its use. It will supply an additional 100,000 gallons per day. It would not be advisable, however, to add any greater quantity than the 100,000 gallons now procurable. Other good wells might be got in this district, but the chances are against it. Alone the 100,000 gallons now got without dilution could not be recommended as a supply. The major part of the 1,486 parts of hardness is made up of sulphates of lime and magnesium.

The other proposition to meet the situation is the turning in of the creek above mentioned. The dry weather flow of this is approximately 1,000,000 gallons per day. The water is clear and cool, and of the same chemical composition as the present city supply. It comes from the same seam, but closer situated to the city. However, it is from a very sparsely inhabited watershed. From its spring source to the point at which it crosses the pipe-line it is about 3,500 feet long. The main spring supplies about 400,000 gallons, the remaining ones discharging into the stream supply about 600,000 gallons additional. These springs should at the earliest opportunity possible be collected in closed pipes and be connected with the present system, and after the same plan.

In case of necessity, but necessity only, and as a temporary expedient, the stream might be connected with the present supply. There are several danger points along the stream, where infection might easily reach it, but this could be met by installing a chlorination apparatus, which could be easily done at the point where it is proposed to enter the collecting water main. At least one part of the available chlorine should be added to the water in a satisfactory mixing chamber, the water thus to be thoroughly disinfected before going into the main, where, having mixed with the present onrushing water, it will be so diluted that there can be no objection raised to the final mixture. There should be no taste as it reaches the city taps. As an additional security, it is strongly recommended that no more than 400,000 gallons be taken each day, and that this be taken during the day and under the supervision of a competent, careful man, who will understand the importance of faithfulness and care in the administration of the disinfectant. Under these conditions only would it be justifiable to allow the water from this open creek to be turned into the present Guelph water supply.

All of which is respectfully submitted.

JOHN A. AMYOT.

INSPECTION OF SPRINGS AND WELLS USED FOR DRINKING PURPOSES IN
THE PARKS OF THE QUEEN VICTORIA PARK COMMISSIONERS,
NIAGARA FALLS, ONTARIO.

TORONTO, July 27th, 1914.

An inspection, at the request of John H. Jackson, C.E., Superintendent, was made of certain springs and wells used in the parks.

The following wells were examined :

1. Queenston Well.
2. Pavilion Well.

The following springs were examined :

3. Queenston Spring.
4. Table Rock Spring.
5. Refectory
6. Park Shed Spring.
7. River (Jolly Cut) Spring.
8. Plant (Island Pond) Spring.
9. Horse's Head Spring.
10. Clifton.
11. Convent Spring.

Findings at each unit :

1. *Queenston Well*.—This is a drilled well going some 40 feet into the limestone rock. It is well-cased and well-protected at the top from surface infection. The analysis showed no infection and 2 parts of chlorine per million. Perhaps this water does not come from very far.

Recommendation.—To drain the surface about the top as suggested by Mr. McGahey. This would remove the greatest risk the well now runs.

2. *Pavilion Well*.—From various obvious dangers in the surroundings of this well it would be safest to abandon it. Too much work would have to be done to make it safe.

3. *Queenston Spring*.—This spring is well protected. The analysis shows this water to be good. It had best be left as it is.

4. *Table Rock*.—The source of this is very questionable. The ground is not protected. It runs risk from above as well as from the surface.

Recommendation.—A cross trench 10 ft. long, 3 ft. wide and 4 ft. deep, if possible, should be made through the foot of the gathering area, this to be filled with fine sand with earth on top 6 in. deep. A farm tile drain placed a foot and a-half from the bottom in the middle of the trench parallel with the bottom (the present pipe to the outlet to begin from the middle of the drain-pipe) would probably meet requirements to make this safe.

5. *Refectory Spring*.—This is questionable.

Recommendation.—A cross trench between the concrete reservoir now in and the toe of the hill like in No. 4 would make this safe.

6. *Park Sheds*.—In the present condition this is unsafe.

Recommendation.—Either abandon it or make a cross trench as in Nos. 4 and 5.

Nos. 7, 8, 9, 10, *River* (Jolly Cut), *Plant* (Island Pond), *Horse's Head* and *Clifton Springs*.—All of these chemically show pollution from above. The two open collecting basins are dangerous.

Recommendation.—A cross trench made as recommended for Nos. 4 and 5 parallel to the toe of the escarpment at a point below the Jolly Cut box and the two stone gathering basins filled with sand and having a tile drain placed one and a-half feet above the bottom leading to a central concrete basin, a junction with the present pipes would get over any danger from infection.

In a general way, I believe it would be much better to use these springs than to use the town water, which we know for certainty without very careful purification is dangerous. The springs are not ideal, but with the protection that would be afforded by the recommendations, would be safer than the city water.

11. *Convent Spring*.—Had best not be used unless same is done for it as is done in Nos. 4 and 5.

All of which is respectfully submitted.

JOHN A. AMYOT.

REPORT ON QUESTION OF INCREASE OF WATER SUPPLY AT MEAFORD

August 10th, 1914.

A visit was made to Meaford on August 5th, 1914, in company with Dr. McNally, District Health Officer, in connection with this question.

I beg to report as follows in reference to this.

Meaford has a population of between three and four thousand, scattered over a very wide area. The town is not growing rapidly. Its tax rate is very high.

There is no organized sewerage system in the town. Several surface drains to which are connected domestic sewers drain into the river and harbor, so it is said. This is probably correct.

The present water system has been in operation several years. It consists of a small infiltration basin at the side of the harbor in the central edge of the town, a pumping station right by and uptown a standpipe. The pumps are in duplicate and of the double plunger type, parallel. They are pumping in the neighborhood of 325,000 to 350,000 gallons per day. The stand-pipe has a capacity of 50,000 gallons. The "infiltration basin" is a circular one about 16 ft. in diameter, walled in, in brick. The water filters in under the brick from the harbor side, also from the town side. The water from this basin has regularly shown 15 parts of chlorine per million, whereas the harbor water shows seldom more than 3 parts per million. It is incredible that so large a quantity as 350,000 gallons per day could come through so small an extent of sand. On the town side of the basin the wall is down on the shale. Undoubtedly a large part of the water comes from the town side. Within 300 ft. there are no wells known and, as the shale under the clay of the town is very close grained, it is not likely that it is dangerously creviced. The history of the town as regards typhoid has been good, but there have been summer and fall outbreaks of diarrhœa

several times during the last ten years. Some two or three years ago in order to increase the flow from the harbor into the basin a channel was dredged out of the shale a foot or two from the basin and then filled in with clean, not very fine, sand. In case of a fire lasting over three hours great difficulty is experienced in getting enough water. It is on this account that the authorities are anxious, and justly so. They suggest an emergency pipe out into the harbor. From the sanitary standpoint a worse point could hardly be chosen. They choose this because it would be cheap and would meet the fire danger, but do not sufficiently realize the danger to health. If the proposed pipe were extended out around or through the breakwater, water could be reached that would not be so dangerous, but nevertheless could not be advised without an adequate purification plant being put in, and this again would be found difficult to finance. (By adequate purification—this would be gravity mechanical filtration and disinfection.)

They can hardly afford to discard their present system. A larger stand-pipe capacity might help or better a sufficient reservoir on high ground.

During the big storm of last fall a considerable bar was thrown up in front of the pumping plant up to the shore. This has had the effect of choking up the infiltration into the basin. It might be possible that another infiltration basin of the same size as the present could be constructed in this sandbar and from this a sufficient supply be got to meet the needs of the present and the immediate future.

I would not care to make any definite proposal further than the above until I have consulted Mr. Dallyn on the subject.

All of which is respectfully submitted.

JOHN A. AMYOT.

(Addendum to Report.)

After consultation, the advice with reference to the doubling of the infiltration capacity is again made. The extra stand-pipe would probably cost too much.

The new basin should be as large as the present one; it should be surrounded with an unbroken bank of clear, fine sand not narrower than four (4) feet at any point, and maintained at that.

It is also advised that the present and the new supply be efficiently chlorinated.

(Signed) JOHN A. AMYOT.

Toronto, August 15th, 1914.

REPORT IN CONNECTION WITH TRIP TO ROCKWOOD HOSPITAL,
SEPTEMBER 18TH, 1914.

The trip was made in company with Mr. Dallyn.

The object of the trip was to see and to start the sewage treatment plant recently put in at the Rockwood Hospital. The plant consists of a screening chamber, an Imhoff sedimentation and sludge digesting tank, a trickling filter with a Ham-Baker travelling distributor, housed in substantial building and a chlorination retention tank. The plant is capable of treating normally 125,000 gallons per day with a good safety margin. The plant is a model one of its class.

The part of it designed for the treatment of the organic matter was complete and went into operation without a hitch. The disinfection portion, however, was not finished. The solution and dosing apparatus was yet to be completed. The chlorination holding tank had not had the forms taken out of it yet, though it has been completed quite over a year. This, of course, has not been used, though it could easily have been, to chlorinate the sewage of the institution during the whole of the past year, whilst the work on the other portion of the plant was being done. This is a great pity, considering the importance of having this dangerous material (which is discharged into the lake) made innocuous when it could so easily have been done. The sewage of this institution has been a continuous menace to its water supply, taken as it is from the lake only a comparatively short distance away. We were assured that the water supplied to the institution has been unintermittently chlorinated. The burden on this disinfection could have been materially reduced if the sewage chlorination plant had been used.

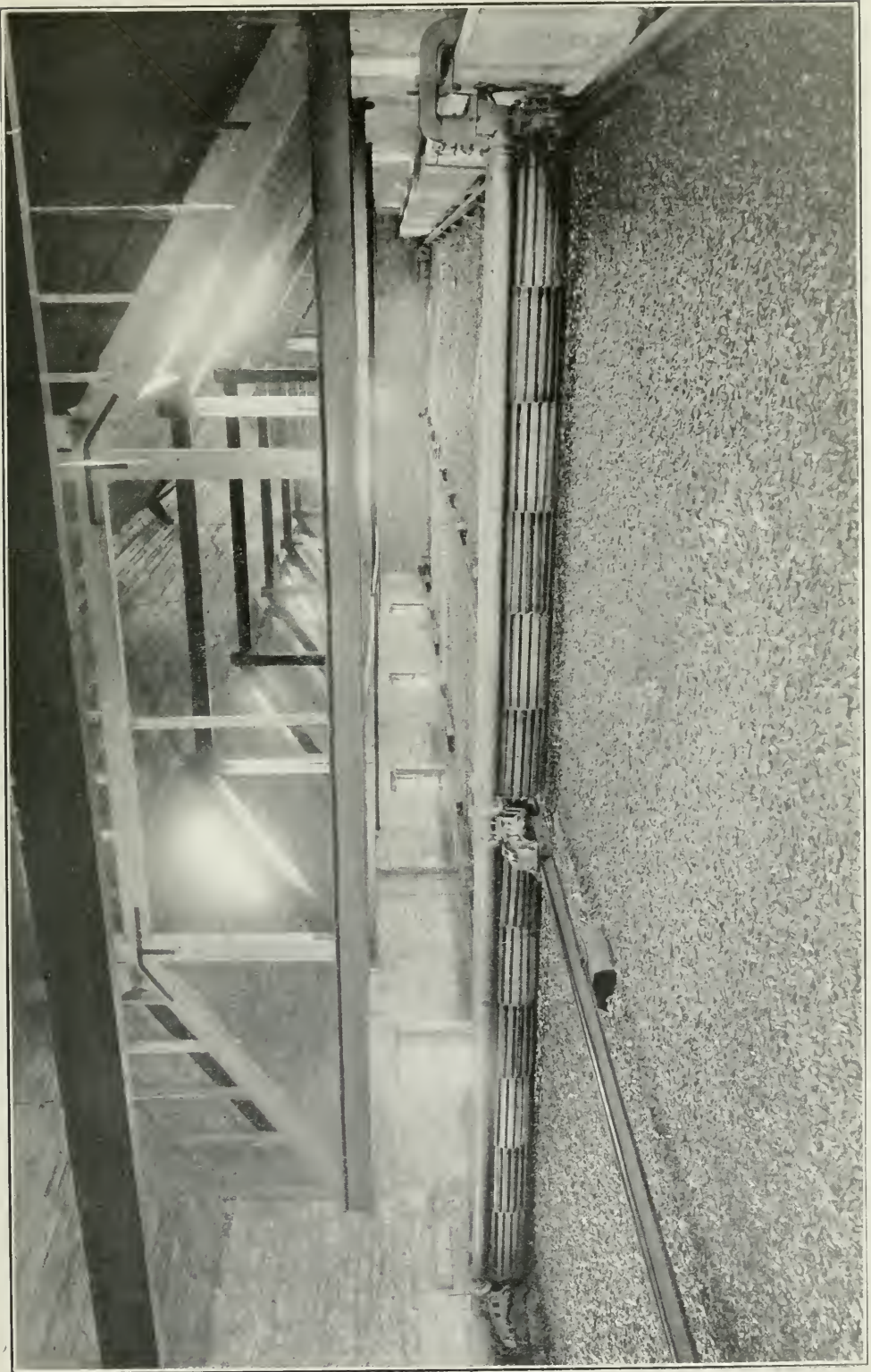
On inspection it was found that the sewage from the laundry and three or four sanitary closets connected with its sewer was being discharged directly into the lake by an independent sewer. It is on a lower level than the general sewerage of the institution. It is on this account that it is not connected with it. This sewage is obviously a very dangerous one, in fact, at least as dangerous as any coming from the main building and besides it is almost one-third of the sewage of the institution. It should, with the least delay possible, be connected with the main drainage system so that this sewage may be treated along with the rest. It would be a pity, to say the least, when so much has been spent on an efficient model plant, to have the good results spoiled by having this laundry sewage still discharge into the lake without treatment. The simplest remedy would be to have this sewage received into a tank sufficiently large to insure against overflow into the lake and lift by pump into the main sewer of the institution. An engineer should decide where this tank could most economically be placed. It would be safest to provide duplicate pumping facility in order to avoid any possible overflow.

Again, we found that the stable drainage was not connected with the main. This should be done. We were not able to find any other drains that were not connected with the main system, but would advise that a thorough survey be made to see if there be any such, so that they could also be connected, if any such are found to exist.

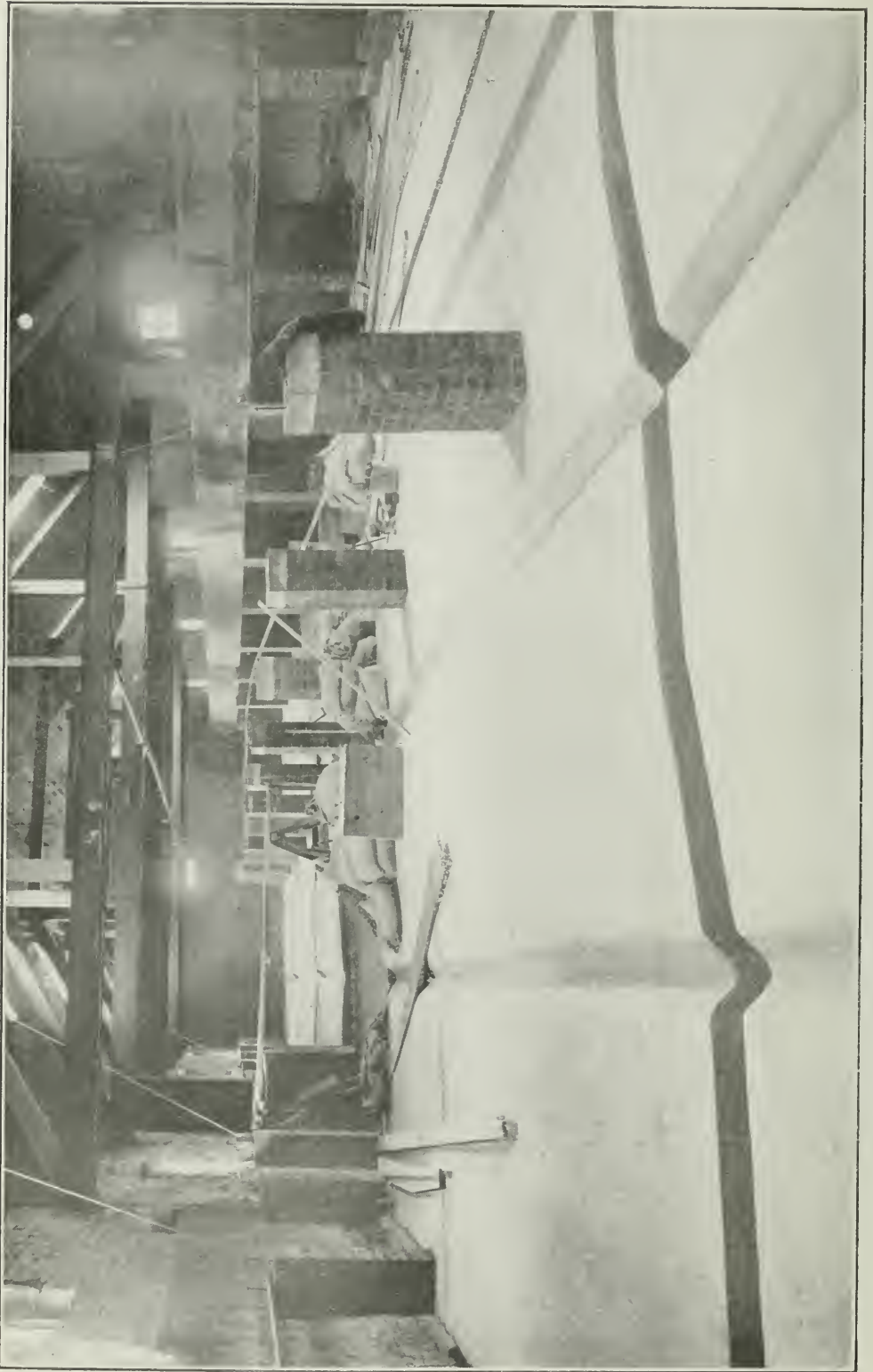
The kitchens and the sanitary closets of the institution, and the hospital where any infections would be treated, were found not to be screened against flies.

All of which is respectfully submitted.

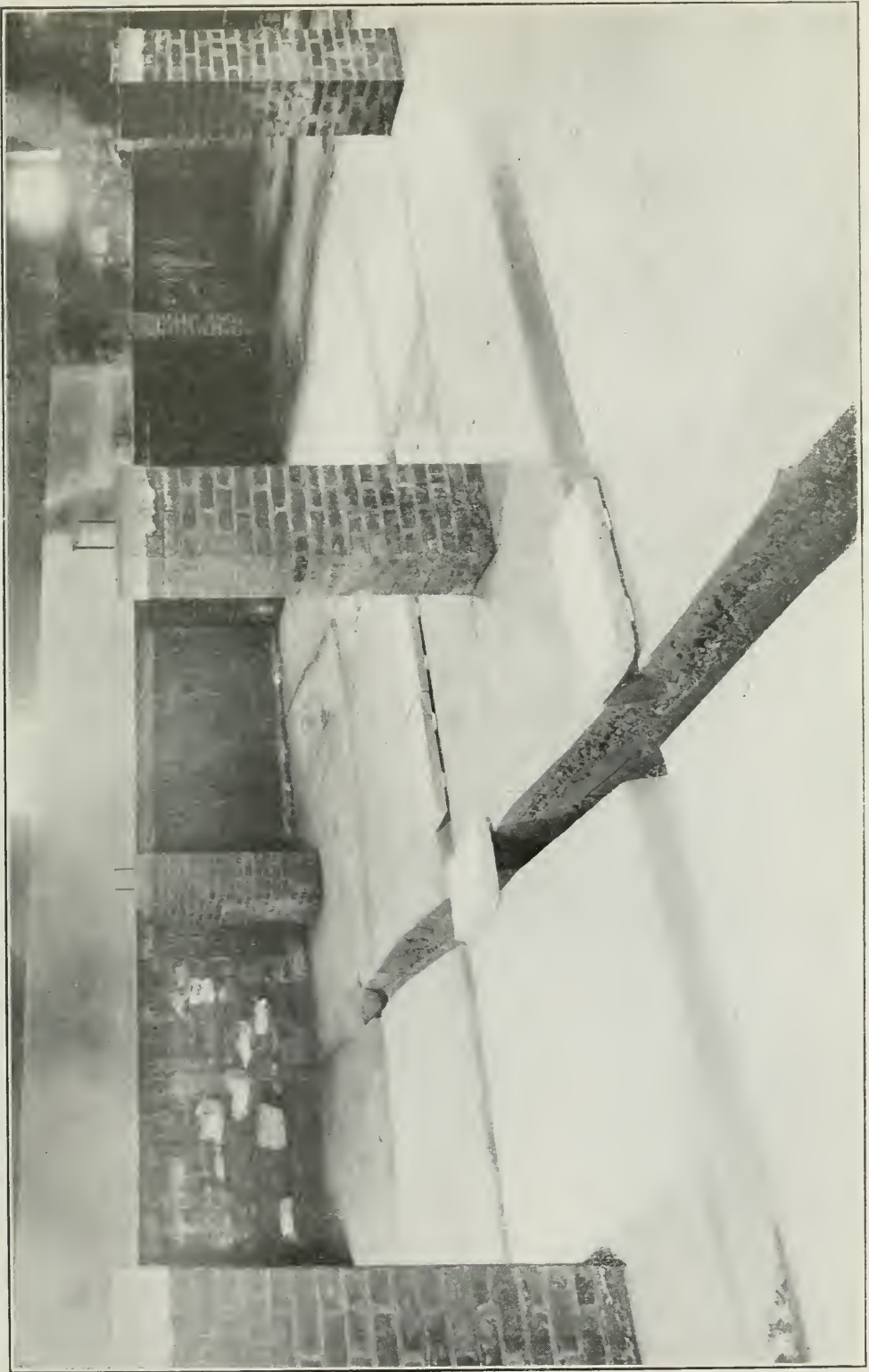
JOHN A. AMYOT.



A view of the Sewage Distributor at the Sewage Disposal Plant, Rockwood Hospital for the Insane, Kingston, Ontario, installed by the Ontario Government, 1914.



Sewage Disposal Plant at Rockwood Hospital, under construction, 1913.



Sewage Disposal Plant at Rockwood Hospital for the Insane, showing method of covering underdrains, 1913.

EXPERIMENTS BEARING ON PULMONARY INFECTION.

BY FRANK W. SCHOFIELD, D.V.S., (TOR.).

Discussion still frequently centres around the nature of pulmonary infection. The question in dispute is this, how do bacteria gain entrance to the lung tissue? One answer is, that almost invariably disease processes arise from direct inhalation of the infectious material into the smaller air passages.

The opposite view is, that lung infection is generally secondary to a primary infection of the blood stream.

The supporters of either view have amongst them the dogmatic extremist, with whom there is no quarter, the path of infection is limited to their view—no other method is reasonable.

Many statements used in support of these views are devoid of experimental work to substantiate them.

The following experiments were undertaken in the hope that the basis of future argument might have a sounder footing on fact. The experiments were all performed on animals which naturally breathe through the nose, thus the deductions only hold good in cases of nasal breathing.

To what extent do the anterior respiratory passages act as filters to the inspired air is another question these experiments help to answer.

The experiments done may best be divided into three groups. After discussing the nature of the work in each group and results obtained the experiments will be considered collectively with regard to their bearing on pulmonary infection.

Group I. In this experiment four horses were submitted to a spray of Gentian Violet and charcoal equal parts.

Technique. The charcoal and Gentian Violet were carefully mixed with spatula and then placed in a powder-atomizer. The latter was tested as to its ability to produce a fine cloud of dust and found satisfactory. The animal to be sprayed was held so that the fine terminal portion of dust spray enveloped the nostrils. Soon the atmosphere of the room became saturated with the violet powder so that the tongue and teeth of those present who breathed through the mouth was intensely purple. The spraying was continued for about ten minutes.

Under such severe conditions it would seem impossible that the trachea and lung could escape the fine pigment.

The nasal secretions of human beings breathing this atmosphere showed violet coloration for as long as forty-eight hours after inhalation.

The animals sprayed were killed within two or three hours after experiment, but examination of respiratory passages could not be made until twenty-four hours later.

Result. Two of the horses showed no presence of pigment in trachea, none being found past the larynx.

Of the other two, one showed slight trace of powder along the anterior surface of trachea as far as the bronchi. The other showed a well marked purple coloration in same situation. I must state that the last horse continued to receive a heavy spray when in a very excited condition, breathing rapidly with nostrils widely distended.

We must remember that the horse breathes exclusively through the nose.

Group II. In this group eleven horses were submitted to a bacterial spray from a very fine atomizer.

Technique. A broth culture of *B. Prodigiosus* was grown for 48 hrs. at 18-22 degrees C.; the whole culture 10 cc. was then poured into the bottle of atomizer and tested.

The tests consisted of spraying against glass at various distances to ensure a satisfactory fine spray. Also a petri-dish containing agar was held up at a distance of 6 ft., the cover removed, and after receiving one discharge from the atomizer the cover replaced and the dish incubated at 18-22 degrees C. for 48 hrs. and colonies observed. In one instance the colonies counted numbered 368. A plate count was occasionally made on the sample of broth used. A plate was always sprayed and then incubated so that contamination, if such existed, could be detected. In two cases Alboline was substituted for the bouillon as a medium for suspension of the bacteria to be used in the spray. In this case the cultures were grown on Agar slants devoid of water of condensation. In about 48 hrs. when a good culture was present this was scraped off and thoroughly mixed with the Alboline in a sterile test tube. Such mixing is not easily accomplished, but continual rubbing with a cotton batting swab finally produced a very fair suspension.

A finer and better quality was obtained by substituting alboline for bouillon. To make sure the organism had not been destroyed by the alboline, agar plates were sprayed previous to the experiment.

The following brief experiment will illustrate the success accompanying the use of alboline. One must remember that we were desirous of artificially producing an infected atmosphere that would correspond as closely as possible to an ordinary dust and germ laden one.

Experiment. A fume cupboard void of air currents was sprayed for a minute or two with the Alboline *Prodigiosus* spray, the mouth of the atomizer being turned towards the roof of cupboard. After five minutes agar plates were placed over the floor of cupboard and left exposed for five minutes. These were then removed and other plates similarly placed. After a five minute exposure these were likewise removed and replaced by others which remained for fifteen minutes.

Results. Five minutes after spray ceased average:

Number colonies per plate	33
Ten minutes, number colonies per plate	13
Fifteen minutes, number colonies per plate	2

This shows that the particles sprayed into the atmosphere were very light and comparable to dust particles. The fluid spray was administered in the same way as powder spray.

Horse No. 1. Received several c.c. for 48 hrs. Bouillon culture. The spray was continued for about ten minutes. The latter part of which time the animal was breathing very fast and struggling violently. Animal was killed one-half hour after spray. Twenty-four hours later swabs were taken from the larynx, nose, upper, middle and lower trachea. Cultures were made on Agar plate and incubated for 48 hours at 18-22 degrees C.

Results.

Culture from nose: *Prodigiosus* Colonies too numerous to count.
 Culture from larynx: Very numerous.
 Upper Trachea: Thirty colonies.
 Middle Trachea: Ten colonies.
 Lower Trachea: Three colonies.

Horse No. 2. Horse received spray on two successive days 10cc. 48 hr. culture. The animal was killed within half hour after final spray and on following day swabs were taken from usual parts of respiratory tract and cultured on Agar for 48 hrs. at 18-22 degrees C. During this experiment the animal breathed normally.

Result.

Culture from nose: Prodigiosus colonies very numerous.
 Culture from Larynx: Not made.
 Culture from Upper Trachea: No Prodigiosus.
 Culture from Middle Trachea: No Prodigiosus.
 Culture from Lower Trachea: No. Prodigiosus.

Horse No. 3. Sprayed in a similar way to preceding. Ten c.c. of Bouillon culture used, one ejection from the atomizer aimed at an agar plate 6 ft. away gave 360 Colonies. The horse was destroyed within half hour after the experiment and usual swabs taken and cultured.

Result.

Swab from nose: Colonies very numerous.
 Swab from larynx: Number of Colonies.
 Swab from Upper Trachea: Three Colonies.
 Swab from Lower Trachea: No Colonies.
 Swab from Middle Trachea: No Colonies.

Horse No. 4. Alboline used instead of broth. Horse sprayed for five minutes, during latter few minutes the breathing was fast and distressed. Swabs were taken and cultured as before.

Result.

Swab from nose: Prodigiosus present.
 Swab from larynx: Not obtained.
 Swab from Upper Trachea: No Prodigiosus.
 Swab from Lower Trachea: No Prodigiosus.
 Swab from Middle Trachea: No Prodigiosus.

Horse No. 5. Similar treatment to No. 4.

Swab from nose: Prodigiosus present.
 Swab from Larynx: Prodigiosus present.
 Swab from Upper Trachea: No Prodigiosus.
 Swab from Lower Trachea: No Prodigiosus.
 Swab from Middle Trachea: No Prodigiosus.

Horse No. 6. Similar treatment to No. 5. Swabs taken directly after the animal had been sprayed, through a canula which had been inserted into the trachea. Very long swabs were made on flexible wire applicators, from the middle of the trachea where the canula was inserted the swabs could easily reach downward to the bifurcation and upward to the larynx.

Result.

Swab from nose: Prodigiosus present.
 Swab from Upper Trachea: One colony Prodigiosus.
 Swab from Lower Trachea: No Prodigiosus.

Horse No. 7. A Bouillon culture was used, each c.c. containing approximately 1 billion *B. Prodigiosus*. Three c.c. were sprayed and swabs taken through canula.

Result.

Swab from nose: *Prodigiosus* present.

Swab from Upper Trachea: *Prodigiosus* present, four colonies.

Swab from Lower Trachea: No *Prodigiosus*.

Horse No. 8. Technique same as above. 5 to 7 c.c. used in spray. Count about 20 million c.c.

Result.

Swab from nose: *Prodigiosus* present.

Swab from Upper Trachea: No *Prodigiosus*.

Swab from Lower Trachea: No *Prodigiosus*.

Horse No. 9. Technique, strength and amount as in preceding.

Result.

Swab from nose: *Prodigiosus* present.

Swab from Upper Trachea: *Prodigiosus* present (one colony).

Swab from Lower Trachea: No *Prodigiosus*.

Horse No. 10. Technique same as preceding.

Result.

Swab from nose: *Prodigiosus* present.

Swab from Upper Trachea: No *Prodigiosus*.

Swab from Lower Trachea: No *Prodigiosus*.

Horse No. 11. Technique similar, 5 c.c. of 10 million per c.c.

Result.

Swab from nose: *Prodigiosus* present.

Swab from Upper Trachea: No *Prodigiosus*.

Swab from Lower Trachea: No *Prodigiosus*.

I think these experiments demonstrate clearly the wonderful efficiency of the upper respiratory passages as bacterial filters. The atmosphere breathed was saturated for several minutes with a specific bacterium, yet the same had reached the trachea in but few instances and in these only a few bacilli were present.

If under these extraordinary conditions bacteria can be removed from the contaminated air by nasal breathing, under ordinary conditions no bacteria should be found in the trachea.

The following experiments were done to see whether this contention could be substantiated or not.

It might be mentioned here that the statement has been made, that the bacterial flora of the nose was to be found in the trachea.

In these experiments swabs were taken from the tracheæ of healthy animals immediately after slaughter. Previous to death they had been breathing through the nose a germ-laden atmosphere.

Technique. The animals were bled to death by usual slaughter house methods and immediately after death the trachea was carefully incised high up and low down, a swab inserted, freely rotated, removed and cultured on agar slants and incubated at 18 degrees C. Direct smears were also made from swabs and examined.

Series No. 1, Swabs from Calves.

Swab No.	Direct Smear.		18-22°C.		37°C.	
	High.	Low.	High.	Low.	High.	Low.
1.....	negative		negative	negative	negative	negative
2.....	"		blood present	in trachea	all positive	
3.....	"		positive	negative	positive	negative
4.....	"		negative	"	negative	"
5.....	"		positive	"	positive (15)	"
6.....	"		negative	"	negative	"
7.....	"		"	"	"	"
8.....	"		positive	"	positive	"
9.....	"		negative	"	negative	"
10.....	"		"	"	"	"

Not counting No. 2, there were nine different tracheæ examined and six of these nine gave negative results. Of the other three the high swab in each case was the contaminated one, which was most probably due to ingesta or saliva passing from mouth into trachea, while animal was in a comatose condition. All swabs cultured from nasal mucosa were positive.

Since recording this first series I have had opportunity to make similar observations on 13 more tracheæ from calves and 7 tracheæ from sheep at time of death. More satisfactory results were obtained in these experiments because the subjects were more carefully chosen. When there was any evidence of ingesta in larynx the examination was not made.

Series No. A. Swabs from Calves.

Swab No.	Direct Smear.		Culture 18-22°C.		37°C.	
	High.	Low.	High.	Low.	High.	Low.
1.....	negative	negative	negative	negative	negative	negative
2.....	"	"	"	"	"	"
3.....	"	"	"	"	"	"
4.....	"	"	"	"	"	"
5.....	"	"	"	"	"	"
6.....	"	"	"	"	"	"
7.....	"	"	positive	"	positive	"
8.....	positive	"	"	"	"	"
9.....	negative	"	"	"	"	"
10.....	positive	"	"	"	"	"
11.....	"	"	"	"	"	"
12.....	"	positive	"	positive	"	positive
13.....	"	negative	"	"	"	"
14.....	"	"	"	"	"	"
15.....	"	"	"	"	"	"

Series B. Swabs from Sheep.

Swab No.	Direct Smear.		18-22°C.		37°C.	
	High.	Low.	High.	Low.	High.	Low.
1.....	not made	not made	negative	negative	negative	negative
2.....	"	"	"	"	"	"
3.....	"	"	"	"	"	"
4.....	"	"	positive	"	"	"
5.....	"	"	"	"	positive	"
6.....	"	"	"	positive	"	positive
7.....	"	"	"	"	"	"

These results are quite in harmony with those of Series No. 1, bringing more evidence to support the supposition that the normal trachea is almost free from bacteria and possesses no definite bacterial flora. The positive results were generally due to the presence of ingesta.

A series of swabs were also taken from trachea and large bronchial tubes of cattle but results were very unsatisfactory, practically useless. In almost all cases the larynx was filled with ingesta and small particles of food could frequently be detected in the bronchial tubes.

With the improved technique for taking tracheal swabs from the horse, i.e., by inserting large trocar and canula into the trachea before death, more reliable results have been obtained.

Results.

No.	Direct Smear.		Cultures (18-22°C.)		(37°C.)	
	Up.	Down.	Up.	Down.	Up.	Down.
1.....	negative	negative	negative	negative	negative	negative
2.....	"	"	"	"	"	"
3.....	"	"	"	"	"	"
4.....	"	"	"	"	"	"
5.....	"	"	"	"	"	"
6.....	Bacteria &	Cells	Aureus	Albus and Streptococci	Aureus	Albus and Streptococci
7.....	"	"	"	Albus and unknown	Aureus	Albus and unknown
8.....	Few Cocci	Both	Albus & Unknown	.....	Aureus	Albus and unknown
9.....	negative	negative	3 Albus 4 Colon 4 Strept.	negative	few colonies	negative
10.....	"	"	negative	"	negative	"
11.....	"	"	"	"	"	"
12.....	Plentiful	exudate on	Swab. All	positive, chief ly	Aureus and	Streptococci

It is rather difficult to know exactly what conclusions can fairly be taken from these results. The condition of the animals I think must be taken into consideration before deductions are made. All these horses were old, very debilitated animals and had been gathered up for slaughter. Some could hardly stand without support. Their power of resisting any infection was undoubtedly slight. This

may, and I think does, account for the number 5 out of 12 that showed signs of tracheal infection. In support of this I would like to quote some results obtained by Dr. Ferry, of the Parke, Davis & Co. He, working on Equine Influenza, took swabs from the trachea of horses suffering from this malady. His technique was also that of perforating the trachea with trochar and canula and thus obtaining swabs.

Results. Out of eighteen cases three gave negative results on all culture media. Eleven gave pure culture of Streptococci, which he considers the likely cause of this disease. Four swabs gave mixed cultures of Streptococci as *S. Aureus* and *Albus*. The point is this, these swabs were taken from young vigorous horses which contracted influenza while passing through the stock-yards, and out of the eighteen cases, if we eliminate the Streptococcus as being there because of the disease, we would find fourteen tracheae showing no bacterial flora.

Another point I would like to emphasize is that in all cases nasal swabs give evidence of a very mixed infection; Staphylococcus, *Aureus*, *Albus*, Colon, Hay and a great many others that were not determined. Also petri-dishes exposed to the atmosphere which they were breathing gave a very mixed growth: Streptococci, Colon, Bacilli of Hay group, moulds, Streptothrices, but few *S. Albus* and *Aureus*. If the contaminated air was passing through the nasal chambers and entering the trachea we would expect to find such organisms there as were common in the air. This was not the case.

Some may criticise and say these experiments are valueless to us; they only hold good for the lower animals. But are not the naso-pharyngeal structures alike in both animals and man? If they act as bacterial filters in the animal is it not reasonable to suppose they will in man? When one considers all the twists, turns and obstructions that the air inhaled through the nose has to meet, little wonder is it that most of the suspended matter is removed.

These experiments show how very difficult it is even under artificial conditions of excessive aerial contamination for bacteria to enter the trachea with nasal breathing. It was unfortunate that swabs could not be taken from the smaller bronchial tubes, but conditions under which experiments were done prevented this.

CONCLUSIONS.

1. There is no constant bacterial flora in the trachea.
2. That with nasal breathing most of the bacteria inhaled are removed before the air enters the trachea, even when the atmosphere is saturated with bacteria.
3. That direct infection of lung through nasal inspiration is almost impossible, under ordinary conditions. (These conclusions refer to the animals used in the experiments.)

RESEARCH

On the Relationship existing between the pathogenic powers and the anti-bactericidal power of Diphtheria Bacilli.

BY FRANK W. SCHOFIELD, D.V.S., (TOR.).

Diphtheria.

The work to be described has been done with the object of obtaining some facts which would give a satisfactory basis for answering some of the following questions:

(1) "Considering bacteria of the same species, have those which exhibit the greatest resistance to germicidal action a corresponding increase of pathogenic power over their fellows which succumbed?"

(2) "Or, are the few which survive exposure to detrimental conditions, for long periods, practically innocuous?"

These questions have frequently been answered by the theorist, but satisfactory experimental work from which reliable conclusions can be deduced has not, within our knowledge, been done.

An endeavour has been made to throw some light on the relationship existing between pathogenic powers and anti-bactericidal power of certain micro-organisms. The question is of interest and of importance from a public health standpoint.

It is known that when large numbers of bacteria are uniformly exposed to the action of a bactericide, some show greater powers of resistance than others and will survive for a greater or less period of time.

The few which survive this trying ordeal have been referred to as "Huskies," intimating that unusual power of resistance was associated with unusual physical vigor.

Have the surviving minority pathogenic powers as potent as the members of the same strain that were weaker and thus destroyed? Or, do the increased powers of resistance exist at the expense of pathogenic qualities? Or, lastly, is increased resistance the concomitant of increased infectivity? The work here reported if not definitely answering such questions will, at least, bring before us some interesting facts along these lines.

Before giving details of each experiment a general outline of the work had better be given.

The only organism worked with at present has been the Diphtheria Bacillus, for the reason that fairly accurate virulence tests can be made with comparative ease.

The first procedure was to obtain a pure culture of B. Diphtheria, from a clinical case. Isolation was not difficult by making tube dilutions on Loeffler Blood Serum and fishing from the most suitable.

The culture used in the experiment was almost always the first culture on blood serum from colony fished.

From the culture special broth was inoculated, and incubated at 37 degrees C. for twenty-four hours. For this work the broth was put up in large quantities in test tubes, each containing 10 c.c. The same batch of broth was used from beginning to end of experiments.

Formula for Bouillon:

Infusion of Veal	1,000	grms.
Peptone	20	grms.
Sodium Chloride	5	grms.

Method of preparation is the same as for ordinary nutrient bouillon. Reaction is made alkaline to litmus, after the media is made neutral to this indicator 7 c.c. of a 10 per cent. Sodium Hy. Soln. is added.

After 24 hours growth, the culture was well shaken and a definite quantity injected into a guinea-pig, the quantity varying with the weight of the pig. The animal was now watched and time between injection and death recorded. Cultures were then made from the site of injection and internal organs.

From the same culture used to inoculate the broth, several snugly wrapped cotton batting swabs were freely inoculated and replaced in their respective sterile test tubes.

Some of them were placed in the sunlight and others in the dark.

The swabs exposed to the sunlight were placed on a table in the middle of a conservatory, the roof and three sides of which were made of heavy, wrinkled glass. The room was an exceptionally light one.

Swabs placed in dark. They were placed in the dark corner of a cupboard. The light was not entirely excluded as the cupboard had a glass front. But it compared favorably with a dark corner in a living or bedroom. At different intervals Loeffler's blood serum tubes were inoculated and incubated to ascertain whether there were still organisms capable of growth remaining on the swab. Early cultures made from such swabs would naturally give a very heavy growth within twenty-four hours. But after longer exposure, such cultures would give but a very scanty growth of a few colonies which could not be seen till after twenty-four to forty-eight hours incubation. This delay in growth was not recognized at first, so that if in twenty-four hours no growth could be seen, the blood serum tubes were re-incubated with their respective swabs. After eighteen hours further incubation a luxuriant growth was generally present. This led to the erroneous idea that probably only a few organisms had been left on the swab, these during the first incubation had produced one or two microscopic colonies which the second inoculation had spread and the later incubation increased. No estimate of the original number of colonies could be obtained when second attempts at inoculation were made on the same tube. This knowledge was not gained till the first experiment had been made so the organisms used in the second animal inoculation of this experiment were not as ideal "huskies" as they might have been.

Frequently when no growth can be detected with twenty-four hours incubation, a further period of twenty-four hours will reveal the growth of numerous colonies.

This tardiness of growth even when optimum conditions of artificial growth are offered is interesting, possibly giving us some idea of what may happen in natural infection with similarly attenuated organisms.

Should such weakened organisms reach the naso-pharyngeal mucosa, factors whose influence are but vaguely known come into play so that one can but surmise as to the final outcome. Conditions making infection favorable or otherwise undoubtedly will vary in individuals and in the same individual from day to day.

One must remember to discard a swab that has been twice used to inoculate a serum tube, as fresh inoculation of the swab would occur from any bacterial growth resulting from the first twenty-four hours' incubation.

It may also be mentioned, that pure cultures must be used on the swabs. The reason being that such organisms as *S. Aureus* contaminating the swabs will out-grow the Diphtheria Bacilli during the first twenty-four hours and thus make isolation of the latter impossible. Its recognized faculty of rapid growth is lost when much attenuated.

The following experiment is given in detail to illustrate the method employed in the eleven experiments summarized below.

Experiment I.

The organism used in this experiment was obtained from a swab sent to the laboratory, suspected diphtheria.

July 19th, obtained by tube dilution on Loeffler blood serum in pure culture. Morphology, granular bacillus, irregular in shape. Special broth was inoculated from the culture and incubated for 24 hours. at 37 degrees C. An endeavor was made to make as uniform in quantity as possible that amount of culture added to the broth in each case by the use of the same platinum loop.

July 20th, broth shows granular turbidity with no pellicle, stains show pure Klebs Loeffler Bacilli granular; shaken thoroughly; three pigs were injected with following amounts, .15 c.c., .25 c.c. and .35 c.c. The two receiving the last mentioned dose died in 48 hours, the former receiving .15 c.c. died in four days (wt. = 360 grms.).

P.M. At site of injection the K. L. B. was recovered, solid forms were the commonest. Blood was negative, suprarenal gland was somewhat congested but cultures were negative.

July 19th. Good firm cotton batting swabs were inoculated from the pure culture, and placed carefully in test tubes so that their surfaces did not contact, and thereby exclude light. The same were now placed some in the sunlight and others in the semi-darkness.

Swabs placed in light.

On a table in the middle of a conservatory, the roof and three sides of which were made of heavy wrinkled glass, the room was an exceedingly light one.

Swabs placed in dark.

These were put in the dark corner of a cupboard. The light was not entirely excluded from them as the cupboard had a glass front, but it would compare well with a dark corner in a living or bedroom.

July 26th. Swabs were removed from these places and in blood serum inoculated.

July 27th. *Swabs from light.* All showed growth but colonies were small and not numerous, had a dry appearance.

Stain. Loeffler's Methylene Blue, slender and granular, morphology variable.

Ten c.c. of the original special bouillon was inoculated with a loop smeared from this culture, and incubated for 24 hours at 37 degrees C. At the end of this time the tube had a coarse turbidity. Purity tests were made and proved satisfactory.

Aug. 12th. A guinea pig, wt. 550 grms., was given a subcutaneous injection of 3 c.c.

Aug. 13th. Sick, died during night.

P.M. The organism was recovered in pure culture, from site of injection which showed considerable inflammation and exudation. The conclusion to be drawn from this case seems very evident, i.e., that the progeny of the surviving organisms were equal in pathogenic power with their deceased progenitors.

Aug. 23rd. Swabs from dark cultured on blood serum.

Aug. 24th. No visible growth so the swabs were rubbed over the surface of their respective tubes and re-incubated.

Aug. 25th. No growth on one tube, the other showed well marked and characteristic growth.

Aug. 26th. From the culture bouillon was inoculated, after 24 hours incubation marked turbidity was observed.

Aug. 27th. 4 p.m., .2 c.c. was injected subcutaneously into a guinea pig, wt. 350 grms.

Aug. 28th. Pig ill. Died during the night, about 36 hours.

P.M. Site of injection showed acute inflammation, cultures gave good growth of K. L. B. blood cultures negative.

CONCLUSIONS.

I. Cultures made from "huskies" usually exhibit pathogenic properties similar to the less resistant organisms of the same strain, their virulence neither being increased nor decreased materially.

II. Staining properties and morphological characteristics of organisms belonging to the same original strain vary greatly from time to time.

III. Some strains of diphtheria bacilli on the inoculated swabs were still viable after removal from all culture media for sixty days.

The following table gives a summary of the results obtained in eleven such experiments:

SUMMARY IN DIPHTHERIA RESEARCH.

No.	Morphology and Staining. Time of isolation.	Pathogenicity. Time of isolation.	Pathogenicity. After Desiccation (Light)	No. days Survived Light	No. Days Survived Dark	Final Morphology and Staining.
1.....	Irregular, Barred and Metachro- matic.	• 3cc.—360 grms. 48 hrs. • 15cc.—360 grms. 96 hrs.	• 3cc.—550 grms. 40 hrs. (31)	21	.....	Irregular, Granular and Barred.
2.....	Irregular, Barred and Metachro- matic.	• 25cc.—360 grms. 48 hrs. • 15cc.—360 grms. 96 hrs.	• 2cc.—360 grms. 36 hrs. (36)	.....	36	
3.....	Solid and Ghost enders.	• 2cc.—280 grms. 50 hrs.	• 2cc.—290 grms. 45 hrs. (40)	27	40	Barred and Ghostenders, no solid.
4.....	Solid and Double enders.	• 3cc.—350 grms. 120 hrs.	• 3cc.—360 grms. 120 hrs. (35)	.....	35	Solid.
5.....	Slender, Metachromatic.	• 15cc.—370 grms. 60 hrs.	• 1cc.—280 grms. 80 hrs. (55)	.....	55	Solid, metachromatic.
6.....	Nose enders and Ghost enders.	• 2cc.—330 grms. 12 days.	• 25cc.—370 grms. 8 days. (30)	30	.....	Nose enders.
7.....	Nose enders and Ghost enders.	• 2cc.—330 grms. 12 days.	• 2cc.—340 grms. 8.5 days (46)	.....	46	Ghostenders.
8.....	Ghost enders.	• 2cc.—230 grms. 48 hrs.	• 2cc.—255 grms. 72 hrs. (40)	27	40	Granular, solid.
9.....	Mostly granular, some barred.	• 2cc.—280 grms. 40 hrs.	• 2cc.—500 grms. 48 hrs. (60)	.....	60	Large granular bacilli.
10.....	Ghost enders.	• 2cc.—400 grms. 40 hrs.	• 2cc.—520 grms. 50 hrs. (60)	.....	60	Chiefly solid, type A and A.
11.....	Small, solid, not typical.	• 2cc.—450 grms. not pathogenic	• 2cc.—400 grms. not pathogenic (52)	.....	52	Solid, nose enders.

NOTE.—Columns two and three (Pathogenicity, time of isolation and after desiccation) record the quantities of broth culture injected, the weight in grammes of the guinea pig injected, and the time in hours that the animal survived the injection. The small figures in brackets refer to the age of swab used in making the culture.

NICKEL-CHROMIUM WIRE FOR THE BACTERIOLOGICAL LABORATORY.*

By H. M. LANCASTER, B.A.Sc.

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Bacteriologists requiring large quantities of platinum wire for routine work in the laboratory, or for the use of student classes, will find nickel-chromium wire of some assistance. This alloy heats readily and cools quickly, but is not rapidly disintegrated by repeated heating and cooling. A very useful instrument may be made from a three-inch length of No. 22 Brown and Sharpe gauge wire inserted in an eight-inch handle of three-sixteenth-inch aluminum rod. A firm junction between handle and wire may be secured by drilling a small hole slightly larger in diameter than the wire one-half inch deep into the end of the rod, inserting the wire, and, finally, hammering or pinching in a vice until the two are firmly joined. Wire of any other gauge may be used if desired.

Nickel-chromium wire in all gauges is supplied by any of the larger firms dealing in such alloys. It may be obtained from manufacturers of electrical supplies, as it is used under the trade name "Nichrome" as resistance wire in the heating elements of many modern heating devices. The cost of nickel-chromium is very small compared with that of platinum. At present prices, one foot of platinum wire, No. 22 gauge, at forty-five dollars per ounce, costs about three dollars; ten feet of No. 22 gauge nichrome, at four dollars and eighty-five cents per pound, cost about eight and one-half cents.

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and Laboratory of Institute of Public Health,
London, Year 1914

REPORT FROM BRANCH LABORATORY OF PROVINCIAL

Municipalities	Diphtheritic swabs				Tuberculous sputa		Typhoid bloods		Pasteur preventive treatment		Rabies diagnosis				
	Release		Diagnosis		+	-	+	-	Cases	Number of injections	Animal	Negri bodies		Animal inoculations	
	+	-	+	-								+	-		+
					+	-									
Huron—															
Wingham.....							3		3						
Lanark—															
Carleton Place.....							1	1	2						
Lanark, Tn.....				1			1								
Perth, Tn.....	1	1	3	6	1		6								
Smith's Falls.....		5	5	13	7	12	6	10			1		1	1	
Leeds Co.—															
Athens.....					1				3						
Brockville.....	1	13	6	20	11	14	21	27							
Elgin.....	1		1						3						
Gananoque.....				3	4	18		6							
Frankville.....					1										
Lansdowne.....		3	2	19	1	13	3	11							
Lyn.....					2										
Mallorytown.....		1	3	14	1		4	7							
Newboro.....								1							
Westport.....							2								
Seeley's Bay.....							1								
Lennox and Addington—															
Bath.....				2	1	3		2							
Camden, E.....								1							
Enterprise.....					2										
Napanee.....			1	1	3	11	5	10							
Newburgh.....	2	1					5	5	4						
Odessa.....							1	1	1						
Tamworth.....							1								
Yarker.....					1	4	5	14							
Manitoulin —															
Gore Bay.....				1		3	4	3							
Middlesex—															
London.....															
Nipissing—															
Collins' Inlet.....							1	2							
Northumberland—															
Campbellford.....								1	2						
Castleton.....							2		3						
Port Hope.....							2								
Roseneath.....									1						
Peterboro—															
Peterboro.....					2	1	3	9							
Prescott—															
Fournier.....		1	1	3	1	4	1	5							
Hawkesbury.....							3	1	1						
Vankleek Hill.....					2	2		1							
Prince Edward—															
Picton.....			3	3	10										
Renfrew—															
Arnprior.....			1	9		2									
Beachburg.....															
Calabogie.....						1	1	1							
Cobden.....					1	8	1	2							
Douglas.....			1	4	8										
Killaloe.....					3	5									
Pembroke.....			1	1	5	15									
Renfrew.....	2	4	7	13	11	11	2	4							
Westmeath.....			1	1		2		1							

REPORT FROM BRANCH LABORATORY OF PROVINCIAL

Municipalities	Diphtheritic swabs				Tuberculous sputa		Typhoid bloods		Pasteur preventive treatment		Rabies diagnosis				
	Release		Diagnosis		+	-	+	-	Cases	Number of injections	Animal	Negri bodies		Animal inoculations	
	+	-	+	-								+	-		
Russell—															
Metcalfé.....			2	10	3	3	25								
Simcoe—															
Barrie.....		4	3	11	1	10	4	4							
Stormont—															
Aultsville.....					2	2									
Cornwall.....		2	4	10	1	2	4								
Finch.....			1		2	1									
Newington.....			1	3	8	2	1								
Sudbury—															
Sudbury.....															
Victoria—															
Lindsay.....					5										
Little Britain.....					1										
Waterloo—															
Preston.....					3										
Wentworth—															
Hamilton.....					2										
York Co.—															
Toronto.....															
Total.....	35	143	78	297	246	539	189	452	.....	.....	1	.....	1	1	1

BOARD OF HEALTH, KINGSTON, FOR YEAR 1914.—Concluded.

Milk										Waters.		Licenses for License Dept.	Doses of Typhoid Vaccine sent out.	Miscellaneous Specimens.	Total	Outfits sent out.				Total for year.
Food Content.		Preservatives.		Bacteriological.				Extraneous matter.	Chemical.	Bacterial.	Water.					Diphtheria.	T.B.	Typhoid.		
Fats.	Total Solids.	+	-	Tubercle Bac.		Pus cells.													Count.	
				+	-	+	-													
.....	43				
.....	37				
.....	8	.....	.....	.....	.....	.....	.....	4				
.....	31				
.....	4				
.....	15				
.....	2	2				
.....	5				
.....	1				
.....	3				
.....	3				
.....	1				
5	5	1	5	...	7	1	13	22	29	353	.....	.....	.....	230	.....	2853

REPORT FROM LABORATORY OF INSTITUTE OF

Municipalities	Diphtheritic swabs				Tuber- culous sputa		Typhoid bloods		Pasteur preventive treatment		Rabies diagnosis				
	Release		Diagnosis		+	-	+	-	Cases	Number of injections	Animal	Negri bodies		Animal inoculations	
	+	-	+	-								+	-		
West Lorne.....				1			2								
Warton.....					1		1								
Wilkesport.....	1														
Windsor.....	2	21	3	39	2		6		2						
Wingham.....															
Woodstock.....			1	9	3		4		1						
Wheatley.....									2						
Wyoming.....			4	2	1		1	1	3						
Zurich.....															
Total.....	39	65	83	269	72	196	20	107							2

PUBLIC HEALTH AT LONDON FOR YEAR 1914.—Continued.

Milk												Waters.		Liquors for License Dept.	Doses of Typhoid Vaccine sent out.	Miscellaneous Specimens.	Total for month.	Outfits sent out.				Total for year.
Food Content.		Preserv-atives.		Bacteriological.				Extraneous matter.	Chemical.	Bacterial.	Water.	Diphtheria.	T.B.					Typhoid.				
Fats.	Total Solids.	+	-	Tubercle Bac.		Pus cells.								Count.								
				+	-	+	-															
...	4						
...	2						
...	1						
...	125						
...	18						
...	2						
...	12						
...	6						
...	5	1	...	...	...	...	...	
118	55	43	...	...	...	...	956						

Provincial Board of Health of Ontario
Experimental Branch

BULLETIN No. 3.

EXPERIMENTS TO DETERMINE THE ECONOMIC POSSIBILITIES
OF SLUDGE FROM EMSCHER OR TRAVIS TANKS.

By A. V. DeLAPORTE, B.A. Sc.

A COMPARISON BETWEEN BLEACH AND LIQUID CHLORINE
DISINFECTION.

By C. R. AVERY, M.A.Sc.

DOES ALUM INHIBIT THE ACTION OF CHLORINE AS A
DISINFECTANT?

By C. R. AVERY, M.A.Sc., and O. G. LYE, B.A.Sc.

ULTRA VIOLET RAY STERILIZATION OF WATER.

By N. F. PARKINSON, M.A.Sc.

THE EXPERIMENTAL STATION OF THE PROVINCIAL BOARD OF HEALTH.

BULLETIN No. 3.

To the Chairman and Members, Provincial Board of Health, Ontario:

GENTLEMEN,—I have the honour to submit herewith Bulletin No. 3 of the Experimental Station, which gives the results of further work in connection with the disinfection of water, some new research on the efficiency of the Ultra Violet Ray and some notes on the character of Imhoff sludge.

Following up the work done in 1913 in connection with the disinfection of sewage, considerable time was devoted to the disinfection of water, contrasting the action of liquid chlorine with that of bleaching powder. The detail of this work is included herewith. It would appear that liquid chlorine has no greater efficiency than bleaching powder when both are calculated on a basis of parts per million of available chlorine. The slight increase in the cost of the liquid chlorine is probably offset by the lesser space required and the saving in the matter of labour. Mr. DeLaporte's work in connection with the examination at Port Arthur elsewhere reported, indicates that some of the apparatus on the market at the present time for the administration of liquid chlorine is capable of improvement.

In connection with the work of testing the efficiency of the Ultra Violet Ray our Mr. Parkinson has devoted very nearly a year. From his research, the report of which is included herewith, it is apparent that the Ultra Violet Ray treatment of water has many advantages. Certain difficulties in connection with this method of treatment have presented themselves and are well outlined in Mr. Parkinson's report.

Mr. A. V. De Laporte, B.A.Sc., was in charge of the operations at the Experimental Station during 1914, and in spite of his many duties, has been able to devote considerable time to research. The preliminary report on the economic value of Imhoff sludge is included herewith.

The Department has also had the benefit of the services of Mr. C. R. Avery, M.A.Sc., and Mr. O. G. Lye, B.A.Sc., these gentlemen have contributed a report on the disinfection of water.

The Department and the Provincial Government owes a debt of gratitude to all of these gentlemen.

Mr. Parkinson and Mr. Avery left with the Second Contingent as gunners in the 13th Battery, C.F.A. Mr. O. G. Lye has since left as a private with a University company reinforcing the Princess Patricias. Mr. De Laporte is a captain in the C. A. H. C., and is engaged in laboratory work at Second Divisional Headquarters at Niagara Camp.

F. A. DALLYN,

Provincial Sanitary Engineer.

EXPERIMENTS TO DETERMINE THE ECONOMIC POSSIBILITIES OF SLUDGE FROM EMSCHER OR TRAVIS TANKS.

A. V. DE LAPORTE, B.A.Sc.

In view of the number of Emscher or Modified Travis Tanks being installed throughout the Province, it was deemed expedient to investigate the economic possibilities of the sludge. Experiments to ascertain the fertilizer, fat and fuel value of this sludge were therefore undertaken and are still in progress. The following report is a summary of the findings and is in the nature of a progress report.

FERTILIZER VALUE.

The analysis of Imhoff sludge from several sources, as shown in the tables, when considered together with the high grease content and felt-like character of the sludge, seemed to render unnecessary further investigation into its value as a fertilizer.

Comparison with the tabulated analysis would indicate that while Imhoff sludge compares favourably with a good loam, it has no commercial value as a fertilizer.

	Wet Sludge			Dry Sludge		
	Percentage matter	Solids	Ash	Organic matter	Nitrogen	Fats
From—						
Recklinghausen	79.34	20.66	44.8	45.2	1.56	6.4
Essen IV. W	75.6	24.4	45.8	54.9	1.22	4.89
Bochum	75.8	24.12	54.9	40.5	1.102	5.73
Beckon, I. W.....	77.6	22.4	64.0	36.0	1.34	2.61
Experimental Station, Toronto, shallow tank	83.9	16.1	33.0	47.0	1.5	1.40

AN AVERAGE ANALYSIS OF SLUDGE

OF THE SHALLOW IMHOFF TANK AT THE EXPERIMENTAL STATION OF THE PROVINCIAL BOARD OF HEALTH.

Wet Sludge		Dry Sludge	
Water.....	83.9 %	Total Nitrogen.....	0.2 %
Ash	7.5 %	Total Phosphoric Acid.....	0.5 %
Volatile on heating.....	8.6 %	Potash	0.1 %
	100 %		

Analysis of an average Fertilizer.*

Nitrogen	4%
Phosphoric acid	8%
Potash	5%

Analysis of an average Loam.†

Nitrogen.....	0.642%
Phosphoric acid	0.15 %
Potash.....	0.14 %

FAT VALUE.

The recovery of the grease content is theoretically possible by any one of the several well known methods:—

- (a) By extraction with solvents.
- (b) By distillation in superheated steam.
- (c) By destructive distillation.
- (d) By rendering—similar to the rendering of butchers' waste.

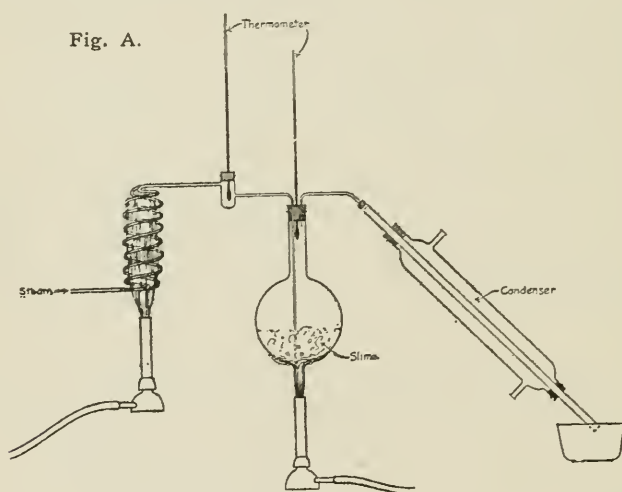
* Bulletin No. 291, Inland Revenue Department, Canada.

† Report of Experimental Farms, 1907, 1908, Department of Agriculture, Canada

(a) *Extraction* was tried first and very satisfactory results were obtained by using different solvents. Ether, benzine, gasoline and carbon tetrachloride were used and comparable results obtained. Twenty-three per cent. grease was the highest obtained during the experiments. The average was fourteen per cent. Some samples were as low as six per cent.

To recover the maximum of grease from the sludge it is necessary to acidify the wet sludge with H_2SO_4 and then dry. The cost of this treatment, taken in conjunction the low price and limited market for the product, is such as to render it unprofitable.

(b) *Distillation in steam* was carried out in the apparatus shown in Fig. A. No results were obtained until the temperature of the steam entering was raised to $300^\circ C.$ when a light yellow oil distilled which had a characteristic odour. No difference was observable between samples acidified with H_2SO_4 and those which had not. The average yield of oil was 4.5 per cent. by weight of the dried sludge. The liquor collected from the condenser had some ammonia, and also on evaporation a small amount of oil. This method was obviously of no commercial use, the quantity of steam required and the small yield of oil being the principal reason for no further investigation of this method.



DISTILLATION OF IMHOFF SLIME
WITH SUPERHEATED STEAM

(c) *Destructive distillation* of the sludge showed possibilities. The grease given off during the combustion was distinctly inflammable. A high yield of oil (20 per cent.) was obtained.

The gas was made up roughly of—

	By volume	
Carbon dioxide.....	10 %	Higher Hydrocarbons..... 1.00
Oxygen	trace	Methyne and Hydrogen 50.00
Carbon monoxide.....	25 %	Nitrogen by difference..... 13.8 %
	<u>100 %</u>	

and was of good illuminating quality, burning freely in a Bunsen burner.

A fractional distillation of the resultant oil gave the following factors:

- 20 per cent. between 70°C.—85°C.—a light yellow oil.
- 6 per cent. between 85°C.—105°C.—
- 0—between 105°C.—110°C.—
- 20 per cent. between 110°C.—

The latter 20 per cent. was a white fat, which looked and smelt like lard. At 300°C. nothing was left but a black tar very similar to coal tar.

The results of distillation summarized as follows:

Original dry sludge 100 grams	{	Residuum 60 grms.	{	Obtained 15 litres of gas
				5 grms of light oil
		Distilled 40 grms.		5 " of heavy oil
				3.5 " of grease
				2. " "
				0.2 " ammonia

A rough estimate of the sludge obtained in our Imhoff tank is 3 cubic yards per million gallons of sewage. That equals about 6,000 lbs. of sludge. The moisture content of this sludge per million gallons of sewage is 4,500 lbs. of water. In view of the fact that the moisture content of sludge varies considerably, it is convenient to consider only dried sludge as a basis of calculation. The amount of dried sludge obtained in a city of the size of Toronto would appear to be between 25 and 40 tons daily.

If this sludge were destructively distilled we should obtain approximately 1,280,000 cubic feet of illuminating gas worth between 25 and 50 cents a thousand cubic feet, therefore having a value of about \$500.00.

4,000 lbs. of saponifiable grease worth about \$100.00.

3,500 lbs. of tar and 4,000 lbs. of light oil and 15 tons of ash. Thus the value of this material wasted a day in a city the size of Toronto would be in the neighbourhood of \$700.00. The cost of recovery of this material is, however, impossible to estimate without the installation of a plant.

(d) *Rendering.* No investigation has been made into the possibility of rendering the sludge, no apparatus suitable for the purpose being at hand. The fuel value of the sludge was given scant consideration after two or three tests in a bomb calorimeter, the highest value obtained being 2,000 calories. The very low calorific value and high ash makes it useless as a fuel.

The results to date are as follows:—

(a) The sludge has practically no value as a fertilizer or a fuel.

(b) Extraction for the recovery of the grease or distillation with super-heated steam would not pay.

(c) Destructive distillation designed to recover the grease, gas, ammonia, etc., might cover expenses. It is impossible to say without first running a small plant.

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A COMPARISON BETWEEN BLEACH AND LIQUID CHLORINE DISINFECTION.

BY C. R. AVERY, M.A.Sc.

On account of the claims made by the advocates of liquid chlorine on the one hand and by advocates of bleach on the other, the following work was undertaken with the idea of ascertaining what if any difference existed between the disinfecting quality of bleaching powder and liquid chlorine when used in water treatment.

From the results of the following experiments it is evident that the disinfecting qualities may be considered in all respects equal on an available chlorine content basis. Taking the results as a whole the advantage of what difference there is seems to lie with the bleach. This difference is small, however, and *the conclusion is that if a normal water supply be treated with the same amount of available chlorine, whether from bleaching powder or liquid chlorine, and provided proper mixing takes place, the disinfection in either case will be the same.*

In this report no account has been taken of the problems of mixing and other problems more or less of a mechanical nature met with in municipal Chlorination Plants. It is quite true that both methods have their advantages and disadvantages, experience has shown that the most fool proof arrangement is the best with regard to treating a water supply. A municipality should be well advised and should look carefully into the matter of plant arrangement before deciding which of the two to use. The difficulty of obtaining proper diffusion is probably the most serious one facing liquid chlorine. Whereas the bulky nature of the bleaching powder plants will always militate against them.

METHOD OF CONDUCTING THE WORK.

The liquid chlorine used in this work was supplied to the City of Toronto by the Leavitt-Jackson Company, from one of their drums or carboys. A saturated solution was secured which served for making the standard solutions used in the following work. In order to ensure a fair comparison the solutions used for disinfecting the samples were prepared and titrated by the Chemist at the Experimental Plant immediately before use.

TABLE 1.

SEWAGE INFECTED WATER TREATED WITH 0.2 PARTS PER MILLION AVAILABLE CHLORINE
REDUCTION OF BACTERIAL GROWTH.

Date of Experiment.	Source of Available Chlorine.							
	Bleaching Powder.				Liquid Chlorine.			
	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.
	18°-22°C. count.							
December 31, 1914.....	3,266	2,400	800	720	.....	4,800	520	1,400
		1,280	640	450	.....	2,700	1,100	1,600
January 4, 1915.....	11,000	10,400	5,000	7,000	.....	11,000	12,000	7,800
		7,000	6,500	8,800	.....	8,000	8,800	6,500
“ 5.....	5,033	5,600	3,600	3,200	.....	6,000	4,800	4,800
		5,500	4,000	4,200	average	8,000	4,800	4,000
“ 5.....	6,733	4,800	4,000	5,600	.....	6,800	4,800	2,800
		2,500	3,000	4,400	8,738	6,400	7,200	1,500
“ 6.....	10,200	4,400	2,800	3,400	.....	1,200	440	250
		6,000	3,200	1,000	.....	480	200	400
“ 7.....	1,600	2,800	1,600	300	.....	2,400	1,600	2,100
		1,600	2,800	180	.....	2,200	720	600
“ 8.....	23,333	16,000	9,600	3,600	.....	7,200	5,200	1,000
		10,000	11,000	4,400	.....	8,800	8,400	2,000
Average.....	8,738	5,734	4,182	3,375	8,738	5,247	4,327	2,625
Per cent. Reduction...		35.5	52.0	61.3		40.0	50.4	70.0

37°-40° Count.

December 31, 1914.....		760	360	160	.....	760	240	440
		980	340	360	.....	1,100	450	220
January 4, 1915.....		2,800	2,800	450	.....	3,200	4,800	4,200
	average	2,900	3,600	2,400	average	2,500	3,600	2,900
“ 5.....		4,000	1,800	4,400	.....	5,000	2,500	1,500
	5,376	4,500	2,000	2,600	5,376	4,000	3,200	1,600
“ 5.....		4,800	2,800	2,400	.....	5,000	800	1,400
		4,500	3,000	2,000	.....	3,200	4,400	1,600
“ 6.....		1,000	360	800	.....	200	160	220
		1,400	300	800	.....	300	200	280
“ 7.....		2,000	4,800	1,000	.....	1,000	2,800	1,000
		1,900	1,900	1,200	.....	1,600	5,600	2,200
“ 8.....		8,400	3,000	1,050	.....	2,400	1,680	1,000
		7,200	2,800	1,600	.....	2,000	2,000	640
Average.....	5,376	3,367	2,133	1,515	5,376	2,304	2,316	1,371
Per cent. Reduction...		37.3	60.3	71.8		57.1	56.9	74.5

Colon Group. (per 100 c.c.)

December 31, 1914....	550	100	20	0	.....	100	20	100
January 4, 1915.....	1,000	100	100	100	.....	20	100	0
“ 5.....	1,000	100	100	100	average	100	100	100
“ 5.....	100	100	20	100	4,664	100	100	100
“ 6.....	10,000	100	20	4	.....	100	100	100
“ 7.....	10,000	100	100	100	.....	100	100	100
“ 8.....	10,000	100	100	20	.....	100	100	0
Average.....	4,664	100	65	60	4,664	88.6	88.6	71.4
Per cent. Reduction...		97.8	98.6	98.7		98.0	98.0	98.5

TABLE 2.

SEWAGE INFECTED WATER TREATED WITH 0.4 PARTS PER MILLION AVAILABLE CHLORINE
REDUCTION OF BACTERIAL GROWTH.

Date of Experiment.	Source of Available Chlorine.							
	Bleaching Powder.				Liquid Chlorine.			
	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.
		18°-22°C. count.						
December 31, 1914.....	.....	520	100	200	.....	600	200	400
		240	200	70	.....	1,400	120	400
January 4, 1915.....	.....	7,200	4,000	5,200	.....	6,400	1,700	4,800
	average	5,000	5,600	2,600	average	2,200	4,400	6,800
" 5	8.738	3,400	1,200	1,600	8.738	2,400	2,200	1,200
		5,600	1,800	480	.....	3,600	1,800	720
" 5		400	150	80	.....	1,600	1,800	180
		450	160	200	.....	4,000	2,800	140
" 6		140	110	50	.....	70	50	30
		120	70	70	.....	70	60	20
" 7		200	50	80	.....	960	200	10
		380	20	40	.....	440	160	20
" 8		3,600	540	500	.....	2,450	1,600	400
		4,400	800	120	.....	2,000	1,600	450
Average	8,738	2,261	1,057	806	8,738	2,371	1,335	1,112
Per cent. Reduction....	.....	74.1	87.9	90.7	.....	72.8	84.8	87.3

37°-40° Count.

December 31, 1914.....	800	520	28	22	.....	400	440	43
	.....	900	80	28	.....	860	160	25
January 4, 1915.....	5,066	3,200	650	650	.....	3,600	1,600	1,600
	.....	3,600	3,200	850	.....	2,800	2,800	2,800
" 5	3,866	2,500	2,000	1,200	.....	3,000	1,600	400
	.....	4,200	1,600	600	.....	2,400	1,000	400
" 5	4,600	2,000	700	100	average	250	70	60
	.....	2,200	1,050	120	5,376	170	50	40
" 6	10,866	40	0	60	.....	30	40	50
	.....	240	0	60	.....	30	20	50
" 7	2,966	200	280	150	.....	600	2,400	100
	.....	200	80	90	.....	700	4,000	180
" 8	9,466	2,800	100	240	.....	400	400	170
	.....	2,400	150	200	.....	500	500	130
Averages	5,376	1,785	708	312	5,376	1,124	1,077	430
Per cent. Reduction ...	.....	66.8	86.8	94.3	.....	79.0	79.9	91.9

Colon Group. (per 100 c.c.)

December 31, 1914.....	.....	100	20	0	.....	20	0	0
January 4, 1915.....	.....	100	100	100	.....	20	100	0
" 5 .....	.....	100	100	100	.....	100	100	100
" 5	4,664	100	20	20	4,664	100	20	20
" 6 .....	.....	20	4	0	.....	100	100	4
" 7 .....	.....	100	20	4	.....	100	100	20
" 8 .....	.....	100	100	0	.....	100	100	0
Averages	4,664	89	52	42	4,664	77	74	21
Per cent. Reduction....	.....	98.1	98.8	99.3	.....	98.3	98.4	99.5

TABLE 3.

SEWAGE INFECTED WATER TREATED WITH 0.6 PARTS PER MILLION AVAILABLE CHLORINE
REDUCTION OF BACTERIAL GROWTH.

Date of Experiment.	Source of Available Chlorine.								
	Bleaching Powder.				Liquid Chlorine.				
	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.	
18°-22°C. count.									
December 31, 1914	26	4	10	.....	440	10	40	
	10	10	3	.....	90	4	60	
January 4, 1915	average.	800	240	500	.....	1,600	2,400	240
	200	260	300	.....	1,100	1,200	320	
" 5	8,738	800	120	70	8,738	200	240	60
	200	240	60	.....	200	300	30	
" 5	700	120	30	.....	6	12	10	
	400	80	0	.....	6	12	10	
" 6	16	2	7	.....	9	4	2	
	8	1	2	.....	5	5	2	
" 7	0	4	0	.....	5	25	2	
	2	2	4	.....	4	7	0	
" 8	450	240	54	.....	320	120	100	
	520	180	80	.....	400	120	70	
Averages	8,738	295	107	80	8,738	313	318	68
Per cent. reduction	96.6	98.7	99	.....	96.4	96.3	99.2	

37°-40° Count.

December 31, 1914	.....	140	6	10	.....	480	28	10
	.....	110	18	7	.....	410	48	5
January 4, 1915	average.	200	200	80	.....	1,200	240	150
	.....	180	80	40	.....	1,800	280	110
" 5	5,376	360	200	10	5,376	160	200	40
	.....	360	60	50	.....	80	180	0
" 5	.....	70	30	20	.....	300	10	20
	.....	50	30	20	.....	120	30	0
" 6	.....	16	3	2	.....	30	20	4
	.....	6	2	1	.....	.....	15	2
" 7	.....	8	12	16	.....	80	20	5
	.....	6	16	15	.....	50	22	15
" 8	.....	240	100	36	.....	320	200	20
	.....	200	60	38	.....	220	80	16
Averages	5,376	139	58	24	5,376	375	98	28
Per cent. reduction	.....	97.4	98.9	99.5	.....	93.0	98.1	99.5

Colon Group. (per 100 c.c.)

December 31, 1914	average.	20	0	0	.....	20	0	0
January 4, 1915	.....	100	20	20	.....	20	4	0
" 5	.....	4,664	100	20	4	4,664	100	4
	.....	100	20	20	.....	20	20	4
" 6	.....	20	0	0	.....	20	0	0
" 7	.....	20	20	4	.....	100	20	4
" 8	.....	100	20	0	.....	100	100	0
Averages	4,664	65	14	7	4,664	54	21	1
Per cent. reduction	.....	98.6	99.7	99.8	.....	98.8	99.5	99.9

TABLE 4.

SEWAGE INFECTED WATER TREATED WITH 0.8 PARTS PER MILLION AVAILABLE CHLORINE
REDUCTION OF BACTERIAL GROWTH.

Date of Experiment.	Source of Available Chlorine.							
	Bleaching Powder				Liquid Chlorine.			
	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.	Initial Count.	20 min. Action.	50 min. Action.	90 min. Action.
December 31, 1914		120	18°-22°C. count. 10	10	.....	56	16	20
.....	average.	10	6	3	.....	25	4	18
January 4, 1915.....	.....	360	.....	180	.....	720	160	10
.....	.....	220	320	.....	8,738	320	40	10
" 5	8,738	100	34	3	.....	48	4	3
.....	.....	70	30	9	.....	25	9	1
" 5 .....	.....	14	4	0	.....	14	8	4
.....	.....	15	6	0	.....	10	4	1
" 6 .....	.....	10	2	4	.....	4	1	1
.....	.....	6	2	2	.....	7	4	1
" 7 .....	.....	1	16	0	.....	3	1	0
.....	.....	4	2	0	.....	.....	0	0
" 8 .....	.....	60	40	8	.....	400	160	120
.....	.....	45	25	8	.....	230	100	100
Averages	8,738	74	38	16	8,738	133	37	21
Per cent. reduction..	.....	99.1	99.6	99.8	.....	98.5	99.6	99.9

37°-40° Count.

December 31, 1914 .....	.....	12	7	7	.....	4	4	.....
.....	average.	16	5	4	.....	12	10	2
January 4, 1915.....	.....	32	22	6	.....	22	11	4
.....	5,376	24	10	7	5,376	18	19	6
" 5 .....	.....	68	68	24	.....	40	6	4
.....	.....	70	30	14	.....	50	13	10
" 5 .....	.....	40	30	0	.....	20	5	2
.....	.....	30	15	1	.....	22	2	2
" 6 .....	.....	7	6	0	.....	24	6	0
.....	.....	5	2	1	.....	.....	3	1
" 1/2 .....	.....	19	30	4	.....	8	80	30
.....	.....	5	6	8	.....	4	20	2
" 8 .....	.....	80	24	24	.....	80	100	24
.....	.....	12	14	12	.....	28	32	22
Averages	5,376	30	19	8	5,376	24	22	8
Per cent. reduction..	.....	99.4	99.6	99.8	.....	99.5	99.6	99.8

Colon Group. (per 100 c.c.)

December 31, 1914	average.	20	0	0	average.	4	0	0
January 4, 1915.....	4,664	0	0	0	4,664	4	0	0
" 5 .....	.....	100	4	0	.....	100	20	0
" 5 .....	.....	100	4	20	.....	20	4	0
" 6 .....	.....	4	0	0	.....	20	0	0
" 7 .....	.....	20	20	4	.....	20	4	20
" 8 .....	.....	100	4	0	.....	4	20	0
Averages	4,664	51.4	4.5	3.4	4,664	24.4	7	3
Per cent. reduction..	.....	98.8	99.9	99.9	.....	99.5	99.9	99.9

TABLE 5.

SEWAGE INFECTED WATER TREATED WITH 1.0 PARTS PER MILLION AVAILABLE CHLORINE
REDUCTION OF BACTERIAL GROWTH.

Date of Experiment.	Source of Available Chlorine.							
	Bleaching Powder.				Liquid Chlorine.			
	Initial count.	20 min. action.	50 min. action.	90 min. action.	Initial count.	20 min. action.	50 min. action.	90 min. action.
December 31, 1914....	average. 8,738	3	18°-22°C. 6	5	8,738	50	2	7
	2	7	3	.....	12	2	19
January 4, 1915.....	80	40	6	.....	50	3	5
	48	3	10	.....	60	7	6
“ 5	12	28	1	.....	30	15	4
	40	6	1	.....	12	2	1
“ 5	4	1	0	.....	0	3	2
	5	3	0	.....	1	3	1
“ 6	16	9	.....	.....	10	4	1
	8	3	.....	.....	3	4	2
“ 7	1	4	0	.....	6	0	0
	1	3	0	.....	0	0	1
“ 8	6	2	7	.....	50	15	8
	10	6	11	.....	16	7	4
Averages	8,738	17	9	3	8,738	22	5	3
Per cent. reduction..	99.8	99.9	99.9	.....	99.7	99.9	99.9

37°-40° Count.

December 31, 1914....	average. 5,376	9	2	3	5,376	8	7	5
	.....	11	3	7	.....	4	3	4
January 4, 1915.....	.....	8	5	8	.....	5	14	4
	.....	6	4	3	.....	7	4	3
“ 5 .....	.....	30	18	7	.....	40	10	7
	.....	20	7	10	.....	22	20	7
“ 5 .....	.....	18	12	0	.....	5	9	5
	.....	8	6	2	.....	25	5	1
“ 6 .....	.....	6	6	1	.....	6	2	1
	.....	4	0	.....	.....	5	7	3
“ 7 .....	.....	14	20	2	.....	5	38	5
	.....	15	6	4	.....	10	10	3
“ 8 .....	.....	14	12	8	.....	20	20	5
	.....	16	11	10	.....	12	12	14
Averages	5,376	13	8	5	5,376	12	11	5
Per cent. reduction..	.....	99.7	99.9	99.9	.....	99.7	99.7	99.9

Colon Group. (per 100 c.c.)

December 31, 1914....		0	0	0	.....	20	0	0
January 4, 1915.....	average.	0	0	0	.....	0	0	0
“ 5	8,664	100	4	0	4,664	100	20	0
“ 5 .....	.....	4	4	20	.....	4	4	0
“ 6 .....	.....	20	0	0	.....	20	0	0
“ 7 .....	.....	4	4	0	.....	4	4	4
“ 8 .....	.....	4	0	0	.....	20	20	0
Averages.....	4,644	16.5	1.7	2.8	4,664	24	7	1
Per cent. Reduction ...	.....	99.7	99.9	99.9	.....	99.5	99.9	99.9

Known quantities of water were infected with different amounts of sewage, varying the pollution to such an extent that the counts ranged from 1,000 to 30,000 bacteria per cubic centimeter. In each of the first pair of sample bottles 150 cc. of this infected water was placed, in one sufficient bleach solution was added to treat the sample at the rate of 0.2 or more parts per million of available chlorine, to the other was added an amount of liquid chlorine solution sufficient to give it an equal amount of available chlorine. These samples were analyzed for the bacterial content in duplicate after standing intervals of 20 minutes, 50 minutes and 1½ hours.

Other samples were treated with 0.4, 0.6, 0.8 and 1.0 p.p.m. of available chlorine and analyses made after the same intervals. In order to obtain as accurate results as possible a large number of analyses were made, it was also necessary to be very precise in all quantitative measurements, dilutions and shakings.

RESULTS IN TABULAR AND GRAPHICAL FORM.

Table 1 shows the results obtained on treating samples of infected water with 0.2 parts per million of available chlorine from bleaching powder; the last four columns show the corresponding results obtained on treating the same samples with a similar amount of liquid chlorine. In the first column are shown counts per cubic centimeter in the untreated samples, the second column shows the counts resulting 20 minutes after the addition of the chlorine, the third and fourth columns show the counts 50 minutes and 1½ hours, respectively, after the addition of the chlorine. Below each column is shown the average count for the whole series, and at the bottom of the 3rd, 4th, 5th, 7th, 8th and 9th columns are shown the average reductions occurring after the different intervals. The first part of the table deals with the results of the 18°-22° C. counts, then follows the 37-40 degrees C. counts and the colon group. On close examination it will be seen, that very little difference exists in the disinfection produced by either the bleach or the liquid chlorine. Where small quantities of chlorine are used the time interval after treatment is of much greater importance than when larger quantities of chlorine are used. Summing up the action of 0.2 parts of available chlorine, whether from bleach or liquid chlorine, the reduction in the counts is not high but the reduction in the colon group is remarkable when one considers the high pollution of the water samples and the small quantity of disinfectant used. So close are the reductions by either disinfectant throughout that it would be unfair to say that the advantage lies with either.

The arrangement of the remaining tables illustrates the difference in the actions of 0.4, 0.6, 0.8 and 1.0 parts of available chlorine per million. With regard to the results, little further comment is necessary, the close similarity between the disinfecting action of the bleach and liquid chlorine is self-evident throughout the entire work.

In order to test the advisability of using a colorimetric method of testing for free chlorine, after the plating was completed the bottles were left in a row and treated with equal quantities of Pot. Iodide solution, starch solution and acetic acid (about 2 cc. of each). The samples containing the liquid chlorine were a deeper color than those treated with bleach and the color was not nearly so well graded. In both cases the tint was very slight and uncertain in any sample which had been treated with less 0.8 p.p.m. of available chlorine. This shows how unreliable it is to depend on the color test as a measurement of the disinfecting action.

TECHNIQUE.

Technique used in making the comparative analysis for bleach and liquid chlorine disinfection.

On the back of the table a row of bottles is placed, each containing 150 cc. of water sample used. In front of these are placed one or more rows of dilution bottles each containing 100 cc. of sterile water. At a noted time bottle No. 1 was treated with sufficient standard bleach solution to give it 0.2 p.p.m. of available chlorine, two minutes later bottle No. 2 was treated with sufficient to give it 0.4 p.p.m., and so on. After 10 minutes bottle No. 6 was treated with liquid chlorine solution to give 0.2 p.p.m., after 12 minutes No. 7 was treated with sufficient to give 0.4 p.p.m., after 18 minutes all samples had been treated. After 20 minutes bottle No. 1 was analyzed, after 22 minutes bottle No. 2 was analyzed, etc., so that each sample was analyzed 20 minutes after adding the chlorine. In a similar manner as will be seen from the schedule each sample was also analyzed 50 minutes and 1½ hours after the addition of the chlorine. This schedule was rigidly followed throughout so that there was no variation whatever in the storage periods.

DOES ALUM INHIBIT THE ACTION OF CHLORINE AS A
DISINFECTANT.

By C. R. AVERY, M.A.Sc., AND O. G. LYE, B.A.Sc.

There are sometimes instances whereby it may be expedient to mix alum solution with bleach and add the two solutions together to a chemical filter influent or the solution may be run separately into an influent tank or well where mixture takes place. When either of the above instances takes place, *does the alum inhibit the action of the chlorine as a disinfectant?* A series of experiments conducted at the Experimental Station indicates that while the addition of alum immediately causes a considerable reduction in the available chlorine content as measured by titration with sodium thiosulphate, the disinfecting qualities of the bleach are not apparently affected under a period of twelve hours.

The standard bleach solution used was of such strength that 1 cc. contained 100 parts of available chlorine per million. One centimeter of this solution added to 99 cc. of the sample to be analyzed gave one part of available chlorine per million; samples used treated with 0.6, 0.8 and 1.0 parts of available chlorine per million, no other qualities being used in these experiments. In order to obtain these amounts it was only necessary to add 0.6, 0.8 or 1.0 cc. of the standard bleach solution to 100 cc. portions of the sample.

The standard bleach solution was divided into four portions, the first to be used as it was, to the 2nd sufficient alum was added so that on adding 0.6 cc. to 100 cc. of a sample the sample would contain 2 or 6 grains per gallon of alum as the experiment required. Sufficient alum was added to the 3rd so that on adding 0.8 cc. to 100 cc. of a sample, the sample would contain 2 or 6 grains per gallon of alum as before.

To the 4th enough alum was added so that 1 cc. to 100 cc. of sample gave the sample the same quantity of alum per gallon. Series of experiments were conducted using both these quantities of alum.

THE EFFECT OF ALUM ON BLEACH SOLUTIONS FROM A BACTERIOLOGICAL POINT OF
VIEW.

The addition of alum to bleach solutions did not have the effect of lowering the bacteriological efficiency along with the reduction of available chlorine until a considerable period of time had elapsed. With the quantity of alum used the lowering of the bacteriological efficiency during the first twelve hours was negligible, after this period a perceptible change in efficiency is evidenced. The addition of varying amounts of alum does not cause results corresponding to the amounts added; the tables showing the effects on sample of two grains of alum per gallon used with the bleach solution are very similar to those showing the effects of six grains of alum per gallon and similar amounts of bleach.

Tables Nos. 1 and 2 show the results obtained on treatment of a series of samples with different amounts of chlorine, contrasted with the results obtained from treating similar samples with bleach containing sufficient alum to treat water at the rate of two grains per gallon. (The solutions were only used when freshly made up, 1½ hours old.) There is very little difference in the reduction in amount occurring in either series. In table No. 1 is shown the average number of bacteria growing on agar-agar and safranin lactose broth in the sample; the average number of bacteria is obtained from the counts on eight plates of the same sample after having been treated with the noted number of parts per million of

TABLE I.

Showing the immediate influence of Alum upon the Bactericidal power of Bleaching powder solutions, the Bacterial counts are obtained from growth on Agar Media at the noted temperatures.

Date of Experiment. 1915.	Mins. contact. Bleach.	No. of Exp. in average.	Bacterial Counts. Bleach only.				Bacterial Counts Bleach and 2 grains per gallon of Alum.				
			Raw.	.6 parts.	.8 parts.	1.0 parts.	Raw.	.6 parts.	.8 parts.	1.0 parts.	
Feb. 3rd.....	30	8	*2,620	18°-22°c. Count.				2,620	25	6	6
" 4th.....	30	8	*7,620	18	5	2	7,620	87	14	3	
" 5th.....	30	8	*2,610	564	62	13	2,640	2	0.1	0.6	
				2	2	0.3					

37° Count.

Feb. 3rd.....	30	8	*3,350	82	6	2	3,350	54	8	17
" 4th.....	30	8	*3,720	194	7	3	3,720	45	20	2
" 5th.....	30	8	*4,630	37	12	4	4,620	16	3	2

Colon Group.
per 100 c.c.

Feb. 3rd.....	30	3	55,000	100	100	20	55,000	1,000	1,000	100
" 4th.....	30	3	5,500	1,000	100	4	5,500	550	4	4
" 5th.....	30	3	50,500	100	4	4	50,500	20	20	4

TABLE II.

6 Grains per gallon of Alum.

Date of Experiment. 1915.	Mins. contact. Bleach.	No. of Exp. in average.	Bacterial Counts. Bleach only.				Bacterial Counts. Bleach and 6 grains per gallon of alum.				
			Raw.	.6 parts.	.8 parts.	1.0 parts.	Raw.	.6 parts.	.8 parts.	1.0 parts.	
Feb. 10.....	30	8	*9,080	18°-22°c. Count.				9,080	563	17	8
" 10.....	.....	8	*12,000	810	20	6	12,000	63	30	9
				93	17	5					

37° Count.

Feb. 10.....	30	8	*16,160	683	11	4	16,160	298	38	9.5
" 10.....	30	8	*3,210	22	49	7	3,210	99	46	14

Colon Group.
(per 100 c.c.)

Feb. 10.....	30	3	55,000	10,000	100	20	55,000	10,000	100	100
" 10.....	.....	.....	10,000	20	20	46	10,000	1,000	100	100

*Four samples only.

TABLE III.

Showing the influence of alum upon the Bactericidal power of Bleaching powder solution, solutions mixed and allowed to stand as noted.

Date of Experiment.	Period of contact. Bleach.	No. of Exp.	Age of Solution.	Bacterial Counts. Bleach only.				Bacterial Counts. Bleach and 6 grains per gallon of alum.				
				Raw.	.6 parts.	.8 parts.	1.0 parts	Raw.	.6 parts.	.8 parts.	1.0 parts	
February 18, 1915..	30	8	new	8,120	18°-22° 170	Count.	15	4	8,120	60	36	13
" 19 "	30	8	1 day	7,360	30	6	2	7,360	100	25	6	
" 20 "	30	8	2 days	24,000	10,850	1,450	2,000	24,000	1,080	2,400	111	
" 23 "	30	8	4 days	14,500	3,450	590	45	14,500	13,500	3,600	3,600	

37° Count.

February 18, 1915..	30	8	new	2,660	30	2	1	2,660	30	19	6
" 19 "	30	8	1 day	3,700	30	5	2	3,700	130	52	19
" 20 "	30	8	2 days	4,480	220	595	11	4,480	1,950	850	643
" 23 "	30	8	4 "	8,700	1,720	185	29	8,700	7,400	2,100	2,000

Colon group per 100 c.c.

February 18, 1915..	30	8	new	100,000	400	400	100	100,000	10,000	10,000	10,000
" 19 "	30	8	1 day	55,000	400	100	370	55,000	70	12	4
" 20 "	30	8	2 days	55,000	700	700	47	55,000	10,000	10,000	10,000
" 23 "	30	8	4 "	55,000	1,000	1,000	20	55,000	10,000	10,000	10,000

TABLE IV.

Date of Experiment.	Period of contact. Bleach.	No. of Exp.	Age of Solution.	Bacterial Counts. Bleach only.				Bacterial Counts. Bleach and 6 grains per gallon of alum.				
				Raw.	.6 parts.	.8 parts.	1.0 parts	Raw.	.6 parts.	.8 parts.	1.0 parts	
March 16, 1915.....	30	4	fresh	4,920	18°-22° 895	Count.	175	140	4,920	530	31	54
" 19 "	30	4	5 hours	3,300	135	36	20	3,300	310	90	34	
" 20 "	30	4	12 "	7,050	100	18	14	7,050	375	105	21	
" 23 "	30	4	24 "	24,500	650	127	30	24,500	2,600	335	89	

37° Count.

March 16, 1915	30	4	fresh	4,000	575	97	59	4,000	410	20	36
" 19 "	30	4	5 hours	4,350	255	18	10	4,350	107	33	38
" 20 "	30	4	12 "	3,575	50	10	10	3,575	90	40	28
" 23 "	30	4	24 "	14,750	490	56	26	14,750	1,200	300	169

Colon group.
(per 100 c.c.)

March 16, 1915	30	4	fresh	55,000	550	100	100	55,000	55,000	700	400
" 19 "	30	4	5 hours	100,000	1,000	20	20	100,000	1,000	100	100
" 20 "	30	4	12 "	55,000	20	20	20	55,000	550	20	60
" 23 "	30	4	24 "	100,000	100	20	20	10,000	5,500	5,500	1,000

available chlorine and allowed thirty minutes contact. The reduction which this number represents can be computed by noting the initial number present in the untreated sample.

Table No. 2 shows the results obtained on treating similar samples of infected water with corresponding chlorine solutions, one of which contained sufficient alum to treat the sample at the rate of six grains per gallon. These results are very similar to those in Table No. 1, showing that the difference in the amount of alum used has apparently no bacteriological effect on the chlorine solution. It will be noticed that the remarkable similarity of results between Tables No. 1 and 2 exist in spite of the great difference in the counts of the untreated samples used in both series. In Table No. 1 the average count in the untreated samples for both temperatures is considerably lower than the corresponding count in Table No. 2.

On account of the wide variation in bacterial count, occurring in the raw sewage used, it was difficult to exert perfect control over the counts in the infected water used as a basis for this work.

In order to determine what effect standing had upon the efficiency of standard bleach or bleach and alum solutions a series of experiments were performed extending over a period of four days.

Standard solutions were made up in the ordinary way, sufficient alum being added to treat samples at a rate of six grains per gallon. These solutions were titrated and used at once with samples of infected water, after which they were set aside, no provision being taken to protect them from the light. They were not, however, placed directly in the sunlight. The solutions were again used (after intervals of 1, 2 and 4 days) Table 3. Other experiments were carried on with intervals of 5, 12 and 24 hours as shown in Table 4.

It appears that the dilute solutions retain their disinfecting qualities practically unimpaired for some 12 hours. After this period these qualities fall off considerably, this falling off being more noticeable in the solutions containing alum.

The sustained disinfecting properties of the bleach and alum solutions appear rather remarkable in view of the fact that the available chlorine content as indicated by titration with sodium "thiosulphate" shows a rapid and almost constant decrease from the very first.

THE CHEMICAL EFFECT OF ALUM IN BLEACH.

The amount of chlorine in parts per million appears to be reduced in direct proportion to the amount of alum added up to a certain limit, after which the further addition of alum has little effect on the available chlorine. Table No. 5 shows the action of a solution containing 142 grains of alum per litre upon bleach solutions of varying strengths. It will be noted, experiment No. 1, that the amount of available chlorine decreases somewhat in proportion with the amount of alum solution added, and after the addition of 20 cc. of alum solution appears to remain constant.

In experiment No. 2 the amount of available chlorine falls rapidly until about 25 cc. of alum solution has been added, after which it also shows a tendency to remain constant regardless of the amount of alum solution added.

In experiment Nos. 3 and 4 the amount of available chlorine falls more than in No. 2, but as the volumes increase with subsequent additions of alum solution the amount of available chlorine becomes more nearly equal to that in No. 2. When 200 cc. of alum solution has been added to No. 4 the concentration is precisely the same as in the corresponding experiment in No. 2, and it will also

TABLE 5.

Amount of Bleach Solution.	Stock alum solution, 142 grains per litre, No. of c.c. used.	Titration showing p.p.m. of available chlorine in Bleach Solutions before and after adding alum.			
		1	2	3	4
10 c.c. Bleach Solution	none.	5,000	5,000	5,000	5,000
"	1	4,900	.....	.....	.....
"	3	4,750	.....	.....	.....
"	5	4,580	.....	.....	.....
"	10	4,510	.....	.....	.....
"	20	3,600	2,770	3,370	2,940
"	25	3,500	2,300	3,350	2,560
"	33½	3,320	2,735	3,320	2,835
"	50	.....	2,465	3,515	3,000
"	100	.....	2,560	3,410	.....
"	150	.....	3,280	3,450	3,360
"	200	.....	.....	3,280	3,460

In Experiments 1 and 2 the volume changes from 30 to 210 c.c.

In Experiment 3 and 4 the volume was made constant by the addition of distilled water.

be noticed that the amount of available chlorine is precisely the same. The density of the bleach solution appears to determine the extent of the reaction with the alum solution. In all probability hydrolysis takes place in the solutions and if conditions be favorable this chlorine will redissolve and thus account for the greater amount of available chlorine in the solutions with lowest density of bleach solution. Table No. 6 possibly illustrates this.

TABLE 6.

Amount of Bleach Solution.	Stock alum solution, 142 grains per litre, No. of cc. used.	Amount distilled water used.	Titration showing p.p.m. of available chlorine in Bleach Solutions before and after adding varying amounts of water.		
			1	2	3
5 c.c. Bleach solution	No alum.....	.....	1,400	1,400	1,400
"	10 c.c. alum solution.....	.....	965	1,015	990
"	"	20	1,057	1,035	1,046
"	"	40	1,042	1,070	1,056
"	"	60	1,050	1,035	1,042
"	"	80	1,050	1,042	1,046
"	"	100	1,070	1,078	1,074
"	"	120	1,092	1,050	1,071
"	"	140	1,100	1,078	1,099
"	"	200	1,155	1,078	1,116

The remaining Table No. 7 shows the effect of light upon the available chlorine of the bleach solution in the presence of alum. In Table 7 the solutions have been stored in the light of an ordinary room, but not directly in the sunlight. The column headed "light" illustrates the reduction of the available chlorine content of a standard bleach solution after 1, 2 and 4 days of storage subject to conditions of light found in an ordinary room. Column headed "darkness" shows the reduction in available chlorine in the standard bleach and alum solutions described on page 152 under the same conditions but without the influence of light, as in the previous experiment it is noticed that the solutions having the least alum have the least available chlorine.

TABLE 7.

Table showing effect of light upon the available chlorine in stock solution of bleaching powder and alum. Figures given are parts per million of available chlorine at beginning of experiment. Solution contains 100 p.p.m.

Days of Storage.	Bleach alone.		Same plus 1,000 grains per gallon alum.		Same plus 750 grains per gallon alum.		Same plus 600 grains per gallon alum.	
	Light.	Darkness.	Light.	Darkness.	Light.	Darkness.	Light.	Darkness.
1	100	100	65	66	61	63	65	66
2	95	99	29	40	37	42	28	46
3	90	89	15	32	19	34	21	40
4	82	89	7	26	10	30	11	36
5	.....	86	.....	17	.....	20	.....	26

Samples stored in daylight, February 18th to February 22nd, 1915.
 " " darkness, " 24th to March 2nd, 1915.

ULTRA-VIOLET RAY STERILIZATION OF WATER.

BY N. F. PARKINSON, M.A.Sc.

INTRODUCTION.

Any examination into the effectiveness of the Ultra Violet Rays in the disinfecting of a water supply divides itself naturally into two separate investigations. First the question of efficiency must be considered from the standpoint of thorough disinfection, and second the cost must be approximately estimated.

In the consideration of the first question is included the determination of the efficiency of two different types of mercury vapour lamps used for the production of the Ultra Violet Rays. The lamps were of the mercury-vapour type, and were supplied by the R. U. V. Co., of New York. Both the lamps are fully described elsewhere.

The arrangement of the smaller lamp (B 2 apparatus, Pl. 1, fig. 1.) lent itself admirably to use in determining the relative effect of turbidity and different water conditions upon the bactericidal efficiency of the lamp. The following waters were treated, having in mind the desirability of determining to what extent the efficiency of the system would be impaired by conditions often met with in a raw water supply.

(1) The effluent from a mechanical filter free from turbidity and all gross particles, and with varying bacterial counts, depending on the rate at which the filter was run and the abuse it was subjected to.

(2) Sewage-infected tap water, having gross particles present in varying amounts, and with a turbidity of five parts per million (American Public Health Standard).

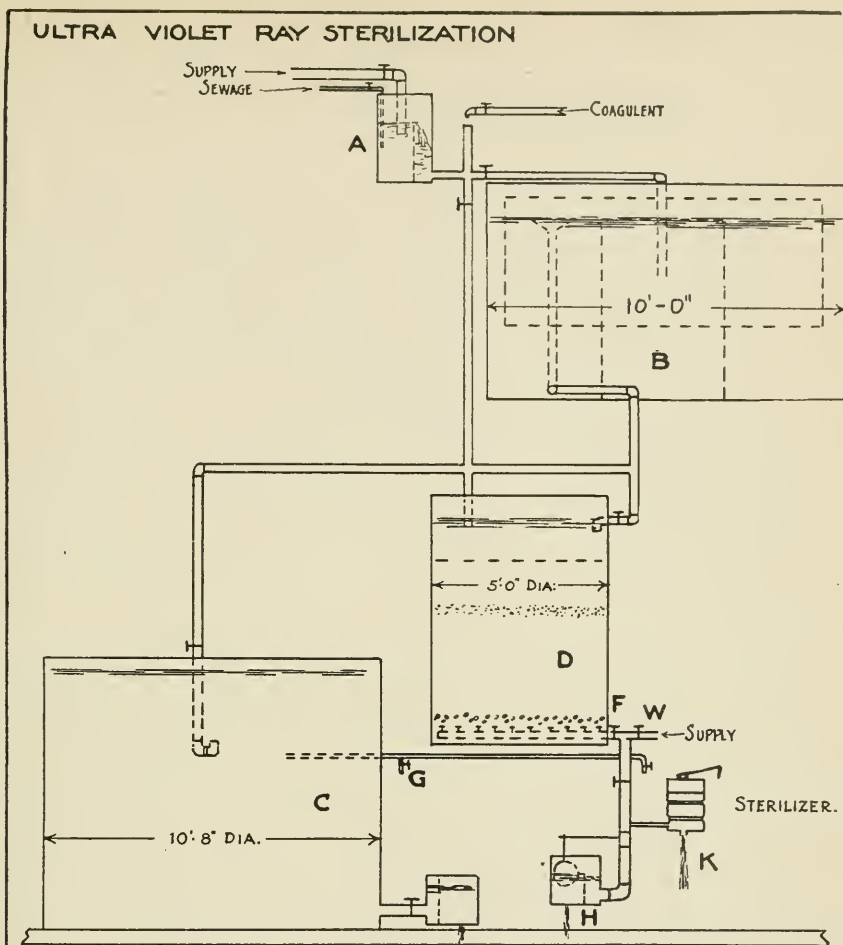
(3) Sewage-infected tap water, having gross particles in suspension, and with clayey turbidity added as follows:

- (a) Turbidity 20 parts per million.
- (b) Turbidity 20-25 parts per million.
- (c) Turbidity 30-50 parts per million.

The D.F.† apparatus (Fig. 3, Pl. 2.) had a capacity of 3,000 to 7,000 gallons per hour. It was found impossible to get filtered water to supply this apparatus owing to the capacity and arrangement of the filters at the Experimental Station. Fortunately the City of Toronto* water was usually of very good quality. The bacterial count of this water at the tap was so low that addition of pollution was necessary for the purpose of these experiments, as in the case of waters 2 and 3 treated in the B2 apparatus. Turbidities up to 30 parts per million were encountered at times, partly owing to the sewage added and partly from the con-

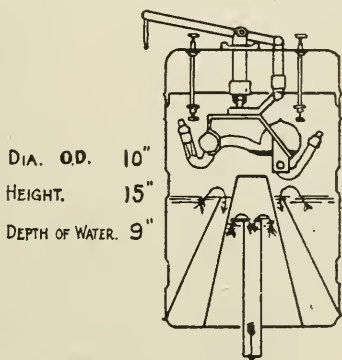
*The City of Toronto takes its water supply from Lake Ontario. In the year 1914 from $\frac{2}{3}$ to $\frac{3}{4}$ of the total supply was passed through slow sand filters. Small quantities of hypochlorite of lime are added at Toronto Island after the raw water is added to the filter effluent and some twenty minutes prior to when it reaches the John Street pumping station.

†D.F. catalogue description.



GENERAL ARRANGEMENT OF 110 VOLT INSTALLATION

Showing Method of obtaining Supply from
GRAVITY MECHANICAL FILTER and SEWAGE POLLUTED TAP WATER



110 VOLT APPARATUS
being the
B₂ TYPE OF STERILIZER
MNF'D BY
THE R.U.V. CO. INC. OF NEW YORK

dition of the tap water from storms affecting the turbidity of the lake water. On account of the sedimentation provided no gross particles of any size reached the apparatus. The presence of minute air bubbles in the sterilizing tank did not seem to affect the efficiency to any great extent.

PRODUCTION AND EFFICIENCY OF THE ULTRA VIOLET RAYS.

It has long been recognized that light from certain sources is active as a germicide. The germicidal action of light rays has occupied for a considerable period a very prominent place in the deliberations of scientists and sanitarians, especially in the case of sunlight. Messrs. Downes and Blunt, Duclaux and others have demonstrated that solar light is capable of killing bacteria and certain fungal growths, and that this action is due to the ultra-violet portion of the spectrum, that is, to those waves recognized by their chemical activity rather than by their power of producing heat or light, (a photographic plate, exposed in the solar spectrum beyond the point where the visible blue-violet light appears, is rapidly sensitized). The bactericidal power of sunlight is greatly limited for the reason that its Ultra-Violet radiations do not reach the earth in sufficient quantity. The atmosphere absorbs Ultra-Violet Rays and glass behaves in a similar manner.

Research has shown that certain artificial light sources produce these radiations to a large degree. This is particularly true in the case of the mercury-vapour lamp, the rays from which, as seen in the following table, are of such wave length as to give the light powerful germicidal action. This table, and some accompanying information, is quoted from an article by Dr. Jules Courmont, Prof. of Hygiene, Faculty of Medicine, Lyons, and printed in the "*Revue Generale des Sciences Pures et Appliquees*," Paris. April 30th, 1911.

The wave lengths of light rays are usually measured in units which have received the designation of Angstroms (A. units). The Angstrom unit is equal to (0.000,000,000,1) meters. The following gives the wave length of a few different places in the spectrum. For convenient tabulation the unit μ is used equal to 1/1,000 millimeter or equal to 10,000 Angstrom units.

Spectrum of Welsbach Light.	Wave Length.
Upper limit of infra red	600.0 μ
Solar Spectrum.	
Upper limit of infra red	300.0
Upper limit of visible red	0.761
Upper limit of ultra violet	0.397
Lower limit of solar spectrum	0.295
Upper limit of bactericidal ultra violet	0.28
Metallic Spectra.	
Inferior limit of mercury spectrum	0.2225 μ
Limit of metallic ultra-violet	0.12

The upper limit of the very bactericidal Ultra-Violet is a wave length of 0.28 μ . It is seen that the lower limit of the solar spectrum shows a ray length of 0.295 μ this just approaches the length required for maximum bactericidal activity.

Ultra-Violet radiations of solar origin, of length smaller than 0.295 μ are entirely absorbed by the atmosphere and hence do not reach us. In order to obtain light which is truly bactericidal (of wave length less than 0.28 μ), we must have recourse to artificial means.

ULTRA VIOLET RAY STERILIZATION

GENERAL ARRANGEMENT OF 500 VOLT INSTALLATION

SHOWING — Methods of Adding Pollution and of obtaining Clear Water.

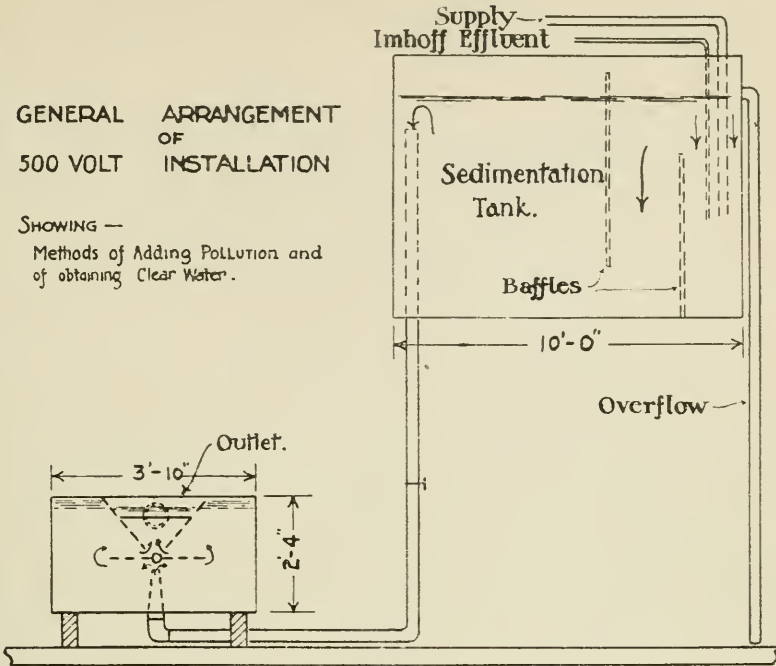


FIG. 3

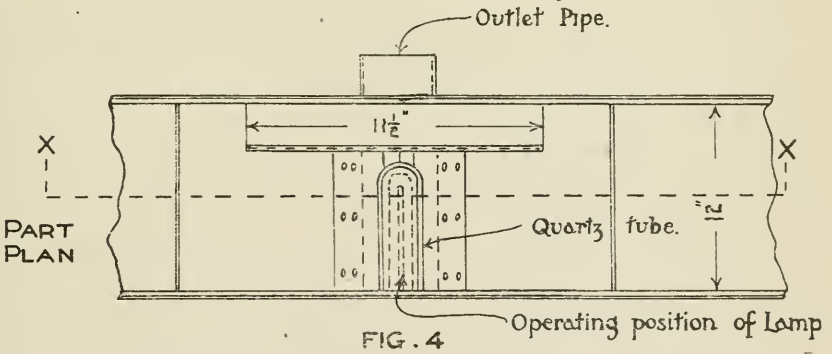
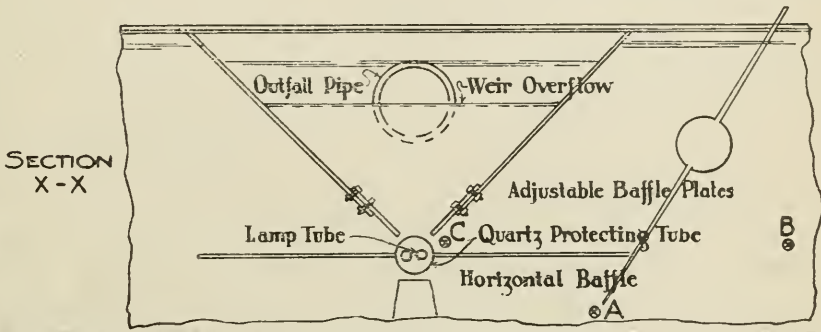


FIG. 4



ULTRA VIOLET RAY STERILIZATION

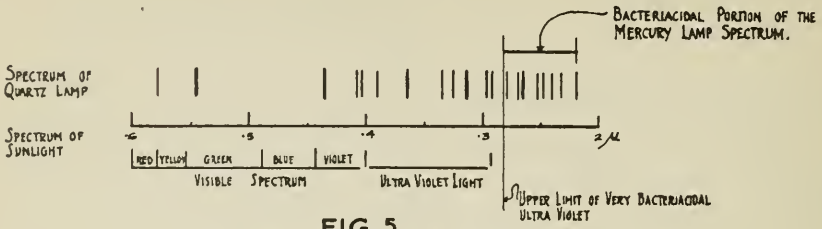


FIG. 5
SPECTRUM OF QUARTZ LAMP AND OF SUNLIGHT

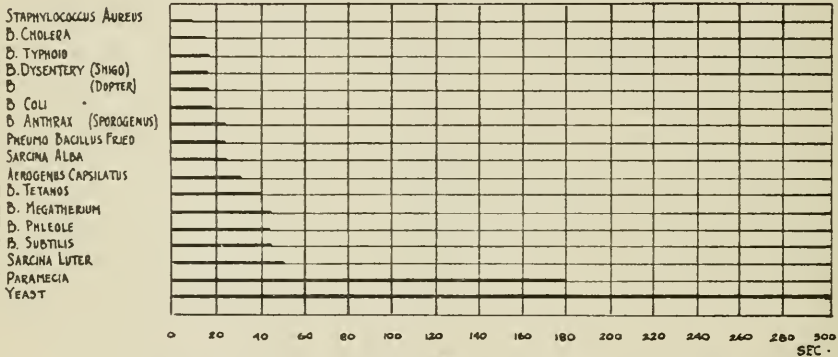


FIG. 6
SECONDS NECESSARY TO KILL DIFFERENT TYPES OF GERMS AT 200 MILLIMETERS FROM A QUARTZ LAMP BURNING AT 66 VOLTS, 3.5 AMPERES

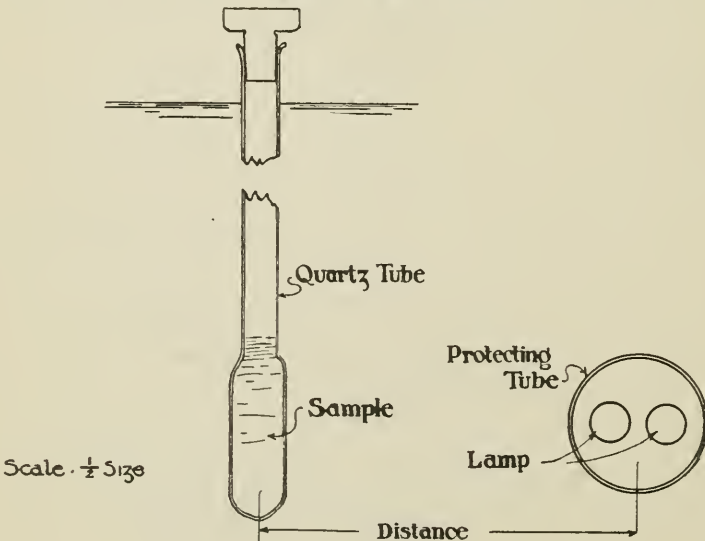


FIG. 7

The quartz Mercury-Vapour lamp is the most powerful of these. Luminescent mercury-vapour is very rich in ultra-violet light. Its Ultra-Violet spectrum reaches from 0.3650 to 0.2225μ . Quartz is transparent to all light of greater wave length than 0.15μ and to all the rays of the spectrum given out by the luminous Mercury-Vapour.

The Ultra-Violet rays of smaller wave length than 0.28μ are especially bactericidal; those between 0.28μ and 0.2225μ from the quartz Mercury-Vapour lamp are very destructive to all living cells, and dangerous to any one handling the lamp without proper precautions.

The spectra of sunlight and of quartz Mercury-Vapour lamp with wave lengths noted are compared in fig. 5 Pl. 3. Here is shown graphically, what Prof. Courmont states in his article, the overlapping of the quartz lamp spectrum into the field of bactericidal activity, while that of the sun, due to its passage through the atmosphere, stops before this point of maximum activity is reached.

Some work has already been done concerning the efficiency of the rays in the killing of bacteria, with pure culture of different forms, using a small 66-volt lamp, burning 3.5 amperes. Dr. M. Von Recklinghausen, at Sorbonne University, gives the result in graphic form (fig. 6, Pl. 3) showing a comparison of the resistance of different types of bacteria to the rays.

In the progress of the work herein reported upon pure cultures of the different bacteria were not experimented with; a comparison between ordinary water bacteria and those growing at body temperature was however carefully made. The exposure was either in the ordinary commercial types of apparatus or by means of a quartz tube of dimensions and form as shown in fig. 7, Pl. 3. In the bulb of this tube the water containing the organisms was inserted by means of a pipette, care being taken not to wet the sides of the tube in doing so. Then the bulb was immersed in the tank until it was in the plane of the lamp, and at a predetermined distance. The screen was then removed from between the bulb and the lamp and the exposure timed carefully, the screen was then replaced and the bulb removed, the water being examined in the usual manner.

Results obtained in this way are found on page 214. They point out the fact that the sterilizing action is largely accounted for in the first close contact that occurs. Thus in five minutes exposure at a distance of 22 inches from the light the action is not as great as in two minutes at 9 inches from the light, while it takes three minutes at this latter distance to sterilize the water. However, when we expose the water as close to the lamp as possible, that is the sample tube touching the protection tube and creating a film of water about $\frac{3}{8}$ inch in thickness next it, the sterilizing action is completed in a very small fraction of a minute and if we could expose the water in a thin film, the sterilization would be practically instantaneous.

In the remarks under the sub-heading of apparatus which follow, the conditions affecting the operation as well as the construction of the different forms are gone into, and the effect of altering the path of the water through the apparatus is also noted. The results were obtained from research carried on with a view to determining the efficiency of the unit.

APPARATUS.

The two forms of apparatus employed in this work are illustrated on Pls. 1 and 2, the form of the separate lamps being shown in detail on Pls. 1 and 4.

The 110-volt lamp (B2 type) is of different form from the 500 volt lamp. When in operating position the lamp is suspended over the surface of the water.

The water is passed through a cylindrical tank with baffles so arranged as to give two close contacts between the water and the rays of the lamp. The mercury arc burns from one end of the tube to the other, and since the lamp is suspended above the surface less than one-half of the rays are downward. This causes the loss of over 50 per cent. of the emanations of the lamp. (*Ultra-Violet rays cannot be reflected like ordinary light rays.*) The tank was 12 inches in diameter and 14 inches deep, the depth of the water being about 9 inches. The water is exposed to the rays during all the time it is in the tank. According to experiments, the effective penetration of the ray is greater than the depth in this tank.

The 500-volt lamp used with the larger apparatus is of altogether different form from that employed in the smaller outfit. This lamp is surrounded by water and all the rays are utilized in sterilization. A sketch of the lamp itself is shown in Pl. 4, the method of generating the rays being the same as in the smaller type, namely by means of the mercury vapour arc, which is carried the length of the "U" tube. The sterilizer apparatus consisted of a metal tank arranged as shown. The water is brought into close contact with the rays on two occasions.

Both these (the D.F. and B2) types are for gravity installations, that is they discharge the water by an overflow and not under pressure. The use of the pistol lamp, (Pl. 4, fig. 8), however, makes it possible to construct pressure apparatus very easily. This apparatus may be placed either on the suction or discharge side of pump or in a water supply pipe line, and it does not necessitate a repumping or the provision of an extra pump well in a municipal plant. In Pl. 4 are shown two of these types of pressure apparatuses, one being a unit which is adapted for municipal use (fig. 10), while the other, E. type (fig. 9) is used extensively for boat supplies, public buildings, swimming pools, etc.

The gravity apparatus offers certain disadvantages for industrial or domestic purposes which are overcome to a great extent in the pressure type. That is to say, with the former type a storage tank must be used and the discharge from the apparatus must be at a sufficient height to deliver by gravity to the taps; otherwise repumping is necessary.

A particularly objectionable feature in the B2 apparatus exists in the case of water having small amounts of oil and other substances of low specific gravity in suspension. These substances come out of suspension and float on the surface of the water in the apparatus, and are held there by the baffle arrangement. The action of the rays is considerably interfered with by this screen.

In the type in which the lamp is suspended above the water there is a lack of economy. This form of apparatus is used where the supply of water required is small and a cost of 6 to 10 cents per day is negligible. (The apparatus is equivalent to a $\frac{3}{4}$ horse power dynamo) and should be operated only off a power line.

In the case of the 500-volt apparatus the baffles were all movable and some work was done to determine the functions of the various parts, for instance, the opening between the baffles and lamp was changed or the horizontal baffles were removed entirely. These results may be of interest and are here given.

Ten samples of the inflowing and outflowing water were taken under each separate set of conditions and the averages of the results are given in table form. Table I.

The method employed was to take samples first with the baffles all in place, and at a rate of 3,000 gals. per hour; that is the horizontal baffles were untouched, while the upper inclined opening (the bottom one was not capable of adjustment) between the baffles and the lamp was varied from $\frac{1}{4}$ inch to the maximum of

2½ inches, ten samples being taken under each set of conditions. The contacts were two in number, one between the riser pipe and the lamp of ½ inch, and the other of ¼ to 2½ inches as stated. The horizontal baffles were then entirely removed and the water run through at the same rate, and with similar changes in the inclined baffle opening.

TABLE 1.

Adjustment of Baffles.

Date.	Horizontal Baffles.	Opening in the Inclined Baffles.	Turbidity.		Percentage Bacterial Removal.	
			P.P.M.	Voltage.	18-22° C. Count.	37.5° C. Count.
Dec. 24	In place	¼ inch	1	350	99.84	98.7
"	"	½ "	1	"	99.3	99.2
"	"	1 "	1	"	99.8	99.67
"	"	1½ "	1	"	99.8	99.7
"	"	2½ "	1	"	99.84	99.72
Dec. 26	Removed	¼ "	30	"	97.5	98.5
"	"	½ "	20	"	97.5	98.4
"	"	¾ "	1	"	99.6	99.9
"	"	1 "	20	"	98.7	99.0
"	"	1½ "	30	"	98.5	98.6
"	"	2 "	20	"	99.4	99.4

The results obtained did not show the variation expected. It was supposed that the baffles were essential in the ordinary work of sterilization, that is to say that by means of them the water was held in contact with the rays for a time in order that the action might be prolonged. However the results given together with the general observations on page . . . demonstrate that the initial exposure on leaving the riser is responsible for the most of the sterilization taking place, the presence of the baffles and the second exposure being simply a means of procuring a safety factor in the operation of the lamp.

The treatment of turbid waters is now brought to our attention. With baffles adjusted unfavorably as regards the treatment of water of this character the removal of bacteria was exceptionally high, being well over 99 per cent. with turbidity of 20. With turbidity of 30 and a direct path between the initial and final exposure, that is to say with the horizontal baffles entirely removed, the removal was 97.5 per cent. and 98.4 per cent. as regards the bacteria growing at temperatures of 18-22 degrees C. and 37.5 degrees C. respectively.

The action as regards coli was not ascertained, due to the fact that the pollution of the water was greater than expected and the dilutions used did not define the limits. The bacterial count of sewage varies greatly from day to day, being affected by drainage conditions, and with apparatus arranged for a constant dilution it is difficult to judge as to the colon content of the treated water at any given time.

Following this work, other experiments were undertaken to determine the progress of sterilization in the tank itself. The samples, withdrawn through pipettes (Fig. 4, pl. 2) from the three different points marked A, B, and C, were taken at the same time. By comparison of the counts from different sampling points with that from the influent the progress of the sterilizing action throughout the course of the water in the tank is followed.

The results show once more that most of the sterilization takes place on the first contact of the water with the rays; sample point A shows a reduction in count of 94 per cent. while the increase due to the action of the rays during the passage of the water from the lamp to the side of the tank, back again and past the lamp a second time is accountable for another 3.2 per cent., making a total reduction of 97.2 per cent. from influent to effluent.

The results are the average of 16 samples at each point, the details for which are found in the appendix pages 50-56.

TABLE 2.

Progress of Sterilization in "D.F." Tank.

Average Bacterial Count.				Percentage Removal.			
Sample Point.	18-22° C. Count.	37.5° C. Count.	*Colon Fermentation.	18-22° C. Count.	37.5° C. Count.	Colon Fermentation.	Average Removal.
Influent	730	200	1,230	.....	.....	.....	.....
A	50	17.4	31	93.2	91.3	97.5	94.0
B	49.5	12.7	29	93.4	93.6	97.6	94.8
C	23	4.2	29	96.9	97.9	97.6	98.1
Effluent	26	16.4	20	96.4	96.8	98.4	97.2

*B. coli per 100 cc. presumptive test.

As regards the operation of the lamps, the small one or B2 apparatus is first considered. Very few difficulties were encountered with this lamp after it was put in running order. Duplicate lamps were sent with the apparatus, which were both broken in transit, and both were repaired by Mr. Mezen of the Department of Physics, University of Toronto; these lamps afterwards operated constantly. The lamp burns with a resistance on a 110 volt line and requires 75 volts across the terminals. On one occasion when the water was turned off and the lamp left burning it overheated and the composition protection on the top of seals burnt off, resulting in an expansion of the mercury in the terminals. The mercury which evaporated condensed on the surface of the water in the form of a white powder. Attention was drawn to this the next day by a dropping off in the sterilization due to the presence of this shield between the light and the water. The lamp did not go out.

The operation of the 500-volt lamp gave some trouble and this is of interest as regards supervision of installations. The power for the lamp was taken from a 500-volt direct current line, which also supplied power for the pump used for lifting sewage. The voltage on the power line was very unsteady and varied from 450 to 560 volts. On holidays it was low, the supply being cut down on account of low requirements of other customers on the line. During the night this happened to a certain extent, as well as at noon time when the factories partly shut down their machines, a sudden jump occurring early in the morning and at 1 o'clock noon. The lamp, owing to the resistance through which it is operated, burns at 375 volts across the terminals and remains lighted with considerable reduction (10 per cent.) of voltage. A sudden change of voltage of such magnitude as encountered here, or the supply of over 375 volts, breaks the arc. Frequently on Monday mornings the lamp was found out, the watt-meter indicating that the interruptions had occurred between 6.30 a.m. and 7.00 a.m. These abnormal conditions should be controlled in all installations. It is inadvisable to have other

ULTRA VIOLET RAY STERILIZATION

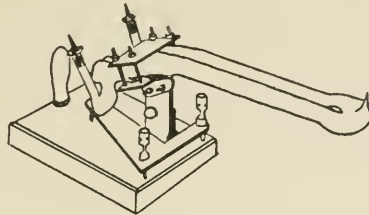


FIG. 8

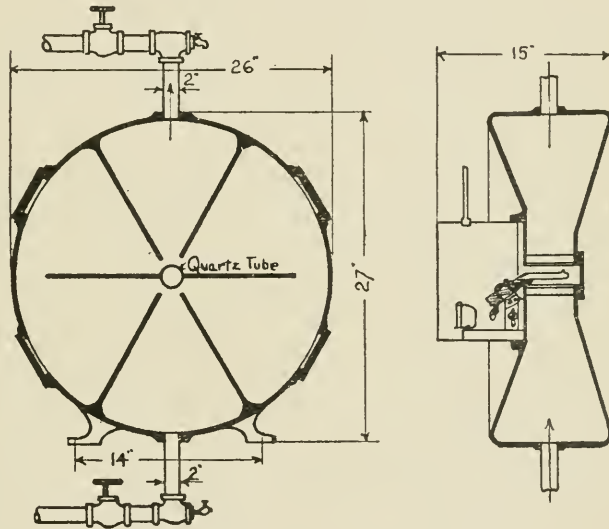
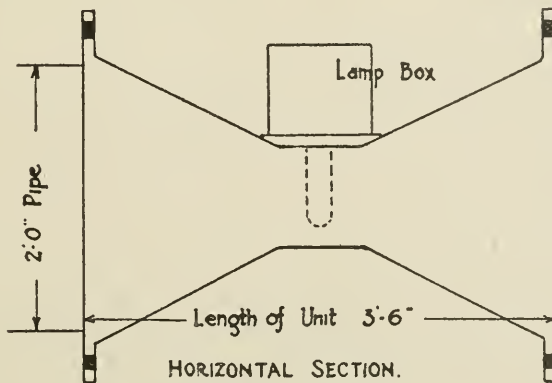


FIG. 9



HORIZONTAL SECTION.

FIG. 10

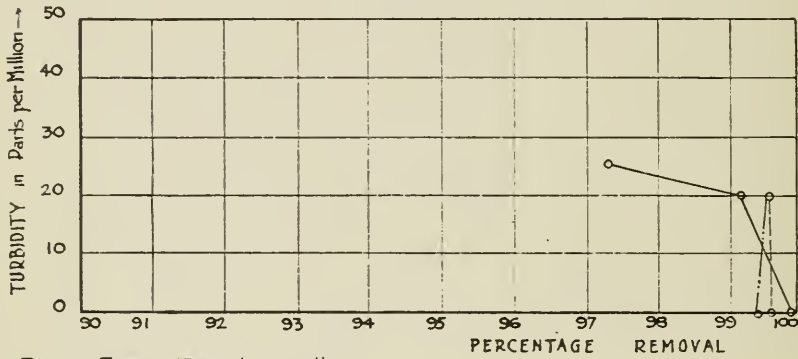
ULTRA VIOLET RAY STERILIZATION

EFFECT OF TURBIDITY ON TREATMENT OF WATER
WITH ULTRA VIOLET RAYS

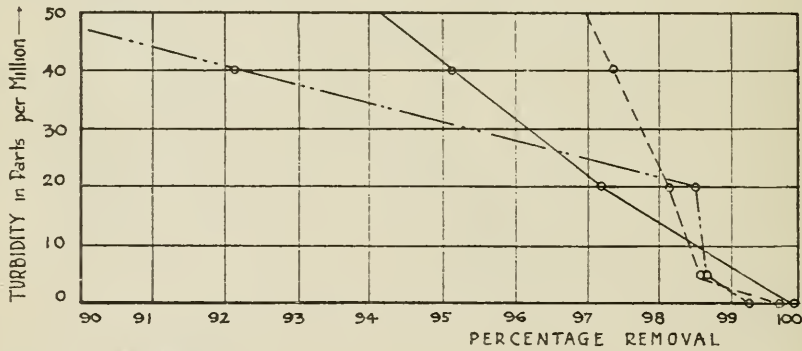
110 VOLT APPARATUS

ORGANISMS COLON GROUP
37°.5C INCUBATION "
18°.22C " " " " " " " "

RATE OF FLOW - 75 Gals Per Hour.

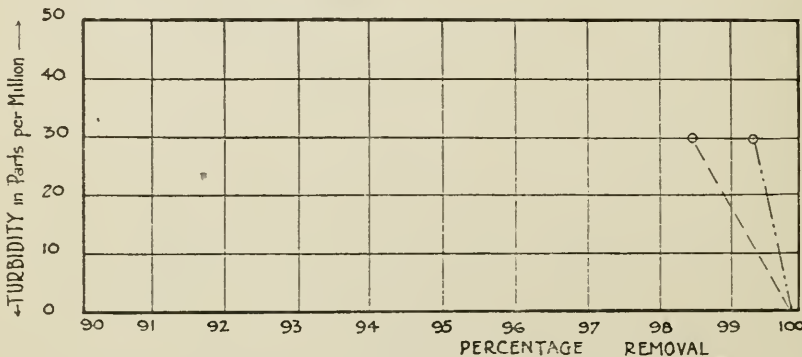


RATE OF FLOW - 150 Gals per Hour



500 VOLT APPARATUS

RATE OF FLOW - 3000 Gals. Per Hour



NOTE
VALUES OBTAINED FROM AVERAGES OF 20 to 110 SAMPLES

FIG. 11.

machines on the same inside line. Machines occasionally get out of order and a fuse will blow out resulting in an interruption of the current. The lamps do not light up automatically, and consequently falling off in disinfection must result.

In most municipal plants, auxiliary lines or storage batteries can be installed, and the unit will consist of several lamps burning at all times, the water passing each lamp in succession. In such an installation the behaviour of one lamp or the going out of a lamp will not affect materially the disinfection going on. Such plants can always be operated under a factor of safety. Overdosing with Ultra-Violet Rays has no such effect as overdosing with chloride of lime, which causes an increase in the objectionable taste and odour.

The design of the tank and lamp box on the experimental D.F. apparatus (Pl. 3) could be modified to advantage.

As regards the tank, the water comes in through a riser pipe, bent to an oval shape, the water discharging against the cylindrical quartz protection tube. It was found a very difficult matter to regulate the flow so as to have an equal velocity through the apparatus on both sides. The riser was made of sheet metal, and irregular in shape. The bottom of the tank being made of thin flexible metal, the centering of the riser was unsteady on account of a springing action. A slight deviation threw the majority of the water to either side of the lamp, thus introducing a possible loss of efficiency. A better arrangement is to introduce the influent through a pipe at the side or bottom and past fixed baffles, similar to the exit.

The ventilation of the lamp box introduced some new trouble. The location of the apparatus was in a particularly dusty part of the plant and the method of ventilation of the lamp box allowed the dust to be carried in. It then circulated into the quartz protection tube carried by the current of air due to the difference in temperature between the lamp itself and the tube. The dust deposited on to the inside surface and in time became dense enough to interfere materially with the action of the rays. Attention was drawn to the accumulation of dust by the decrease in sterilizing power of the lamp. The tube was then removed and cleaned out; at the same time it was found that the tube had been cracked, but whether by a knock administered during the many changes of baffle plates, or whether by temperature extremes, is not known. The tube was replaced after the crack had been repaired and from time to time a piece of absorbent cotton was used to wipe out any dust that had collected there. The only way to guard against this trouble would seem to be the separation of the resistance and the lamp box proper. That is to say that if the source of most of the heat were removed so much ventilation would not be required and the possibility of dust getting in and interfering with the operation would not be so great. Also a fine metal screen might be provided over any ventilation openings in the lamp box.

CHARACTER OF WATER TREATED.

The source and method of addition of pollution, and the nature of the solids (organic, inorganic or colloidal) thus introduced into the water, are all important points which affect the interpretation of the results, and in order to have all information in connection therewith thoroughly understood the case of each installation is taken up separately.

The accompanying diagram (Fig. 1) shows the arrangement of the B2 apparatus in the system. The tap water and the Imhoff Effluent are mixed in the overflow tank A, the quantities being regulated by the valves on the sewage and water pipes, a constant head being kept on the overflow. A mixture of the two

enters the coagulating tank B. The storage was two hours. This tank in turn overflowed to C and D, D being the mechanical filter while C is a slow sand filter to which the mixture was also supplied. The discharge of the mechanical filter was regulated by a float valve keeping a constant head over a standard adjustable orifice. The sterilizer was supplied from a pipe inserted in the effluent pipe of the filter, and was arranged so that it could also be supplied from the raw water in tank C, or with tap water directly from the main by opening valve W and closing valve F to the filter.

Other points marked on the diagram indicate points from which the samples were taken. Thus, when filtered water was being treated, the influent sample from the filter was obtained by immersing a sterile bottle attached to a piece of copper wire into the water and allowing it to fill. The filter effluent, or water going into the sterilizer, was sampled at H by holding a sterile bottle under the stream, the effluent from the sterilizer being sampled similarly at K. When treating tap water, the influent sample was obtained at H as before, an excess of water being allowed to escape here.

Tap water, when used with sewage and turbidity added, passed through tank C, which was converted into a mixing tank, the added turbidity being well stirred into the water by means of a paddle, and the sample taken through a tap placed in the line at C as shown.

The turbidity consisted of a hard, blue clay, free from organic matter. This was pulverized in a mortar and well rubbed up into a smooth paste with a small quantity of water before addition to the tank.

The sewage of Imhoff Effluent used for the pollution of the water was a characteristic type of Toronto city sewage. The storage in the Imhoff tank was not more than 20 mins., and as the sewage is pumped directly from a flowing sewer to the tank, it was in a fresh condition when used.

SUMMARY.

A summary with conclusions arising out of these experiments is now given in order to keep the information under different headings, and in a more accessible form. The manufacturers of the apparatus, the R. U. V. Co., of New York, do not advise the apparatus for use with unfiltered water, requiring a filter effluent or water with zero turbidity and free from suspended matters. Generally speaking if the apparatus were limited in this manner, by being incapable of treating slightly turbid waters, the use of it for water sterilization would be very much restricted. All filter units are liable to break down, and at such a time as when several units are out of commission at once and only part of the supply is filtered, the emergency or follow up treatment must be capable of handling the error, otherwise the system as a whole does not give a safe supply nor meet with the sanitary requirements of a municipality.

Many municipalities, especially those situated on the Great Lakes, have a water supply which is at most times clear, but which on occasion may be subjected to light turbidity due to storm conditions on the lake. The probability of pollution at these times increases, and when a chemical disinfectant is used, great difficulty is experienced in obtaining proper dosage without objectionable taste. Filtration in such a municipality could not be dispensed with unless there were a system of water protection which would be satisfactory in its action during this time of abnormal water conditions. In view of these facts extensive work was done with the R. U. V. apparatus in order to determine the effect of turbidity upon per cent. bacterial removal.

The proportion of work done with filter effluent was small compared with the work done with waters carrying some slight turbidity. There were a few samples taken with the 110-volt installation, when a clear filter effluent alone was used. For the most part the tap water was fairly clear, but owing to the sewage added it was to a certain extent clouded. The turbidity of this class of water in the results with the 500-volt lamp, is under 1 part per million. At times it was slightly over this, but never more than two unless stated. No filter effluent was supplied to the 500-volt apparatus, the supply available not being sufficient for its capacity.

The graphs on Fig. 11 show the effect of turbidity on water treated by the Ultra-Violet Ray up to turbidity according to the American Public Standard of fifty parts per million, the color at the same time being 21. Mr. Geo. C. Whipple states in his figures relative to the Aesthetic Deficiency of Water that when these conditions are encountered, about 55 per cent. of the consumers will object to the quality of the water and that some means has to be adopted to improve the appearance. The Ultra-Violet Ray treatment showed up very satisfactorily for these turbidities. In the small apparatus water with turbidity of 50 was treated, with a consequent reduction of 97.4 per cent. in the 37.5° C. count, and 95.2 per cent. in the Colon. In the large apparatus water with turbidity of 30 was reduced in bacterial count by 94.9 per cent., 91.3 per cent. and 99.46 per cent. in the 18-22 degrees C. count, 37.50 degrees C. count and colon fermentation respectively. It is therefore apparent that irregularities in the action of filter plants by a secondary treatment with U. V. R., (*some such additional protection being a recognized necessity for all filter plants handling seriously polluted waters*) can be well taken care of; also slight irregularities in the condition of raw water supplies can be handled directly by U. V. R. without preliminary filtration.

STEADINESS OF TREATMENT.

The action of the system is entirely due to the production of the rays and the requirements for a constantly good effluent are that the lamp be burning under a constant voltage (10 per cent. reduction allowed), and that the lamp itself is in good condition.

As regards the constant voltage, the experience gained by operating the 500-volt unit on our power line is of interest in relation to the supervision of similar installations and is referred to on page 166.

Such conditions as were encountered during these experiments are disastrous for the use of Ultra-Violet Rays. Anything over a 10 per cent. reduction in voltage brings the operating conditions down to that voltage where the efficiency of the light begins to drop off. This of course is serious when waters of high pollution are being treated, and some means, such as those previously suggested, must be adopted to take care of such irregularities.

The condition of the lamp is a matter hard to determine without bacteriological aid. In the course of the above experiments our lamp was burned continuously for about 800 hours. At this time the bactericidal action (owing to impure mercury used in the manufacture of the lamp) had noticeably decreased, and different agencies were examined such as (1) the possible infection of the outfall chamber, (2) condition of the protection tube and finally, (3) condition of the lamp itself. The condition of the outfall chamber was found to have a slight effect on the 18-22 degrees C. count removal, but did not account for the loss of efficiency in 37.5 degrees C. count and B.Coli removal counts. Some dirt was found lining the protection tube. This was deposited on all sides in considerable

quantity, but chiefly on the upper surface. When this was removed a noticeable improvement was evidenced, but the resulting efficiency was not nearly as high as that obtained in the initial experiments. Consequently, on January 23rd the new lamp was put on and the reduction obtained was again what it had been at the start of the experiments. To check up the work the old lamp was again put on, having burned a total of 790 hours, and some samples were taken with it in place.

TABLE 3.

Date.	No. of samples collected.	Voltage.	Percentage Bacterial Reduction.		
			18-22° C. Count.	37.5° C. Count.	Colon Fermentation.
Results ....Feb. 12	20	370	74.6	74	91
" 17	10	370	49.6	71.2	80.5
Averages			62.1	75.6	85.8

The new lamp was again put on and the rate of flow adjusted the same as in the previous case, the results being as follows:

TABLE 4.

Date.	No. of samples collected.	Voltage.	Percentage Bacterial Reduction.		
			18-22° C. Count.	37.5° C. Count.	Colon Fermentation.
Results ....Feb. 17	10	370	98.9	88.4	93.4

Of course this is on the performance of one lamp only and the average for a number of lamps might be a higher or lower number of burning hours than for this particular lamp. However, the point that is important is not so much the burning of the lamp (since this one is still burning) but the fact that before the lamp is burned out the efficiency is lowered to an appreciable extent, *so that any guarantee covering merely the life of the lamp would not protect the user of same as regards the delivery of a good water*, and bacteriological examinations would be necessary.

The steadiness of the bacteria removal and the constant quality of the effluent is a noticeable feature in the use of the Ultra-Violet Rays. No jumps in the count or lapses in treatment were noticed throughout the experiments. The action is of course entirely due to the production of the rays, and since the lamp is burning under a constant voltage, the conditions governing the production of same do not vary and the resulting action is uniform.

The apparatus is usually designed with a considerable margin of safety and ordinary fluctuations in flow are amply provided for.

OPERATION.

The lighting of the lamp is accomplished by tilting and allowing the metallic mercury to form a contact after which it is allowed to run back into the reservoir, the arc then being carried by the vapour. Having been started, the lamp runs

continuously until its vacuum is destroyed, unless subjected to some of the disturbances mentioned. It is then necessary to replace it with a new one, which is the work of a few moments only. The old one can usually be repaired.

As previously noted the lamps are on a supply of over 375 volts. The lamp can of course be designed for almost any voltage in practice with any given installation where a variation on the line voltage is encountered, in order to protect the lamp against going out, the resistance will have to be adjusted to take care of the highest voltage to be encountered. Consequently with a 10 per cent. variation on a 500-volt line, taking 500 volts as the maximum, the minimum would be 450. If the resistance be so set that at 500 line voltage the lamp voltage is 370, when it drops to 450 the lamp voltage also decreases to about 340. In consequence, with a greater variation than 10 per cent. the lamp voltage would drop so low as to become inefficient in the production of the rays, and this point must be remembered in making installations. Certainly the minimum voltage at which the lamps should be operated is 335.

From this research it is apparent that Ultra-Violet Ray treatment of water can be made a most satisfactory and reliable method of treatment. It offers relief to many municipalities who are now labouring with hypochloride and liquid chlorine plants with a consequent intermittency of treatment and under some conditions very undesirable taste and odour. Overdosing can be carried on with U. V. R. without limit, having no detrimental effect on the water treated, the only governing circumstances being the expenditure of current. The cost is not prohibitive as is shown in the following summary.

Cost.

The matter of cost of operation is one involving two considerations, first the cost of current burned, and second, the maintenance charge on the lamps.

The current consumption of the small lamp is calculated from the voltage of 110 and amperage of 3.4 the running conditions. Thus the power consumption is about 9 kilowatt hours, per 24 hours. However, most lamps of this type will be required only during a 10 hour day, so the current consumption for 10 hours is 3.8 kilowatt hours. The cost current, if purchased on a meter basis, may be easily computed. At Toronto power costs the householder 2.8 cents per k.w. hour, and the cost of operating the B2 for ten hours a day is, therefore, 10½ cents.

The life of the 110-volt lamp has not been obtained from either one in use here. The one experimented with and with which the results were obtained, burned some 1,800 hours, with frequent stops. The duplicate lamp has been run for some 1,400 hours, to time of writing, being still in service, treating filtered water at the Experimental Station, which is supplied to the Parliament Buildings and other Government institutions for drinking purposes. Information was obtainable from Chicago, where a lamp has been in operation for over two years, treating water which is bottled and distributed throughout the city by the "Rayvio" Water Co.

In the case of the 500-volt lamp, the first consideration, that of current consumption, was taken care of as follows. In the first place, in order to make sure at all times what the operating conditions were, a volt meter was inserted connected across the terminals of the lamp, giving the lamp voltage.

An ammeter was also inserted in the power line, so that the current consumption at any time could be determined.

By means of these meters the operating conditions of the lamp could be determined at any time. They were located in an accessible position and after each sample or set of samples were taken, the readings were noted on the same sheet as that on which the results were put down.

Power consumption might be calculated from these meters alone, since the line voltage was obtainable by shutting off the lamp and then closing the circuit but leaving the lamp out. However, the variation in the line voltage was considerable, as has been noted before in the consideration of the operation of the apparatus, and to surmount this a watt meter was put on the circuit in addition, this meter gave the consumption of power directly.

The current consumed in the case of the two different lamps used varied. The first lamp used burned steadily at 2.4 amperes, while the second one burned at 2.8 amperes, the voltage in each case being the same. Thus the power consumption in the case of lamp number one was 30 kilowatts per 24 hours, while in the case of lamp number two it was 34 kilowatts per 24 hours, or, taking an average for the two lamps, the power consumption for the 500-volt lamp is 32 kilowatts per 24 hours.

In the case of a single lamp installation, the operating conditions are not as favorable to the system as when three or four lamps compose the unit, because where as in the case of the single lamp installation the contacts are two in number, in the multiple lamp installation this number is not only increased but the length of time during which the water is subjected to the exposure of the rays is increased.

In treating a filter effluent in a municipal supply, the maximum rate for a highly polluted water would seem to be about 5,000 gals. per hour for a single lamp installation. Where multiple lamp units, however, are employed this rate could be well increased per lamp and for the ordinary municipal plant, when the water is of fair quality and not exceptionally highly polluted, this rate could probably be increased to 10,000 gals. per hour per lamp. Taking this quantity as a basis for calculation, the current consumption per million gallons would be about 130 kilowatt hours.

Most municipalities, especially in Ontario, get their power at a rate well below one cent. per k.w. hour; indeed Toronto and other municipalities in the immediate vicinity of Niagara Falls pay considerably below one-half cent per k.w. hour on their peak load. However, for purposes of easy calculation or deductions from these figures, we will suppose a price of one-half cent. per k.w. hour, which brings the current cost on the 500-volt lamp, operating at the rate of 10,000 gals. per hour, per lamp, to 65c. per million gallons. These assumptions are fairly close figures for municipal installations, a price of \$15 per h.p. year being at the rate of 0.23c. per k.w. hour. Lamp maintenance would seem to be the chief item of cost in the installations. The life history of the two lamps used in the work is given.

Lamp No. 8936 was the one used from the start and up to January 27, when after finding the dust deposit in the protection tube and cleaning same, the results not being as good as obtained at the start of operations, it was replaced with the new one (No. 8935) for a short time and again used for experimental purposes. Up to this time it had burned some 680 hours with the drop of some 30 per cent. in efficiency. Thus when in the first place it was removing an average of 97 per cent. of the organic life at 5,000 gals. per hour, after burning 800 hours the removal had dropped to 67 per cent.

This gradual dropping off of activity was followed up to the time of the conclusion of this report, and the results are found in order on pages 61 and follow-

ing of the appendix. The rate of flow was changed back to 3000 gals. per hour and the comparison will be based on the work done previously at this rate.

Lamp No. 8935 was not burned long enough to check up this work to any extent. However, it indicated the fact that the great activity noted at the start is soon reduced considerably.

In the case of these particular lamps, an explanation has been offered by the R. U. V. Co. for the discoloration of the lamps and consequent falling off in activity. They state that unusual trouble has been encountered with other lamps in the same series from which numbers 8935 and 8936 were taken, in that the quality of the mercury was not good.

This sounds reasonable, in that the trouble comes up rather quickly and gradually increases, the burning conditions remaining constant. For these reasons, either the quartz or mercury would come under suspicion, as were it due to the loss of vacuum, the trouble would have come to a head in a shorter time, and the voltage and current consumption would show a change.

Attention has already been drawn to the fact that the life of a lamp is a difficult matter to determine, since there is no indication beyond the dropping off in bacterial removal to show this deterioration. This information of course is obtained from the experiments with one lamp and does not offer a fair criterion for all lamps. The point is not so much the actual life of the lamp, which is a question which can be settled economically by means of a guarantee, but the fact that before the lamp goes out entirely, it is inefficient in removal of bacteria and that the point at which this takes place is hard to determine.

For cost considerations we can assume that the life of a lamp is 1,000 hours which life can be adjusted by guarantee as previously noted, and with this period of operation the cost per million gallons of lamp maintenance, would be* \$2.20 (assuming removal cost as \$22.00 per lamp). Thus the total cost of treatment is \$2.20 plus 65c. or a total of \$2.85 under the conditions named.

In the matter of treating waters which are turbid or of abnormal character the increase in cost is obtained by multiplying the cost as found per million gallons by the number obtained from the ratio of the rate assumed (10,000 gals. per hour per lamp) by the new rate.

RESULTS WITH 110-VOLT APPARATUS.

In studying the action of the Ultra-Violet Ray efforts were directed towards the study of the experimental apparatus under both normal and abnormal operating conditions. This was done in order to judge as to the application and adaptability of the system to the use of municipalities where the character of the raw water varies considerably from day to day.

In the case of the 110-volt lamp, (being the B2 type of apparatus as manufactured by the R. U. V. Co., of New York), the following table will show the percentage reduction in the bacterial count of a water under different conditions after subjection to the rays.

*The cost of renewing lamps is still not definitely known; this is also true of the life of lamps. The figures are probably high for most installations, and would be considerably modified by any improvement in lamp design.

TABLE 5.

Water treated.	Rate of flow in litres per hour.	Number of samples.	Turbidity parts per mill.	Percentage Bacterial Removal.		
				18-22° C. Count.	37.5° C. Count.	Colon fermentation.
Filter Effluent	300	38	0	99.6	99.58	99.8
" "	500	48	0	99.25	99.71	99.95
Filter effluent and tap water	600	50	5	98.66	98.64	99.23
Tap water and sewage	300	30	20	99.72	99.7	99.17
	300	40	20-25	.....	.....	97.32
	500	140	15-20	98.54	98.16	97.25
	500	20	30-50	92.17	97.38	95.2

The following table shows in detail an analysis of the above summary for the 18-22 degrees C. and 37.5 degrees C. counts per 1 cc. of water, and the B. Coli estimated per 100 c.c., by Phelps' method.

FILTER EFFLUENT—300 LITRES PER HOUR—TURBIDITY 0.

TABLE 6.

(18°-22°C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Counts.						No. of Samples on Average.
		Raw Water Counts.			After Ultra Violet Rays Treatment.			
		Max.	Min.	Ave.	Max.	Min.	Ave.	
July 14.....	99.58	3,500	1,600	2530	26	4	13	10
July 15.....	99.7	4,500	2,200	3010	14	3	9	10
Averages...	99.6	.....	.....	2770	.....	.....	11	10

(37.5°C. Incubation).

July 14.....	99.0	80	45	64	2	0	0.5	10
July 15.....	99.06	80	42	60	2	0	0.4	10
July 18.....	99.73	420	150	330	3	0	0.9	10
Averages...	99.58	.....	.....	151	.....	.....	0.6	.....

(Colon Presumptive Test).

July 14.....	99.74	10,000	100	2710	20	0	7.8	10
July 15.....	99.84	10,000	100	1720	20	2	2.8	10
July 16.....	99.78	10,000	1,000	4375	20	4	.12	10
Averages...	99.8	.....	.....	2935	.....	.....	7.5	.....

It will be observed that any slight contamination of the sample affects the efficiency in a marked fashion, for all raw water counts lower than 1,000 per c.c.

FILTER EFFLUENT—500 LITRES PER HOUR—TURBIDITY 0.

TABLE 7.
(18°-22°C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Counts.						No. of Samples
		Raw Water.			After Ultra Violet Rays.			
		Max.	Min.	Ave.	Max.	Min.	Ave.	
June 19.....	99.3	9,000	2,000	4660	75	15	.33	10
“ 23.....	98	300	80	140	8	0	2.8	10
“ 24.....	99.7	110	60	74	2	0	0.2	10
“ 25.....	99.9	160	60	86	1	0	0.1	10
“ 26.....	98.5	960	50	261	24	0	4.1	10
Averages...	99.35	.....	.....	1088	.....	.....	8.3	.....

(37.5°C. Incubation).

June 19.....	99.5	750	100	232	5	0	1.1	10
“ 23.....	100	60	30	44	0	0	.0	10
“ 24.....	99.5	60	20	40	2	0	0.2	8
“ 25.....	100	80	30	52	0	0	.0	10
“ 26.....	100	120	40	81	0	0	.0	10
Averages...	99.71	.....	.....	92	.....	.....	0.26	.....

(Colon Presumptive Test).

June 19.....	99.93	10,000	100	2710	4	0	2	10
“ 23.....	99.93	10,000	20	1230	2	0	0.8	10
“ 24.....	100	1,000	20	192	0	0	0	8
“ 25.....	99.2	100	4	26	2	0	0.2	10
“ 26.....	99.9	10,000	100	1630	4	0	1.8	10
Averages...	79.95	.....	.....	1200	.....	.....	1.0	.....

The above table shows very nicely the constancy of the bacterial count in the effluent as compared with considerable variations in the quality of the influent, especially so in the case of the 37.5 degrees C. counts and the Colon content. This seems to be a noteworthy feature of the system, namely, that in the case of any slight cause for decrease in the sterilization on the most pronounced change is found in the 18-22 degrees C count. Attention is later drawn to this in the case of the 500-volt lamp, when decreases in voltage effect the results. The B Coli and the blood temperature growing organisms apparently are more susceptible to the rays than the forms growing at a 18-22 degrees C temperatures, and are least effected by a decrease in the quantity of rays. Filter effluents with tap water and turbidity added show very similar results, practically the only change of conditions is the rate of flow.

In the case of tap water with sewage added some new conditions were created, these require consideration. The sewage was so added that it had not the opportunity for sedimentation offered when dealing with the 500-volt lamp, and

consequently numerous particles were visible in the water. The particles were of trade waste and industrial origin, and mostly organic in character. They varied in size from $\frac{1}{2}$ to 3mm. in diameter, and no doubt shielded and incorporated large numbers of bacteria. An irregularity in the sterilization became at once apparent.

TABLE 8.

Tap Water and Sewage—300 Litres per hour—Turbidity 15.

(18°-22°C. Incubation.)

Date.	Bacterial Efficiency.	Bacterial Counts.						Number of Samples
		Raw Water.			After Ultra Violet Rays.			
		Max.	Min.	Average.	Max.	Min.	Ave.	
June 9.....	99.6	250,000	45,000	87,500	1,000	40	419	10
“ 10.....	99.93	600,000	340,000	400,000	1,300	0	267	10
“ 15.....	99.2	350,000	40,000	83,000	4,000	300	700	10
Averages .	99.72	.....	.....	156,830	.....	.....	462	.....

(37.5°C. Incubation.)

June 9.....	99.5	26,000	13,000	21,300	240	34	112	10
“ 10.....	99.86	26,000	24,000	25,000	70	0	35	10
“ 19.....	99.71	8,000	2,000	4,850	20	7	14	10
Averages .	99.7	.....	.....	17,050	.....	.....	54	.....

(Colon Presumptive Test.)

June 9.....	99.4	100,000	1,000	43,300	1,000	100	280	10
“ 10.....	99	100,000	10,000	73,000	1,000	100	730	10
“ 15.....	99.4	100,000	1,000	23,500	1,000	20	150	10
Averages .	99.17	.....	.....	46,600	.....	.....	386	.....

In spite of the presence of these particles and of the turbidity, the reduction effected is very considerable.

At the high rate of 500 litres per hour, and with increased turbidity, the efficiency drops in comparison but still gives promise of applicability to such water.

All health bodies agree that water of such a character should not be used as a source of drinking water supply. The information regarding the treatment of such water may not, however, be without a military significance.

TABLE 9.

Tap Water and Sewage—300 Litres per hour—Turbidity 20.

(18°-22°C. Incubation.)

Date.	Bacterial Efficiency.	Bacterial Counts						Number of Samples
		Raw Water.			After Ultra Violet Rays.			
		Max.	Min.	Average.	Max.	Min.	Ave.	
May 20	96.4	240,000	38,000	168,000	13,000	900	6,060	6
“ 21	99.1	90,000	25,000	46,800	1,500	20	412	16
“ 26	98.7	120,000	24,000	55,800	1,200	260	735	18
“ 27	98.4	45,000	4,000	15,800	400	30	246	10
“ 28	96.8	600	1,000	2,840	360	0	90.5	20
“ 29	99.2	120,000	11,000	50,450	650	130	398	20
June 2	98.2	170,000	90,000	126,660	4,700	800	2,240	20
“ 3	99	300,000	120,000	198,000	5,000	400	2,130	20
Averages .	98.55	.....	.....	38,382	.....	.....	566	.....

(37.5°C. Incubation.)

May 19	98.5	30,000	12,000	15,600	560	160	296	18
“ 20	96.6	34,000	12,000	16,660	600	530	589	6
“ 21	97.9	35,000	6,000	15,600	950	120	336	16
“ 26	98.8	9,000	3,000	4,100	190	0	49	18
“ 27	98.3	7,000	1,000	3,000	250	30	59	10
“ 28	98.7	11,000	300	4,560	120	12	58	20
“ 29	97.8	4,400	800	1,735	150	6	38	20
June 2	99	20,000	5,000	9,600	150	30	89	10
“ 3	98.3	34,000	8,000	20,280	500	130	332	20
Averages .	98.16	.....	.....	4,960	.....	94.5	.....	.....

(Colon Presumptive Test.)

May 20	94.8	100,000	100,000	100,000	10,000	100	5,275	6
“ 21	98.5	1,000,000	100,000	213,000	10,000	100	3,140	16
“ 28	96.5	100,000	1,000	26,000	1,000	100	910	10
“ 29	97	100,000	1,000	19,450	1,000	104	554	20
June 2	94.5	10,000	10,000	10,000	1,000	100	550	10
“ 3	98.1	1,000,000	1,000	113,050	10,000	100	2,170	20
Averages .	97.85	.....	.....	41,800	.....	.....	902	.....

With higher turbidity and still the same rate of flow the effluent counts vary considerably as before. The results are shown in the following table:

TABLE 10.

Tap water and sewage, 500 litres per hour, turbidity 40-50.

18-22°C. Incubation.

Date.	Bacterial efficiency	Bacterial Counts.						No. of Samples
		Raw Water.			After Ultra Violet Rays.			
		Maximum	Minimum	Average	Maximum	Minimum	Average	
July 20.....	94.9	60,000	11,000	40,000	4,800	800	2,060	10
21.....	92	760,000	300,000	406,000	100,000	10,400	32,440	10
Averages.	92.17	.....	.....	223,150	.....	.....	17,250	.....

(37.5°C. Incubation).

July 20.....	96.3	16,000	7,800	10,480	550	240	371	10
Averages.	97.7	110,000	10,000	38,300	1,400	540	900	.....
	97.38	.....	.....	34,390	.....	636	.....	.....

(Colon presumptive test).

July 21.....	96.3	1,000,000	1,000	171,100	10,000	1,000	6,400	10
Averages..	94.7	1,000,000	10,000	361,000	100,000	10,000	19,000	10
	95.2	.....	.....	266,050	.....	.....	12,700	.....

An interesting comparison is obtained by examining the results obtained with the apparatus used for treating the drinking supply for the Parliament Buildings. This lamp is treating ordinary city tap supply, filtered through a slow sand filter. The counts of the tap water are given on page 197 of the appendix. These cover the period of examination of effluents from the filter and Ultra-Violet Ray apparatus combination, the character of this effluent being found on page 195 of the appendix.

Of course the filter is accountable for the removal of a great deal of the organic life, but certainly not all, and the water delivered is absolutely sterile. The rate of flow is 600 litres per hour, the capacity of the apparatus, and the results are particularly interesting to hospitals or to persons interested in obtaining a sterile supply.

RESULTS WITH 500-VOLT LAMP.

The results obtained with the 500-volt lamp require special consideration due to the presence of the dirt in the protection tube found on January 21. This did not accumulate in a short time and consequently the falling off in effectiveness of the lamp was gradual and corresponded to the growth of the accumulation, leading up to the date of discovery. The maximum retarding effect occurred at that time. The results are given in order of date. The above decline in effectiveness is apparent on comparison of percentages.

As in the case of the 110-volt lamp a short table or summary is given showing the average percentage reduction of bacteria growing at 18-22 degrees C, 37.5 degrees C, and of B. Coli. A summary of these results is given in some detail with the maximum and minimum counts set forth and the average reduction in bacteria from day to day. The detail results themselves are to be found in corresponding order in the appendix.

TABLE 11.

Rate of flow in gallons per hour.	Number of Samples.	Turbidity parts per Million.	Voltage.	Percentage Bacterial Removal.		
				18-22° C Count.	37.5° C Count.	Colon fermentation
3,000	40	under 1	350	99.81	99.82	99.88
	20	30	350	99.4	98.5	.....
5,000	65	under 1	350	97	94	97.4
5,000	20	40	350	94.9	91.3	99.46
5,000	20	under 1	325	87.5	75	96.3
7,000	74	under 1	350	96.8	94.4	96.0
7,000	20	10	350	91.8	86.4	97

B. Coli appear to be particularly susceptible to the rays, their reduction is considerably greater under all conditions than is the case of the organisms growing 18-22 degrees C or at 37.5 degrees C temperature. The action of the rays as regards B. Coli appears to be less influenced by any irregularity, including the lowering of the voltage than is the case of the action of the rays on other bacteria.

The turbidity recorded is all due to abnormal conditions of the tap water. No turbidity was added for these experiments as in the case of the 110-volt lamp; bad raw water is responsible for these conditions.

TABLE 12.

Tap water and sewage—3,000 gals. per hour—turbidity less than 1.

(18-22° C. Incubation).

Date.	Bacterial efficiency.	Bacterial Counts.						No. of Samples
		Raw water.			After Ultra Violet Rays.			
		Maximum	Minimum	Average	Maximum	Minimum	Average	
Dec. 21.....	99.99	4,000	2,000	3,050	1	0	0.2	10
23.....	99.99	16,000	1,800	7,850	2	0	0.4	10
Jan. 1.....	99.3	148,000	104,000	126,000	2,400	500	920	10
30.....	99.96	1,600	1,000	1,280	4	0	0.6	10
Averages.	99.81	.....	.....	34,295	.....	.....	230	.....

(37.5°C. Incubation).

Dec. 21.....	99.99	1,600	200	1,020	1	0	0.2	10
23.....	99.99	6,000	1,100	3,450	14	3	87.2	10
Jan. 1.....	99.4	56,000	12,000	39,000	400	180	256	10
3).....	100	800	480	633	0	0	0	10
Averages ..	99.82	.....	.....	11,026	.....	.....	66.1	.....

(Colon).

Dec. 23.....	99.95	100,000	1,000	15,400	20	2	8.4	10
Jan. 1.....	99.72	100,000	100,000	100,000	1,000	100	280	10
30.....	99.96	10,000	1,000	2,800	4	0	1.2	10
Averages ..	99.88	.....	.....	29,550	.....	.....	96.5	.....

In the above records the trouble with the protection tube has not had any material effect, the dirt probably not having accumulated sufficiently by January 1 to make much difference. The removal on January 1 is lower in each case than on December 3 and January 30, before the tube was dirty and after the tube was cleaned, but the difference is very slight.

TABLE 13.

Tap water and sewage—3,000 gallons per hour—Turbidity 30, Color 21.

(18–22° C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Counts.						No. of Samples
		Raw Water.			After Ultra Violet Rays.			
		Maximum.	Minimum.	Average.	Max.	Min.	Aver'g'e.	
Dec. 31	99.6	260,000	180,000	220,000	1,600	240	850	10
.....	99.1	124,000	112,000	118,000	2,000	400	1,276	10
Averages ..	99.4	.....	.....	169,000	.....	.....	1,063	10

(37.5° C. Incubation):

Dec. 31	98.5	80,000	56,000	68,000	1,600	960	1,240	10
.....	98.5	72,000	68,000	70,000	1,120	640	846	10
Averages ..	98.5	.....	.....	69,000	.....	.....	1,043	10

The colon results were not procured in this last set, the pollution being higher than expected.

TABLE 14.

Tap water and sewage—5,000 gallons per hour—Turbidity less than 1.
18–22° C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Counts.						No. of Samples
		Raw Water.			After Ultra Violet Rays.			
		Maximum.	Minimum.	Average.	Max.	Min.	Aver'ge.	
Jan. 4	99.6	4,200	2,200	2,950	160	0	29.7	20
5	97	2,800	100	1,057	140	1	45	15
6	98.1	48,000	20,000	27,000	1,400	100	483	20
20	98.2	600	10	431	1,700	10	555	20
20	92.3	640	50	270	40	0	14.3	20
21	76	2,400	1,200	1,810	560	300	418	10
22	91.9	1,300	100	489	360	0	61.4	10
22	94.6	320	100	166	120	3	60	10
23	90	660	40	184	60	10	23	10
27	99.6	70	50	56	1	0	0.25	4

Averages:—

55 Samples, before Jan. 20—Average reduction	98.6
50 Samples between Jan. 20 and Jan. 22 when protection tube was cleaned	88.8
44 Samples, Jan. 27, after cleaning of tube.....	97.0

TABLE 15.

Tap water and sewage—5,000 gallons per hour—Turbidity less than 1.
(37.5° C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Counts.						No. of Samples
		Raw Water.			After Ultra Violet Rays.			
		Maximum.	Minimum.	Average.	Max.	Min.	Aver'ge.	
Jan. 4	91.6	1,600	800	1,100	240	40	91	20
5	92.2	900	200	600	140	8	47	15
6	91.3	12,800	4,000	8,500	1,120	440	711	20
20	94.6	1,700	10	555	60	28	31.4	20
20	85	600	30	208	40	10	26.9	20
21	91	800	100	570	120	20	50.5	10
22	91.9	1,600	40	421	60	8	29.3	20
22	90	120	30	60	18	2	6	10
23	97.6	120	10	36	4	0	1.2	10
23	100	57	31	40.5	0	0	0	4

Averages:—

55 Samples, before Jan. 20—Average reduction.....	91.8
50 Samples, between Jan. 20 and Jan. 23 when protection tube was cleaned out	90
44 Samples, after Jan. 23 after tube had been cleaned	94

TABLE 16.

Tap Water and Sewage—5,000 Gals. per hour Turbidity less than 1.
(Colon Presumptive Test.)

Date.	Bacterial Efficiency.	Bacterial Counts.						Number of Samples
		Raw Water.			Bacterial Counts.			
		Max.	Min.	Average.	Max.	Min.	Ave.	
Jan. 4.....	98.4	100,000	1,000	52,750	1,000	100	865	20
5.....	96.4	100,000	1,000	67,000	10,070	100	2,380	15
6.....	95.4	100,000	100,000	100,000	10,000	1,000	4,600	20
15.....	96.75	10,000	10,000	10,000	1,000	100	325	20
15.....	98.7	100,000	10,000	55,000	1,000	100	730	10
21.....	58	10,000	1,000	3,700	10,000	100	1,540	10
22.....	96.1	10,000	100	1,180	100	4	46.4	10
22.....	98.1	1,000	100	640	20	4	12	10
27.....	100	1,000	100	775	0	0	0	14

Averages:—

85 Samples before Jan. 20, average reduction	97
10 Samples between Jan. 20 and Jan. 23, when protection tube was cleaned out	58
34 Samples after Jan. 23 after tube had been cleaned.....	97.4

It is noticeable that all the results before cleaning of the protection tube point to the gradual depositing of the dirt. Thus the average reduction before this date is lower than that after the tube was cleaned. It would seem, therefore, that the removal after January 22, is the fair figure for the lamp operating under normal conditions.

TABLE 17.

Tap Water and Sewage—5,000 Gals. per hour—Turbidity 40.
(18–22°C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Counts.						Number of Samples
		Raw Water.			After Ultra Violet Rays.			
		Max.	Min.	Ave.	Max.	Min.	Ave.	
Feb. 3.....	93.75	2,720	960	1,328	200	30	83	10
	97.5	800	360	568	26	5	14.5	10
Averages.	94.9	.....	.....	948	.....	.....	48.6	.....

(37.5°C. Incubation)

Feb. 3.....	98.7	1,040	400	720	105	40	67	10
	93.5	340	60	203	22	6	13.3	10
Averages.	91.3	.....	.....	461	.....	.....	40.1	.....

(Colon.)

Feb. 3.....	99.5	100,000	1,000	35,200	1,000	20	182	10
	99.34	10,000	1,000	5,500	100	20	36	10
	99.46	.....	.....	20,350	.....	.....	109	.....

The turbidity, comparing these results with those of the previous month, has had very little effect on the action of the rays; especially is this noticeable in the colon results.

Voltage variation is an important question and the lower limit for effective production of the rays is about 340 volts on this type of lamp. Anything below this results in a considerable reduction in sterilization, as apparent in the following results. In the above and succeeding table, the voltage was 350; this designated the average voltage at which the lamp was burned, the lower limit being 340 (occasional), while the upper limit was 375. The 40-volt results do not show much variation in activity from that encountered at higher voltage, as seen in the detail sheets for the several samples in the appendix. However, in the table following the samples were taken when the lamp was burning at from 325 to 335 volts, and the falling off in sterilization is considerable, which would go to show that the minimum operating voltage, for the 500-volt lamp is 335 across the terminals, with a safe operating voltage of 350-370.

TABLE 18.

Tap water and sewage—5,000 gals. per hour—turbidity under 1. Voltage 330-340.

(18-22°C. Incubation).

Date.	Bacterial efficiency.	Bacteria Counts.						No. of Samples
		Raw water.			After Ultra Violet Rays.			
		Maximum	Minimum	Average	Maximum	Minimum	Average	
Jan 15.....	89	1,800	600	1,150	240	10	125	20
22.....	84	1,300	40	704	360	44	113	10
23.....	62	400	40	149	80	40	56	.....
Average..	87.5	.....	.....	788	.....	.....	99	.....

(37.5°C. Incubation)

Jan. 15	61	900	400	600	420	80	236	20
22.....	93.6	1,600	300	710	60	20	45.6	20
23.....	96.9	220	80	165	6	.....	4	10
Average..	75	.....	.....	519	.....	.....	130.4	.....

(Colon).

Jan. 15.....	96.3	100,000	10,000	32,500	10,000	100	1,180	20
22.....	97	10,000	1,000	1,900	100	4	55	10
23.....	93.3	1,000	100	212	20	4	14	10
Average..	96.3	.....	.....	16,778	.....	.....	607	.....

TABLE 19.

Tap water and sewage—7,000 gals per hour—turbidity under 1. Voltage 340-350.
18-22° C. Incubation.

Date.	Bacterial efficiency.	Bacterial Counts.						No. of Samples
		Raw water.			After Ultra Violet Rays.			
		Maximum	Minimum	Average	Maximum	Minimum	Average	
Jan. 13.....	97.6	4,500	1,400	3,325	200	40	81	20
13.....	98.4	60	40	50	2	0	0.8	10
14.....	95	5,000	1,400	2,850	280	40	128	20
14.....	96.7	1,500	1,400	1,450	70	20	48	10
29.....	97.4	3,500	1,400	2,320	160	110	61	14
Averages..	96.8	.....	.....	2,310	.....	.....	74	.....

(37.5° C. Incubation).

Jan. 13.....	94.4	11,000	2,400	5,850	750	140	333	20
13.....	94	30	20	25	5	0	1.5	10
14.....	95.3	5,000	1,000	2,300	220	40	108	20
14.....	90	1,000	6,600	800	150	40	83	10
29.....	98.7	1,200	500	851	26	4	11	14
Averages..	94.6	.....	.....	3,480	.....	.....	136	.....

(Colon presumptive test).

Jan. 13.....	88	100,000	10,000	32,500	10,000	100	4,060	20
13.....	94.3	100	100	100	20	0	5.8	10
14.....	93.1	100,000	1,000	30,250	10,000	100	2,170	20
14.....	98.8	100,000	10,000	55,000	1,000	100	640	14
29.....	99.5	10,000	1,000	6,143	100	20	31	14
Averages..	93.1	.....	.....	25,600	.....	.....	1,780	.....

On January 13, for some unaccountable reason, the colon reduction was much less than the average.

Turbidity of ten was encountered during this work, and samples were taken under these conditions.

TABLE 20.

Tap water and sewage—7,000 gals. per hour—turbidity 10. Voltage 350.
(18-22° C. Incubent).

Date.	Bacterial efficiency.	Bacterial Count.						No. of Samples
		Raw water.			After Ultra Violet Rays.			
		Maximum	Minimum	Average	Maximum	Minimum	Average	
Jan. 7.....	91.8	30,000	16,000	22,500	42,000	600	1,850	20

(37.5° C. Incubation).

7.....	86.4	18,000	12,800	14,600	3,600	1,200	1,995	20
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(Colon)

7.....	97	1,000,000	100,000	775,000	100,000	1,000	23,050	20
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On January 18, after the falling off in sterilization had been noticed, an effort was made to determine if the trouble was from an infection of the overflow chamber as shown in the cut of the large apparatus (Pl. 2). Previously to this some very heavily polluted water had been run through the apparatus, the count per c.c., being nearly 1,000,000 and the motion in the overflow chamber being very slight some of the heavier particles might easily have lodged here and influenced the effluent count. A sample was taken before the overflow was reached and an effluent sample taken simultaneously. The results show:

Average of fifteen samples taken January 10.

(18°-22° C INCUBATION.)

Per cent. removal at sampling point before reaching overflow was 91.

Per cent. removal after flowing through effluent pipe 63.

(37.5° C INCUBATION.)

Per cent. removal at sampling point before reaching overflow was 81.

Per cent. removal after flowing through effluent pipe 81.

The result is also shown in table 21 the first line of figures in each case having reference to the effluent obtained by immersion of the sample bottle in the tank, the second line having reference to the count at the regular point of sampling the effluent.

TABLE 21

Tap Water and Sewage—7,000 Gallons per Hour—Turbidity Less Than 1.

(18°-22°C. Incubation).

Date.	Bacterial Efficiency.	Bacterial Count.						No. of Samples
		Raw Water.			After Ultra Violet Rays.			
		Max.	Min.	Ave.	Max.	Min.	Ave.	
Jan. 18	91 62	1,600 Sample at	500 Effluent.	836	120 1,440	15 50	64 374	15 15

(37-5°C. Incubation).

Jan. 18 81	900 Sample at	300 Effluent.	606 180	70 80	119 112	20 20
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In the appendix are the results covering special research as that to determine the progress of the action in the apparatus; see page .

Following these, are the results obtained by changing the baffle openings, and changing the arrangements of the baffles which is mentioned on page , and finally the results in connection with the work on the length of exposure and effective penetration of rays. These are described in detail on page .

BACTERIOLOGICAL TECHNIQUE.

The technique used in planting, preparation of media, sterilization and counting was standard, being in accordance with the "Standard methods of Water Analysis" of the American Public Health Association. Ox-bile lactose sugar broth and saffranin-lactose broth media were both used; comparison of the two with some 40 duplicate samples in 1 cc., 5 cc., 25 cc., and 50 cc. tubes showed little variation. Plain agar-agar media was used instead of gelatine, all counts given both at 18-22 degrees C. and 37.5 degrees C. being made on agar plates. The media was cooled to between 38-41 degrees C. before pouring on the plates. All glassware was sterilized with dry heat between 200 and 230 degrees C. for one hour. Steam under 15 lbs. pressure for 20 minutes was used for the media, every precaution being taken in handling it to minimize the possibility of contamination.

An endeavour was made, by means of proper dilutions, to maintain the plates for both the influent and effluent bacterial counts with less than 250 colonies on them.

Samples of water for turbidity tests were collected in large clear glass Winchesters simultaneously with the samples for bacteriological purposes. A comparison was then had with standard turbidity solutions, put up in similar clear glass bottles made from infusorial earth according to the "Standard Methods of Water Analysis" of the American Public Health Association. A thousand milligrams in one litre of water gives a turbidity 1,000. The comparison was made in good light against a dark background.

The City tap water used in the experiments consisted of water of very good quality. The turbidity and color was at most times 0, although at times of storm conditions on the lake turbidity ranging between 20 to 30 was encountered. The bacteriological count was generally very low, sterile plates for organisms growing both at 18°-22° C. and 37.5° C. temperatures being of frequent occurrence. Most of the city supply is filtered by slow sand filters although some water is by-passed directly from the lake to the mains. All the city water has to be treated with minimum quantities of hypochlorite of lime.

The raw water was of too low a count to use in the experiments, although occasionally high counts and heavy pollution of the supply was noted probably due to a slip in the efficacy of the city chlorinating system.

The excess of chlorine in the tap supply, did not influence the results in one way or the other. The influent sample was collected about thirty minutes after the addition of pollution, the effluent sample being taken at the same time.

EXPERIMENTAL STATION OF THE PROVINCIAL BOARD OF HEALTH OF ONTARIO.
OPERATING DATA.
500-VOLT LAMP ULTRA VIOLET RAY STERILIZATION— $\frac{1}{4}$ " OPENING IN INCLINED BAFFLE.
(Rate of Operation 3,000 Gallons per hour).

EXPERIMENT

Date of Experiment	Hour.	Bacterial Counts,				Colon Bacilli.										Voltage.	Amperage.												
		18°-22° c. count,		37° .5c. count,		0 = Negative Reaction.					+ = Positive Reaction.							Percentage Reduction.											
		Inf.	Eff.	Inf.	Eff.	.00001 cc.	.0001 cc.	.001 cc.	.01 cc.	.1 cc.	1 cc.	5 cc.	25 cc.	50 cc.	1 cc.			.01 cc.	.001 cc.	.0001 cc.	.00001 cc.	1 cc.	5 cc.	25 cc.	50 cc.	18°-22°c.	37° .5c.		
1914 Dec. 23.....	11.00.....	2,200	0	4,000	9	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
	11.05.....	1,800	0	1,200	8	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
	11.15.....	10,000	2	1,100	8	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
	11.30.....	8,000	0	4,200	10	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
1915 Jan. 1.....	3.45.....	11,000	0	5,000	14	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	99.99	99.76	99.95			
	104,000	800	12,000	350	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	370	2.4	
	900	310	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,100	200
Jan. 30.....	600	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	500	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	148,000	600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	700	350	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jan. 30.....	2,800	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	800	500	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	800	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,280	510	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1914 Dec. 31.....	1,000	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,600	0	640	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....
	1,280	0	480	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
	1,150	0	480	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
1914 Dec. 31.....	1,280	0	480	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
	1,440	0	560	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
	1,280	0	640	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
	1,000	0	800	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
1914 Dec. 31.....	1,400	0	640	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....
	380,000	790	36,000	1,280	0	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	99.96	100	99.96	355	2.4
	880	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,280	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1914 Dec. 31.....	600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	180,000	1,600	80,000	1,280	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....	.....	.....
1914 Dec. 31.....	1,100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,040	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1,800	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	112,000	2,000	72,000	720	0	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....	.....	.....

OPERATING DATA.

Date of Experiment	Hour	Bacterial Counts.		Colon Bacilli.		O = Negative Reaction.		Influent.		Effluent.					Percentage Reduction.		Amperage.			
		18°-22° c. count.		37°-5c. count.		0.0001 cc.		.001 cc.		.01 cc.		+ = Positive Reaction.						Volage.		
		Inf.	Eff.	Inf.	Eff.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.			cc.	cc.
1914 Dec. 31				1,760	1,120															
				1,280	1,880															
				1,600	1,130															
				1,280	800															
	5.00	124,000		1,600	68,000															
				1,280	780															
				950	640															
				800	640															
				400	800															
Averages, 99.4 98.5																				

500-VOLT INSTALLATION ULTRA VIOLET RAY STERILIZATION--2" OPENING IN INCLINED BAFFLE. (Rate of Operation 5,000 Gallons per hour).

Date of Experiment	Hour	Bacterial Counts.		Colon Bacilli.		O = Negative Reaction.		Influent.		Effluent.					Percentage Reduction.		Amperage.				
		18°-22° c. count.		37°-5c. count.		0.0001 cc.		.001 cc.		.01 cc.		+ = Positive Reaction.						Volage.			
Inf.	Eff.	Inf.	Eff.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.	cc.					
1914 Jan. 4	3.45	2,400	80	800																	
			120		100																
			160		80																
			40		90																
			60		110																
	4.00	1,200		1,000	30		+														
			0		40																
			80		80																
			0		70																
			10		160																
	4.15	2,200		1,000	40		+														
			0		100																
			10		210																
					80																
					130																
	4.30	3,000		1,600	80		+														
			30		80																
			60		80																
			10		60																
			0		60																
	4.00	1,200		900	120		+														
			140		110																
			130		110																
			60		140																
			60		110																
			110		110																
	11.30	2,800		3,500	430		+														
			320		430																
			400		550																
	12.00	2,600		3,500	430		+														
			320		550																
			320		550																
			180		230																
			200		430																
	2.00	1,500		700	40		+														
			65		40																
			40		50																
Averages, 99.7 92.6 99.1																					

OPERATING DATA.—Continued.

Date of Experiment		Hour.		Bacterial Counts.				Colon Bacilli.										Turbidity.		Percentage Reduction.		Voltage.		Amperage.	
								O = Negative Reaction.					+ = Positive Reaction.												
								Influent.					Effluent.												
	A.M. P.M.	180-220° c. count.	37° .5c. count.	Inf.	Eff.	Inf.	Eff.	.00001 cc.	.0001 cc.	.0001 cc.	.01 cc.	.1 cc.	1 cc.	5 cc.	25 cc.	50 cc.	18°-22° c.	37° .5c.	Colon						
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														
						Influent.					Effluent.														

ULTRA VIOLET RAY STERILIZATION—500-VOLT LAMP—BAFFLE ADJUSTMENT.
(Rate of Operation 3,000 Gallons per hour).

Date	Hour	180-220° c. count.	37° .5c. count.	Inf.	Eff.	Inf.	Eff.	Influent	Effluent	Turbidity	Percentage Reduction	Voltage	Amperage
1914 Jan. 25	4:30	80	3	100	0	1	0	0	0	+	93.4	97.6	97.6
	5:00	80	0	50	0	0	0	0	0	+			
	5:00	240	0	60	0	0	0	0	0	+			
Feb. 5	4:30	130	2	60	0	0	0	0	0	+			
	5:00	4,430	75	420	40	0	0	0	0	+			
	5:00	1,430	160	100	40	0	0	0	0	+			
	5:00	1,730	44	180	9	0	0	0	0	+			
	5:00	560	60	200	14	0	0	0	0	+			
Sample Point Jan. 23	4:30	800	70	520	12	0	0	0	0	+			
	5:00	1,440	70	380	33	0	0	0	0	+			
	5:00	1,440	84	320	25	0	0	0	0	+			
	5:00	60	50	50	2	0	0	0	0	+			
25	4:30	1,000	4	40	0	0	0	0	0	+			
	5:00	1,200	5	100	0	0	0	0	0	+			
	5:00	80	2	50	0	0	0	0	0	+			
	5:00	246	3	60	0	0	0	0	0	+			
	5:00	120	6	60	1	0	0	0	0	+			
Feb. 5	4:30	1,430	70	420	12	0	0	0	0	+			
	5:00	1,430	70	100	11	0	0	0	0	+			
	5:00	730	3	180	7	0	0	0	0	+			
	5:00	560	18	200	5	0	0	0	0	+			
	5:00	800	40	320	8	0	0	0	0	+			
1914 Dec. 24	4:30	1,440	34	520	8	0	0	0	0	+			
	5:00	1,600	30	380	4	0	0	0	0	+			
	5:00	1,440	34	320	4	0	0	0	0	+			
	5:00	1,440	34	320	4	0	0	0	0	+			
1914 Dec. 24	4:30	12,800	24	1,800	5	0	0	0	0	1	99.84	98.7	98.7
	5:00	16	6	60	12	0	0	0	0	+			
	5:00	12	6	30	30	0	0	0	0	+			
	5:00	20	70	30	20	0	0	0	0	+			
	5:00	30	30	20	18	0	0	0	0	+			
	5:00	22	30	18	18	0	0	0	0	+			
	5:00	24	37	18	18	0	0	0	0	+			
	5:00	24	22	24	22	0	0	0	0	+			
	5:00	82	6	1,700	6	0	0	0	0	+			
	5:00	2,100	120	120	4	0	0	0	0	+			
	5:00	350	350	350	350	0	0	0	0	+			

Horizontal Baffles in place.
3 in. Opening in inclined Baffles.

EXPERIMENTAL STATION OF THE PROVINCIAL BOARD OF HEALTH OF ONTARIO.

OPERATING DATA.

ULTRA VIOLET RAY STERILIZATION—500-VOLT LAMP—BAFFLE ADJUSTMENT.

(Rate of Operation 3,000 Gallons per hour).

Date of Experiment	Hour.	Bacterial Counts.			Colon Bacilli.												Percentage Reduction.		Turbidity.	Amplitude.				
		18°-22° c. count.			0 = Negative Reaction.						+ = Positive Reaction.						18°-22° c.	37°-50° c.						
		Inf.	Inf.	Eff.	Indluent.			Effluent.			Indluent.			Effluent.										
1914 Dec. 21	A.M.	110	104	56	.00001 cc.	.00001 cc.	.001 cc.	.01 cc.	.1 cc.	1 cc.	5 cc.	25 cc.	50 cc.	.00001 cc.	.001 cc.	.01 cc.	.1 cc.	1 cc.	5 cc.	25 cc.	50 cc.	80	2.3	
	P.M.	360	120	280																				
		200	180	150																				
		168	120	7																				
		37,000	88	7,000																				
		100	96	40																				
		60	120	28																				
		120	24	104																				
		105	24	22																				
		56	8,400	24																				
		32,000	68	26																				
		72	24	24																				
		68	36	45																				
		64	30	30																				
		80	24	18																				
		64	18	26																				
		48	26	8																				
		64	6	16																				
		180	10,400	16																				
		40,000	88	20																				
		2,000	76	14																				
		88	66	35																				
		32	20	20																				
		36	30	15																				
		30	34	34																				
		10	24	10																				
		28	104	28																				

99.84 99.72 99.84 99.72

EXPERIMENTAL STATION OF THE PROVINCIAL BOARD OF HEALTH OF ONTARIO.
OPERATING DATA.

ULTRA VIOLET RAY STERILIZATION—500-VOLT LAMP—BAFFLE ADJUSTMENT.
(Rate of Operation 3,000 Gallons per hour).

EXPERIMENT

Date of Experiment	Hour.	Bacterial Counts.						Colon Bacilli.										Turbidity.	Percentage Reductivity. 18°-22°c. 37° 5c. Colon Vials.	Amperage.																		
		18°-22° c. count, 37° 5c. count.			Influent.			0 = Negative Reaction.					+ = Positive Reaction.																									
		Inf.	Inf.	Eff.	.00001 cc.	.0001 cc.	.01 cc.	.1 cc.	1 cc.	5 cc.	25 cc.	50 cc.	.00001 cc.	.0001 cc.	.001 cc.	.01 cc.	.1 cc.				1 cc.	5 cc.	25 cc.	50 cc.														
1914 Dec. 26		240,000	6,400	112,000		1,280																	20	360	2-3													
		4,800	3,600			1,600																		360		98.5 98.6												
		1,600	1,600			1,600																		360			99.4 99.4											
		5,200	1,600			1,600																		360				99.4 99.4										
		2,400	1,600			1,600																		360					99.4 99.4									
		3,200	1,600			1,600																		360						99.4 99.4								
		3,200	2,400			2,040																		360							99.4 99.4							
		3,200	2,000			2,000																		360								99.4 99.4						
		6,000	240,000	2,000	136,000	1,000																		360									99.4 99.4					
		2,400	2,160			2,160																		360										99.4 99.4				
		2,400	2,400			2,400																		360											99.4 99.4			
		4,000	2,400			2,400																		360												99.4 99.4		
		4,000	4,000			4,000																		360													99.4 99.4	
		1,200	1,200			700																		360														99.4 99.4
		800	800			500																		360															99.4 99.4

ULTRA VIOLET RAY STERILIZATION—500-VOLT LAMP AFTER BURNING 730 HOURS.
(Rate of Operation 5,000 Gallons per hour).

1915 Feb. 12	4.00	2,240	640	140	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370	1													
		1,600	560	110	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370		1												
	4.10	1,600	600	150	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370			1											
		1,600	610	190	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370				1										
		1,200	480	120	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370					1									
	4.20	1,280	440	160	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370						1								
		1,920	460	240	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370							1							
	4.30	1,600	480	240	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370								1						
		1,900	480	240	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370									1					
	4.40	1,900	640	240	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370										1				
		1,760	480	220	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370											1			
		1,660	320	140	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370												1		
	4.50	1,660	320	140	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370													1	
		1,440	200	140	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	370														1

OPERATING DATA.—Continued.

Date of Experiment	Hour.	Bacterial Counts.		Colon Bacilli.				+ Positive Reaction.				Percentage Reduction.		Voltage.	Amperage.	
		18°-22° c. count, 37° .5c. count.		0 = Negative Reaction.		Influent.		Effluent.		Turbidity.		18°-22° c.	37° .5c.			
		Inf.	Eff.	Inf.	Eff.	.00001 cc.	.0001 cc.	.001 cc.	.01 cc.	1 cc.	5 cc.					25 cc.
Feb. 15	5.00	800	160	30	0	0	0	0	0	0	0	0	0	0	0	0
	5.10	640	80	24	0	0	0	0	0	0	0	0	0	0	0	0
	5.20	1,920	120	140	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	1,380	340	80	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	1,450	220	360	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	900	120	180	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	300	80	220	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	1,000	110	240	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	240	360	112	0	0	0	0	0	0	0	0	0	0	0	0
	5.30	380	300	150	0	0	0	0	0	0	0	0	0	0	0	0
Feb. 17	10.10	400	240	120	0	0	0	0	0	0	0	0	0	0	0	0
	10.10	380	200	230	0	0	0	0	0	0	0	0	0	0	0	0
	10.30	380	110	240	0	0	0	0	0	0	0	0	0	0	0	0
	10.30	1,080	120	320	0	0	0	0	0	0	0	0	0	0	0	0
	11.00	640	480	440	0	0	0	0	0	0	0	0	0	0	0	0
	11.00	460	400	400	0	0	0	0	0	0	0	0	0	0	0	0
	11.10	390	330	640	0	0	0	0	0	0	0	0	0	0	0	0
	11.10	360	400	640	0	0	0	0	0	0	0	0	0	0	0	0
	11.10	360	400	90	0	0	0	0	0	0	0	0	0	0	0	0
	11.10	360	400	90	0	0	0	0	0	0	0	0	0	0	0	0

ULTRA VIOLET RAY STERILIZATION—NEW LAMP AFTER BURNING 210 HOURS.

Date of Experiment	Hour.	18°-22° c. count, 37° .5c. count.	0 = Negative Reaction.	Influent.	Effluent.	Turbidity.	Percentage Reduction.	Voltage.	Amperage.
		Inf. Eff.	Inf. Eff.	.00001 cc. .0001 cc. .001 cc. .01 cc. 1 cc. 5 cc. 25 cc. 50 cc.	.00001 cc. .0001 cc. .001 cc. .01 cc. 1 cc. 5 cc. 25 cc. 50 cc.		18°-22° c. 37° .5c.		
Feb. 17	1.30	720	14	30	0	0	0	0	0
	1.30	720	16	200	0	0	0	0	0
	1.40	600	8	200	0	0	0	0	0
	1.40	240	4	220	0	0	0	0	0
	1.50	120	2	220	0	0	0	0	0
	1.50	640	10	180	0	0	0	0	0
	2.00	1,600	6	280	0	0	0	0	0
	2.00	400	0	260	0	0	0	0	0
	2.10	300	0	220	0	0	0	0	0
	2.10	220	0	260	0	0	0	0	0

ULTRA VIOLET RAY STERILIZATION—LENGTH AND DISTANCE OF EXPOSURE.

Date of Experiment	Hour.	18°-22° c. count, 37° .5c. count.	0 = Negative Reaction.	Influent.	Effluent.	Turbidity.	Percentage Reduction.	Voltage.	Amperage.
		Inf. Eff.	Inf. Eff.	.00001 cc. .0001 cc. .001 cc. .01 cc. 1 cc. 5 cc. 25 cc. 50 cc.	.00001 cc. .0001 cc. .001 cc. .01 cc. 1 cc. 5 cc. 25 cc. 50 cc.		18°-22° c. 37° .5c.		
Jan. 29	11.00	1,560	960	360	0	0	0	0	0
	11.00	1,440	100	720	0	0	0	0	0
	11.00	1,120	170	420	0	0	0	0	0
	11.00	1,000	35	380	0	0	0	0	0
	11.00	1,640	280	60	0	0	0	0	0
	11.00	720	180	80	0	0	0	0	0
	11.00	2,300	40	1,800	0	0	0	0	0
	11.00	1,300	0	1,040	0	0	0	0	0
	11.00	1,600	0	520	0	0	0	0	0
	11.00	1,661	0	50	0	0	0	0	0

OPERATING DATA.—Continued.

Date of Experiment	Hour.	Bacterial Counts.				Colon Bacilli.				+ = Positive Reaction.				Percentage Reduction.		Voltage.	Ampere.				
		18°-22° c. count.		37° .5c. count.		Influent.				Effluent.				Turbidity.							
		Inf.	Eff.	Inf.	Eff.	.00001 cc.	.0001 cc.	.01 cc.	.1 cc.	5 cc.	50 cc.	.00001 cc.	.0001 cc.	.01 cc.	.1 cc.			5 cc.	50 cc.	18°-22° c.	37° .5c.
Mar. 2, 1915	9.50	800	240	800	80	0	0	0	0	0	0	0	0	0	0	0	0	69	82	*89.5	
		1,600	480	800	110	0	0	0	0	0	0	0	0	0	0	0	0				
	10.00	1,440	640	960	110	0	0	0	0	0	0	0	0	0	0	0	0				
		1,440	400	800	160	0	0	0	0	0	0	0	0	0	0	0	0				
	10.10	1,100	560	1,120	140	0	0	0	0	0	0	0	0	0	0	0	0				
		1,440	.....	.....	280	0	0	0	0	0	0	0	0	0	0	0	0				

ULTRA VIOLET RAY STERILIZATION—LAMP No. 8936 AFTER BURNING 920 HOURS.

March 8	9.20	1,600	800	300	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	.....	370	2.2
		1,300	650	350	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
	9.30	1,300	650	240	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
		800	520	260	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
	9.40	650	600	350	260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
		640	480	140	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
	9.50	640	420	180	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
		600	300	240	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
	10.00	480	.....	240	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....
		480	.....	160	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....

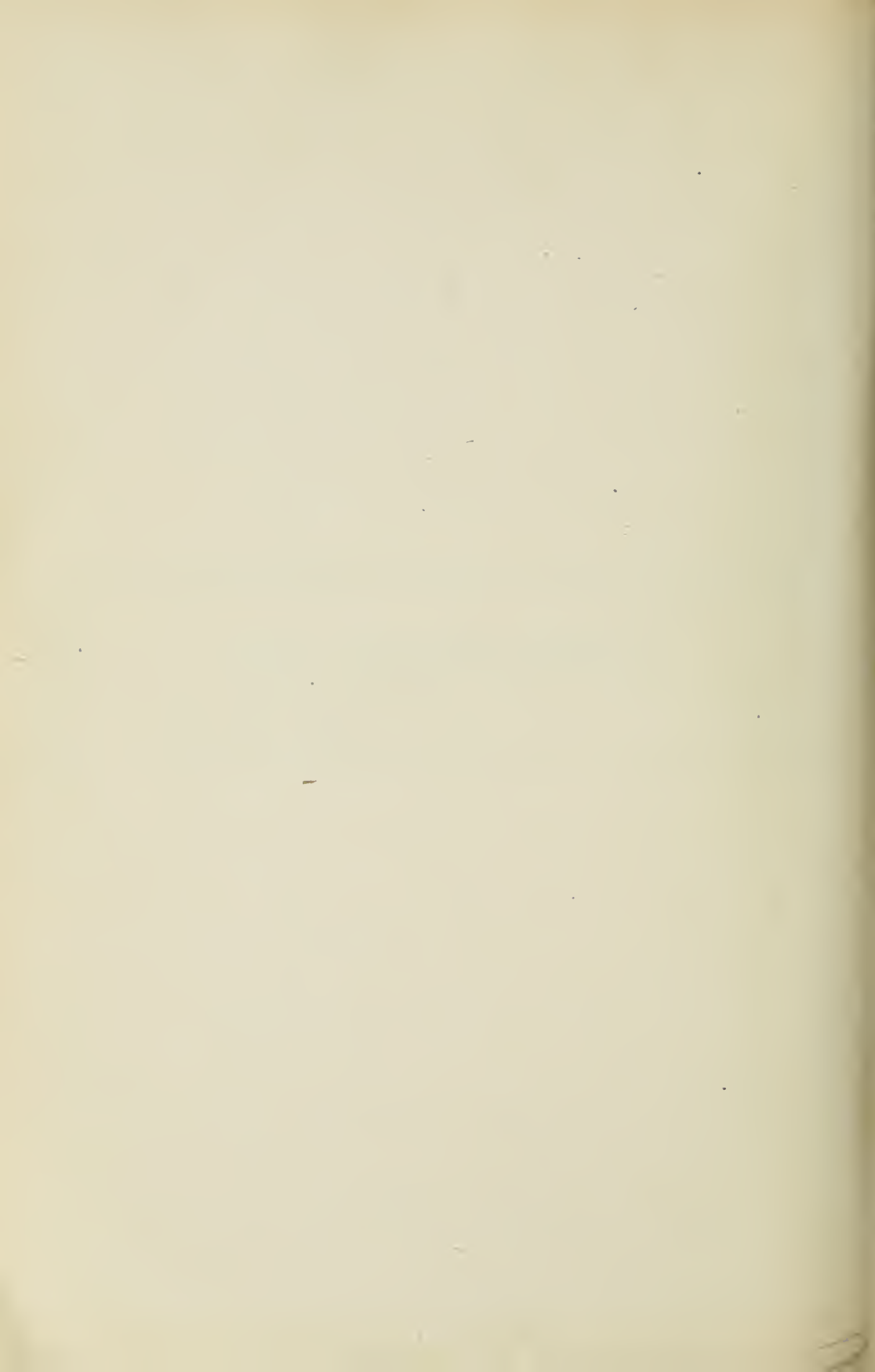
ULTRA VIOLET RAY STERILIZATION—LAMP No. 8936 AFTER BURNING 930 HOURS.

March 9	10.30	640	320	300	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.....	3.70	2.2
		480	260	180	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	10.40	300	180	80	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		200	110	60	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	10.50	180	.....	60	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		1,920	800	800	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	11.00	1,800	1,280	610	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		1,500	800	640	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	11.10	1,200	610	480	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		1,300	600	520	420	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....

ULTRA VIOLET RAY STERILIZATION—LAMP No. 8936 AFTER BURNING 1,000 HOURS.

March 12	11.30	2,560	1,600	960	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.....	370	2.2
		2,400	1,440	960	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	11.40	2,200	1,600	840	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		2,240	1,200	800	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	11.50	1,800	1,800	800	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		2,000	1,920	880	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	12.00	2,200	2,240	960	960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
		2,400	2,300	960	960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	.....	2,400	1,800	880	960	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....
	.....	2,200	2,000	840	880	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.....	.....	.....	.....

APPENDIX "A"



APPENDIX "A"

The reports appearing in this Appendix were received from the Secretaries of the different Local Boards of Health of the cities and towns of the Province of Ontario, in conformity with section 23, ss. 3, of the Public Health Act, and have been edited by the Secretary of the Board.

BERLIN.

DR. JOHN MCGILLAWEE, M.O.H.

I beg to present the Annual Report of the Medical Officer of Health, of the City of Berlin, for the year ending November 15th, 1914.

The subject which has been of the most importance to the Board during the year, and is still the most important, is the presence of *diphtheria* in the city. Previous years we were rid of it for a few months during the summer; but this year we were never quite free from it. Several times we were down to one or two cases, but absolutely no connection between the cases could be traced. The fact that there were cases not reported during the summer was shown by the number of cases which developed directly after the schools were opened. The cases are concealed on account of an aversion to be quarantined, and also to save the expense of a physician. Circulars are being passed around among the people advertising quack nostrums which guarantee "to cure diphtheria and save expense." Expense of course, referring to doctor's bills. If the patient gets well, and many do with no treatment to speak of, nothing is said about it, and the disease is passed on to others who are unfortunate enough to come into contact with the person affected. If the patient does badly, a physician is called, but in many cases it is too late to do any good. I feel convinced, that at least seventy-five per cent. of the lives lost could have been saved by timely treatment. There have been *one hundred and fifty one cases reported* during the year, with *nineteen deaths*. Sixty-three cases have been treated in the Isolation Hospital. We are constantly fighting the disease and doing all in our power to prevent its spread.

We had an epidemic of *measles* during the spring and summer. There were *ninety-three cases* quarantined and the houses disinfected. The fact that measles is contagious at a very early stage, renders it a difficult disease to control. There were no deaths from measles.

There were *fifteen cases of scarlet fever*; five were treated at the Isolation Hospital. *One child died* of a malignant form of scarlet fever. This was an immigrant child who had unquestionably contracted the disease before reaching this city.

There were *three cases of typhoid* of rather a mild type. *No deaths* from typhoid. There were *three cases of smallpox* during the year. By strict quarantining, and by the vaccination of all persons exposed, the disease was confined to the original three cases. Two cases were treated in the smallpox hospital.

There were *thirteen deaths from tuberculosis* during the year.

The quality of the *milk supply* has improved this year. Only in one or two cases has it been necessary to call the attention of a milk dealer to the fact that his milk was below standard. There has been a decided improvement in the cleanliness of the milk. Last year when the filtering test for cleanliness was first applied, some of the samples were decidedly dirty. This year there has been very little cause for complaint, and for the last few months, none. The round of inspection made by the Board to the different byers from which milk is supplied has, I have no doubt, had a beneficial effect.

For the last six months, the *water supply* has come entirely from *artesian wells*. All of which have been tested and found pure.

By co-operation with The Breithaupt Leather Company, we have obtained the sanction of the Provincial Board to turn the effluent from the Breithaupt tannery into the city sewer. Samples of the tanning fluid from the different vats were sent to the Provincial Laboratory for analysis, and the Breithaupt Company constructed settling tanks according to requirements.

The City Council has made a wise and necessary move in taking steps to establish an incinerator for the disposal of the city garbage. The rapid spread of the city in all directions has left no place where garbage can be dumped without creating what is a nuisance to someone.

The many cases of diphtheria and measles which required houses to be placarded and disinfected, and the disinfection of schools, have made the work of the Sanitary Inspector heavy this year.

The thanks of the community are due to you, gentlemen, who, as a Board, so readily responded to the many calls on your time and attention in the interests of the public health during the year.

BRANTFORD.

DR. F. G. E. PEARSON, M.O.H.

The following contains a brief report of the Health Department for the year ending October 31st, 1914.

MORTUARY STATISTICS.

For the period of this report there has been reported with the Registrar, exclusive of still births, in all 301 deaths, using the Assessor's returns which gives the city a population of 26,389. The mortality rate is 11.1 per thousand.

Among the causes of death were the following:

Pneumonia, 28; tuberculosis, 14; typhoid fever, 3; (two of these were from cases included in last year's report); scarlet fever, 1; meningitis, 10; dysentery and summer intestinal diseases, 15.

As to ages there were: Over 80 years, 41; over 60 years, 74; under 1 year, 69; under 5 years, 12.

CONTAGIOUS DISEASES.

For the past twelve months I am pleased to report that there has been a decided decrease in the number of cases of contagion, totalling in all, 79 cases with 2 deaths; this being the lowest in the history of the Department, and as compared with the preceding year in which there were 120 cases, is to my mind a very encouraging report and were comprised as follows:—

Diphtheria.—7 cases with no deaths.

Scarlet Fever.—47 cases with one death. I might here add that for the most part these cases were of very mild type, thus adding to the difficulty in controlling them. As explained in previous reports, we frequently find that the type being so mild, cases are sometimes unnoticed and unreported—thus the infection spreads; whereas, had the proper precautions been taken, the number of cases could have been reduced very considerably.

Typhoid Fever.—There were reported from the city in all 8 cases, with one death, this being a very decided decrease over previous reports, and moreover, I might add that outside infection was largely the cause of this. The general reduction, I believe was largely due to the fact that not only was a strict observation kept upon the milk and water supplies, but there were but few this year who migrated to the summer and pleasure resorts, from which places we have been able to trace, in the past, a great number of our cases of typhoid.

Smallpox.—In the matter of smallpox we had, during the past year, 6 cases with no deaths. In connection with this disease, which we see more frequently developing throughout the Province than some years ago, I feel, as has been explained on different occasions that the municipalities and the School Boards are not living up to regulations in regard to vaccination carried out as evidenced in the freedom of the disease in our recent arrivals from foreign shores and of the freedom of the disease in the armies now in the field, who are all subjected to vaccination; but a short time would elapse until smallpox would again be an unknown disease. Thus I wish to urge upon this Board the necessity of having at least the school regulations carried out that would eventually produce a protection to a very large class of the population.

Measles and Chickenpox, of which the balance of the contagion comprised, were 11 cases with no deaths. I fear that this does not include all of this class, as they

are frequently considered too mild to have the attention of the physician, and thus we get reports only of those who have had medical attention or are located by us in our inspections.

Among recommendations which have been brought to your attention on various occasions is the necessity of proper conveniences in different sections of the city. I am sorry to report that as yet they are urgently required, and more in particular with the accommodation that is provided at the market buildings, which are a standing disgrace, and I feel that if within a proper time limit to remedy this condition, they are not put in proper shape they should be closed, as such an example as the present should not exist while we are encouraging the furtherance of sanitary arrangements in other directions.

GARBAGE SYSTEM.

In connection with the above matter, I feel that the time has now arrived when for the thorough and proper collection of the garbage, the system should be taken over by the Municipality, thus reducing in many ways the cumbersomeness of the details in the workings and from which I feel sure a more effective system could be evolved. These matters I here submit for your consideration.

WILLIAM GLOVER, SANITARY INSPECTOR.

I herewith submit a brief report of the Sanitary Department for the year ending October 31st, 1914.

The contagious diseases reported during the year have been 77, as compared with 127 last year.

Referring to my last report I find that there were *about 100 sewer connections not completed*. At the present time there are about 20 still unfinished.

During the past year I have served 70 notices to make sewer connections; 52 have complied with the order, leaving 18 yet to be completed. The number of sewer connections made during the last year have been fewer than previous years, owing to the general depression, but when conditions improve the work will be continued as before, as nearly every street in the city is provided with sewer mains.

Another matter I wish to refer to is the number of complaints of *stables and chicken houses in the residential sections of the city*. While some of the owners keep their places in a sanitary condition there are others who make no effort whatever to keep their premises sanitary.

Early last spring, in company with Dr. McClenahan, the District Officer of Health, an inspection was made of all laundries, bake shops, public and separate schools. Very little fault could be found with the places visited, and I have continued the inspections up to the present.

I have served 11 notices to abate nuisances. In every case the order has been complied with. In no case have I found it necessary to bring any citizen into court for violation of any of the health regulations.

In previous reports attention was called to the condition of the Market Street Lane. I understand the matter has been taken up by the Board of Works, with the result that as the lane is owned by private citizens, the work cannot be undertaken by the city. The lane was properly cleaned last spring and has been kept in fairly good condition ever since.

I can also report that *the garbage system* is giving general satisfaction. *New wagon boxes* have been provided, and the general appearance much improved.

There has been very little complaint made of the dumps being offensive.

I again wish to call attention to the city providing *public conveniences, not only* at the Market House, but in other parts of the city as well. I don't think this matter should be allowed to drop till something is done.

We have at the present time milk vendors supplying milk to the city. Samples have been collected regularly and the results published in the city papers. The general opinion expressed by many people is that the milk supply is much improved since Dr. Cutcliff was appointed Dairy Inspector.

Referring to our foreign population, I can report that owing to so many being out of work, with no means to provide homes for themselves, many complaints have been made of *overcrowding*. Dr. Pearson and myself made an inspection of a number of the places complained of with the result that 14 dwellings were condemned and

ordered closed as being unfit for habitation; out of that number 6 have complied with the regulations and 8 are still unoccupied up to the present, and one has been torn down. Some of these places were occupied by English speaking people, yet the majority were occupied by foreigners.

In conclusion, I may say that the health regulations have been well observed during the year.

Thanking the Chairman and members for courtesies extended.

CHATHAM.

DR. WM R. HALL, M.O.H.

I herewith submit my annual report for the year ending December 1st, 1914.

Contagious Diseases.—The Public Health Regulations respecting scarlet fever, diphtheria and smallpox are very well observed by the public, because a doctor is called and he helps to enforce them, and as a result we seldom ever have more than one or two cases from each outbreak. With *chickenpox, whooping cough, measles and mumps*, however, it is different; the public regard them as trivial and often do not call a physician, but allow children from the infected house to attend school and infect others, so that outbreaks that might be confined to a single case often become epidemic. For instance the *epidemic of mumps* that has been prevalent here for the last ten weeks or more might have been stopped after one or two cases by a watchful medical school officer; neglect in this regard has cost great suffering on the part of many children and some grown people, as well as loss of time in school and interference with school work, as well as other inconvenience and discomfort in many homes.

Very frequently, at least every year, we have one or more of this quartette of school children's enemies repeating this same kind of work, only too often levying a toll of death.

People refuse to regard these children's diseases seriously. Some say they are mild diseases incident to children and do little harm; others say children have to have children's diseases some time; better let them take these diseases early and have them over with. But children don't have to have these diseases at any time in life, and instead of being the usual thing should be a very unusual occurrence. Again, it is abundantly proven by statistics that the older a child is when stricken by any of these diseases, the better the child is able to withstand its effects and make a complete recovery.

We too often forget that death is not the only bad result from these diseases; almost as bad are the many cases of bad hearing, impaired eyesight, weak heart, tuberculosis, and other defects resulting from them.

The older the child is the better it can resist also the crippling tendencies of children's diseases.

During the year there were *no cases of whooping cough or chickenpox reported*, though many cases of each occurred, but no deaths. Five cases of mumps were reported, but probably the actual number that occurred were over fifty; no deaths.

Twenty-five cases of measles were reported; three deaths. The regulations respecting measles were observed better this year than ever before in Chatham.

There were fifty cases of diphtheria; five deaths.

Three cases of scarlet fever; no deaths.

Two cases of smallpox; no deaths; both brought into the city from outside points. These two cases with two others in a Dover suburb, exposed many of our citizens, so that seven other houses were quarantined and placarded; these precautions with vaccination were probably successful in preventing its spread.

Four cases of consumption were reported; eight deaths.

Twenty-two cases of typhoid fever; no deaths. Six of these cases were positively contracted outside of the city, six from well water in the city, and 10 of the balance cannot be traced. There were no secondary cases. There has been a noticeable improvement in following the regulations respecting the reporting of this disease, as soon as possible after its occurrence, to the M.O.H. By this means the Local Board of Health is able to study the situation and take suitable means to prevent the recurrence of this preventable disease.

Vital Statistics.—Two hundred and twenty-five (225) births.

One hundred and seventeen (117) marriages.

One hundred and seventy-five (175) deaths were registered.

This enumeration does not include all the deaths that occurred in the city hospitals, of people whose residence was outside, nor those who died outside and were interred in our city cemeteries, which would add 51 to this list.

All of which is respectfully submitted,

CITY OF FORT WILLIAM.

DR. E. B. OLIVER, M.O.H.

In accordance with the provisions of the Public Health Act, I beg to submit herewith my Annual Report for the year ending October 31st, 1914.

This has been the most satisfactory year the Department of Health has experienced in the history of the city. Owing to my appointment as whole-time Medical Officer of Health in April I was at once able to enlarge the scope of the Department.

Monthly meetings of the Board of Health were held during the year.

The attendance was as follows: I was present at twelve meetings, Dr. R. J. Manion was present at eight, Mr. C. A. Coslett (Chairman) was present at seven, Mr. Geo. Matthews was present at seven, Mayor S. C. Young was present at six. Acting Mayor Mr. W. K. O'Donnell was present at one and Acting Mayor Mr. H. Murphy was present at one.

One of the things that received my early attention was the inauguration of a Department of Vital Statistics. During the year an international list of causes of death has been kept. This is the first year that this has been done. I have been able too, to devote considerable time to the problem of child welfare. As my report will show, conditions with regard to this Department of the work were never better.

The deaths of infants under one year from cholera-infantum and allied diseases were twenty-five less in number than last year, there being but fifty this year as compared with seventy-five last year.

But perhaps the most noticeable feature in regard to Vital Statistics is the small number of deaths from external violence this year as compared to last year. This year there were eleven. Last year there were fifty-nine. The reason, of course, is the small amount of industrial work, particularly construction, that was carried during the year.

The death rate this year is extremely favorable. The cause is as stated above in the fewer number of infants dying, in the fewer accidents and also because the deaths of those who died outside the Municipality who were non-residents have not been included.

During the year a large addition to the McKellar Hospital has been built. The institution will now accommodate one hundred and fifty-eight patients, viz:

Public Wards	100
Semi-private Wards	18
Private Wards	30
Children's Wards	10
Total	158

The employment of a competent assistant to the Sanitary Inspector resulted in the diminishing of the nuisances that have been for some time a standing menace to the health of the citizens.

Inasmuch as the work of the Cleansing Department is more or less intimately in relation to that of the Department of Health, I beg to call your attention to the following synopsis of a report recently made to the Board of Works by Mr. H. J. Paddington, Superintendent:—

GARBAGE COLLECTION.

This section of the Cleansing Department has been improved considerably during the past year. The whole area of the city has been divided into six collection areas, the garbage from each area being collected on the same day in each week.

Greater advantages would accrue if the by-law concerning the use of covered receptacles was enforced.

(I would draw your attention to this last statement as I have not been able to get the backing of your Board to the extent I could desire in regard to this.)

The incinerator plant has been entirely satisfactory. Since May 1st, all garbage has been disposed of by burning. Five thousand seven hundred and twenty-four tons have been burnt at a cost of 42.4 cents per ton. The quantity burnt is 34.3 tons per day. The capacity of the plant is 50 tons per day. This could be burnt at 29c. per ton.

Attempts have been made this year to dispose of nightsoil by dumping into sewers. It is impossible to use this method as a permanent means of disposal, owing to the presence of cans, clothing, dead fowls, bottles, etc., in the pails.

The evidence plainly shows that the only way to abolish the nightsoil collection is by putting in sanitary sewers. During the past year a considerable amount of sewer construction has been done on various street, but the number of sewer connections is few.

(The report of Mr. Stanley hereto annexed will show that a goodly number of sewer connections were put in by default. It is a matter for regret that the Board of Works found it necessary to curtail this work this year. I trust next year will see three times as many installations.)

The employment of an assistant left Mr. Stanley free to devote his entire time to the Food and Dairy Inspection. This has resulted in a great improvement in the condition of the dairies, and therefore in the quality of the milk sold. It also allowed Mr. Stanley time to collect an additional number of milk samples for analysis. Thus, I was able to keep more strict supervision over the milk sold.

During the summer in company with Mr. Stanley I visited with two exceptions the farm of every country producer of milk for city consumption. There is on file in this Department a complete description of every barn, showing the construction, area, ventilation, water supply, etc.

Our new Milk By-law was put in operation on June 1st, 1914. Some of its provisions resulted in a little ill-feeling among the farmers. But a meeting of the Oliver Dairymen's Association was called at Murillo, and Mr. Stanley and I went out and talked matters over with the members of the Association and now a better feeling prevails. All we ask of the farmer is that he send us clean milk. This he must do, and now generally does. We try by educative measures to have him improve his barn, yard, etc.

The report of the Isolation Hospital is very satisfactory. I would draw your attention to the low rate of cost per patient per day. As the population increases this will keep on getting less. All the vegetables used at the hospital, including the potatoes, are grown on the hospital grounds. Some few were sold. The caretaker, pl. Foreman, took second prize for his potatoes at the fall fair.

REPORT RE COMMUNICABLE DISEASES.

SMALLPOX.

We were fortunate in that we had not a single case of smallpox with which to deal this year. This repeats our experience for the year 1912. The following are our statistics for the last five years:

Year.	Cases.	Deaths.
1910	0	0
1911	15	0
1912.	0	0
1913	11	0
1914	0	0

SCARLET FEVER.

There were two and a half times as many cases of scarlet fever this year as last. An epidemic seems to have prevailed throughout the country during the early part of the year. The cases were for the most part mild, there being but two deaths.

The following are statistics for the last five years:

Year.	Cases.	Deaths.
1910	38	0
1911	28	0
1912	12	0
1913	45	1
1914	110	2

DIPHTHERIA.

This is always a distressing disease. The onset is often very sudden. There were twenty-four cases reported during the year, compared with nineteen in 1913. The deaths were the same, viz., two. The deaths that occurred this year were both in cases that were beyond help when seen by the physician. They died within a few hours in spite of the use of antitoxin and intubation.

During the year the Provincial Board of Health commenced the manufacture of antitoxin at the University of Toronto. The Board supplies it at less cost than we were formerly paying. It is furnished free by the Local Board of Health to those unable to pay. During the year four hundred and four thousand units of antitoxin were used. Two hundred and two thousand were used at the Isolation Hospital and two hundred and thirty-eight thousand were distributed from the City Hall office.

Statistics for the last five years are as follows:

Year.	Cases.	Deaths.
1910	10	3
1911	8	0
1912	12	0
1913	19	2
1914	24	2

MEASLES.

This disease is ever present with us. There was not a month during the year that we were entirely free, though we did get down to one case in August. There were in all two hundred and seventy-nine cases during the year with one death. This was nearly double the number of cases we had last year.

One might naturally ask why measles is always so prevalent. The answer is that it is infectious for several days before a diagnosis can be made. In fact, a physician is rarely called until the rash appears, which is two or three days from the original date of infectivity. *The best place to check an epidemic of this disease is in the schools, by having daily examination of the scholars by the teachers or nurses for the prodromal symptoms, which are quite marked.*

Statistics for this disease for the last five years are as follows:

Year.	Cases.	Deaths.
1910	198	7
1911	17	0
1912	98	0
1913	144	0
1914	279	1

TYPHOID FEVER.

Of our record in regard to this disease this year we may be justly proud. Not only has there been actually fewer cases than in any other year, but with our constantly increasing population our rate is very low. There were eighteen city cases and seventeen imported cases. Strangely the death rate in city cases was much higher than in the imported cases. Of the city cases four died, giving a death rate of 22 per cent. Of the imported cases but one died, giving a death rate of 5.8 per cent.

Statistics for the last five years are as follows:

Year.	Cases.	Deaths.
1910	88	12
1912	63	6
1912	48	6
1913	80	5
1914	18	4

This does not include the imported cases which in former years were always included in the total number of cases. With the imported cases added this year there would be *thirty-five cases with five deaths.*

CHICKENPOX.

There were fifty-two cases of this disease reported during the year and no deaths. The chief importance that one attaches to chickenpox is that at times it might be confused with smallpox. The reporting of these cases is a hopeful sign. In years past statistics would almost show that we had no chickenpox. That can hardly be so. There is but one inference, viz., that it is being reported now.

Statistics for the last five years are as follows:

Year.	Cases.	Deaths.
1910	0	0
1911	3	0
1912	17	0
1913	19	0
1914	52	0

WHOOPIING COUGH.

No cases of this disease were reported this year. One death occurred from the disease in October.

There has always been trouble in getting cases of this disease reported. I have had a talk with many of the physicians in regard to this matter. The excuse is that they are unable to make a diagnosis in many cases. But it will be noticed that the death is often certified to though no report has been made of the case.

It is important that cases of this disease be reported for the death rate is generally high.

Statistics for the last five years are as follows:

Year.	Cases.	Deaths.
1910	0	0
1911	1	4
1912	4	8
1913	1	3
1914	0	1

ERYSIPELAS.

The question of the care of patients with this infection has come to be of importance, owing to the controversy as to whether they should be treated in the General Hospital or in the Isolation Hospital.

That the care of these cases be important is shown by the high mortality. During the year there were eleven cases with four deaths. No statistics are available for former years.

MUMPS.

Three cases were reported with no deaths. This is quite a contrast to the sixty cases last year.

TUBERCULOSIS.

There were seventeen cases of tuberculosis of the lungs reported, with eleven deaths. The death rate of tuberculosis is the highest of infectious diseases. There is great cause for encouragement in regard to the care and treatment of these cases in our midst. As the statistics which follow show, the co-operation of the physicians is increasing. As late as two years ago cases were rarely reported. In fact, this is the first year in which the number of cases reported has exceeded the number of deaths.

There is a fairly active anti-tuberculosis society here and it has been able to be of some assistance to the sufferers of this disease. The importance of notification is, therefore, great.

The co-operation of Mr. Blain has been helpful in the care of those cases.

I wish to again put myself on record as to the need of a Tuberculosis Sanatorium in this district. I think the districts of Thunder Bay, Rainy River, Kenora and Patricia should unite in the erection of a sanatorium.

This matter should be taken in hand at once and should it be found impossible or unadvisable to join with the above municipalities, the City of Fort William should undertake the matter itself.

The McKellar Hospital has cared for a number of patients during the year, and has done it well. But nothing can replace a sanatorium devoted entirely to the treatment of tubercular patients alone.

Statistics for the last five years are as follows:

Year.	Cases.	Deaths.
1910	0	21
1911	0	19
1912	0	13
1913	12	19
1914	17	11

DISINFECTION.

This has been in the hands of the Sanitary Inspector and Assistant Sanitary Inspector, the details of which work will be found in their reports.

INSPECTION OF SCHOOLS.

Throughout the year a nurse has been employed by the School Board. Half-time was given to the work from November to June. Commencing with October, the nurse gives her whole time to the work. Miss K. Spearing, formerly on the staff of this department is in charge of the work. Her co-operation has been helpful, particularly in the controlling of infectious diseases among school children.

A Dental Society has been formed in this city. The Society has a proposition for the dental inspection of school children. I would be pleased to see the school board avail itself of the generous offer of the dental fraternity.

MEDICAL RELIEF WORK.

During the year relief was afforded to ninety-nine cases. One hundred and fifteen visits were made, and fourteen consultations were held at the office. Four obstetric cases were conducted.

LABORATORY REPORT.

Samples of milk tested	433
Diphtheria swabs examined	38
Sputum examinations	5
Total	476

This is seventy-four more than last year. By comparing the record of 1911, when out of 148 samples of milk tested, fourteen were below legal requirement for fat content with the present, when out of 433 tests but three were below standard, one can see the improvement.

This has been brought about by the addition of a man to the staff, enabling the Food and Dairy Inspector to devote his whole time to that branch of the work.

The citizens are now receiving a good quality of raw milk.

One of the dairymen has put in a two hundred gallon capacity pasteurizing plant during the past year.

FOOD AND DAIRY DIVISION.

The report of the Food and Dairy Inspector follows. Part of the time there was no assistant to act as Infectious Diseases and Nuisance Inspector, so Mr. Stanley reports also on these divisions for some months.

REPORT OF THE SANITARY INSPECTOR.

DEAR SIR:—

I beg to submit by annual report for the year ending October 31st. 1914.

NUISANCES.

For the months of November and December, 1913, and January, February and March, 1914, during which time I was the only Sanitary Inspector, I gave one hundred and ninety-eight verbal notices in regard to nuisances, and one hundred and thirty-seven written notices as follows:

Unsanitary premises.	Accumulations of manure.	Offensive privies.	Garbage nuisance.	Plumbing defects.	Other nuisances.	Total No. Inspections.
13	8	15	25	18	56	137

In connection with notices served for the abatement of nuisances, etc., sixteen cases were taken before the Police Magistrate. Eleven were for nuisances, one for infringement of plumbing by-law, and four under the milk by-law. The total amount of fines was forty-one (\$41.00) dollars. The results from police court prosecutions are far from satisfactory.

INFECTIOUS DISEASES.

In connection with infectious diseases, the winter months were busy ones, measles and scarlet fever being very prevalent. Six hundred and twenty-two visits were made in this connection and forty-nine houses were fumigated. Drew Street school was also fumigated throughout.

DAIRIES AND COWBARNs.

More attention has been given to this branch of sanitation since an assistant Sanitary Inspector was appointed. Constant supervision has had a marked effect upon the supply of milk in the way of fat content and cleanliness. All cowsheds and dairies within the city limits and those on the outskirts are regularly inspected.

Eleven hundred and fifty inspections were made and four hundred and sixty-two samples of milk were taken for examination. Periodical tests were also made at the railway depots and dairies for dirt and temperature. Two hundred and eleven gallons of milk and cream were destroyed for being excessively dirty and for extreme temperature. Thirty-three licenses were issued during the year to milk vendors. Much improvement has been made in the class of vehicle used for peddling milk.

Good progress has been made in eliminating the old class of milkhouse and cowbarn. Almost without exception, they are now in first class condition. There are over a hundred people with one or two cows, who sell milk in small quantities, and it is a most difficult thing to get them to observe the by-laws. They state they only keep a cow for their own milk supply, and it is a most difficult thing to detect them actually selling. However, every effort is being made to have these cowbarns made sanitary.

During the summer, inspection was made of all the outside dairies (with few exceptions) sending milk into the city. With the exception of three or four they all leave much to be desired. The cowbarns are badly paved, lighted and ventilated. In some instances the milk was cooled on ice, but generally in running streams or wells. The contrast between the milk produced in the city and outside is most marked as regards cleanliness. This is not to be wondered at, considering the condition of the barns.

There is, however, a tendency on the part of the milk producers to improve their buildings, and in time, no doubt, with encouragement and advice, they will equal the conditions of the city.

In company with the Medical Officer of Health, I attended a meeting of dairy farmers of Murillo and district. There the matter of milk production was gone into. This meeting was of mutual advantage.

RESTAURANTS.

There are twenty-five licensed restaurants in the city. These are periodically inspected and, generally speaking, are kept in a first-class condition. An understanding was come to with the police authorities and this department that no license should be granted or renewed without a sanitary certificate. But this has been more honored in the breach than in the observance, which is to be regretted, as the threat of withholding a license was sufficient to get any required work done without more trouble.

PLUMBING INSTALLATIONS.

During the year one hundred notices were served for the installation of plumbing. This is a much less number than was at first projected; but owing to the financial situation, the service of notices was discontinued by order of the Council.

The small class of house was not dealt with, but something should be done with those as well as the larger class of house. In most cases there are as many inmates in the small house as in the large ones, and the nuisance, therefore, just as great.

Two blocks in particular have given a great deal of trouble. Nothing would induce the owners to comply with the notices. A way out, however, was found by placarding the house as unfit for occupancy, as they were vacated. By doing this the owners were at once compelled to put in plumbing. Most of the larger houses in the north end of the city on sewer lines have now had plumbing put in, and it is hoped that the west end will be taken in hand next year if the financial situation is favorable.

The following table shows the amount of work carried out.

SUMMARY OF PLUMBING INSTALLATIONS.

Number of notices served.	Request to the city to do work.	Number of premises with plumbing installed.
110	73	103

STORES.

All stores are inspected at frequent intervals including the cold storage warehouses. Generally speaking, not much fault can be found with the meat supply. With little exception, the supply is chiefly from the cold storage, very little being slaughtered in the city. The two abattoirs are used by Jews for the supply of the Jewish people. They are kept in fair condition. A little fresh meat is sold in the market twice a week. This is brought in by farmers and is of fair quality. One thousand six hundred and twenty-two pounds of various meats were destroyed during the year.

The following inspections were made:

Butcher stores	530
Grocer stores	228
Bakeries	144
Fruiterers	215
Ice cream parlors and candy kitchens	205
Restaurants and hotels	588
Total	1,910

During the year I made the following reports:

Sanitary conditions of manual training quarters at Central School, scavenging, plumbing installations, baker stores, butcher stores, restaurants, cow barns and dairies.

WALTER E. STANLEY,

Sanitary Inspector.

REPORT OF ASSISTANT SANITARY INSPECTOR.

DEAR SIR:—

I beg to submit my report for seven months ending October 31st, 1914.

Infectious Diseases.

Residences inspected and fumigated in which there had been:	
Scarlet fever	65
Diphtheria (including one suspect)	10
	75
Total	75

Total cubic capacity fumigated 314,303 feet.

Forty residences were placarded in which cases of measles had developed.

All quarantined houses are inspected at irregular intervals, a total of three hundred and eleven inspections being made in the seven months covered by this report, besides some periods of several days which were entirely taken up with this work.

Several inspections were made of premises at which there were notifiable diseases which are not placarded.

Two cases of quarantine breaking were taken into court, one party received a caution only from the Magistrate, while the other drew a fine of ten (\$10.00) dollars and costs.

On two occasions, people who were found visiting quarantined premises were themselves quarantined.

As far as nuisance inspection is concerned in this city, with its great proportion of foreign population, the endeavor has been to obtain satisfactory results in the first place, by explaining the necessity of the requirements. This, combined with the power of the law, generally has the desired effect. In some cases the police Magistrate was requested to sign warning notices. Police court proceedings are resorted to only when persuasive methods have failed, or appear to be unnecessary.

The want of proper garbage receptacles in parts of the city causes the lanes to be more unsightly and unsanitary than they should be. Those parts of the city where the greater proportion of overcrowding exists, provide as much or more refuse per household than any other.

Generally speaking, stable manure is well taken care of, covered manure boxes being required as part of every livery or other stable. Some difficulty, however, is caused when, through carelessness, covers are not used.

Periodical inspections are made to premises throughout the city, all sections being covered. Interior house-to-house inspections have not been undertaken. Whenever complaint is made, or exterior conditions are unsatisfactory, the interior of the house will also come in for a thorough and systematic inspection from basement to roof.

Much progress could be made if householders would give some attention to privy buildings. Instead of endeavoring to keep in a slightly and sanitary state, many property owners appear to think that it is unwarranted interference on the part of the Sanitary Inspector, to bring any required improvements in this direction to his notice.

If tenants and property owners would co-operate with the Health Department in maintaining privies in a cleanly condition and good repair, it would greatly help to abate the fly nuisance, to say nothing of improving the condition of the lanes.

Taken on the whole, houses are found to be clean. The chief nuisance so far as human habitations are concerned, are caused by bad ventilation, overcrowding, and dilapidated or filthy privies.

The following notices were served in connection with nuisances caused by:

Filthy or dilapidated privies	212
Domestic animals	16
Unsanitary manure boxes	93
Offensive garbage receptacles	14
Accumulations of refuse	98
Accumulations of manure	103
Unsanitary premises	45
Unsanitary yards	33
Workmen's privies	9
Defective W.S.'s. or connections	33
Other matters	42
	698

Other notices were served requiring the

Provision of manure boxes	43
Provision of garbage receptacles	69
Removal of old privy buildings	41
Provision of new privies	6
	159

Letters to the number of twenty-six signed by the Police Magistrate, were sent as a final warning, which in many cases made it unnecessary to take further proceedings. In connection with nuisances it was, however, necessary to take police proceedings in ten cases.

Number charged with having:

Dilapidated privies	3
Accumulations of manure	2
Accumulations of refuse	3
Offensive garbage receptacles	1
Domestic animals in unsanitary state	1
Total	10

O. T. DIGBY,
Assistant Sanitary Inspector.

CHILD WELFARE.

The work in this Department may be divided into three parts as follows:

Firstly—From November, 1913, to June, 1914, during which time a nurse was employed, giving her afternoons only to the work, the forenoons being given to the school work.

Secondly—The months of July and August, during most of which time two nurses were constantly on the work.

Thirdly—The month of September, when one whole-time nurse was employed.

During the month of October we were without a nurse.

For the months of November, 1913, to February, 1914, Miss Minnie McKay was in charge of the work. From March to June, Miss Katherine Spearing was in charge of the work alone. Miss F. K. Fisher assisted Miss Spearing during part of July, and all of August, and continued in charge of the work during September.

The following is a detailed report of the work done during the year.

No. of visits made.	New babes visited.	Br. fed.	Mod. milk.	Cons. milk.	Patent foods.	
November	120	65	48	7	3	7
December.....	99	60	48	9	0	3
January	91	59	52	5	1	1
February.....	90	49	45	3	1	0
March.....	100	52	46	5	0	1
April	119	82	61	20	0	1
May	123	77	71	4	0	2
June.....	136	74	71	2	0	1
July.....	484	106	103	1	1	1
Aug.....	690	317	297	10	5	5
Sept	282	82	72	6	1	5
	2,334	1,023	914	72	12	27

The total number of visits made by the nurses was 2,334. The cost per visit was 34c., made up as follows:

Salary of nurse, November—June	\$400 00
Car fare	18 00
Salary, July	87 50
Salary, August	150 00
Car fare, July and August	8 50
Salary, September	75 00
Car fare, September	3 00
Auto service	50 00
	\$792 00

During July and August the cost per visit was 21.6c.

The total cost of the Department was \$804.00, the additional \$12.00 over and above the preceding total being for ice boxes.

Twelve tests of mother's milk were made during the year.

Several reports of existing nuisances were made by the visiting nurses. They were of assistance to the Sanitary Inspector's Department in this way.

I made an inquiry into the food supplied twenty-four infants who died in July and August from Ileo-Colitis, Gastro-Enteritis and Diarrhoea. The infants were fed as follows:—

Canned milk	11
Cow's milk	9
Breast milk	3
Breast and cow's milk	1
Total	24

I also made an investigation to ascertain the nationality of the infants dying in July, of the above causes. I found that of the thirteen that died, no less than twelve were children of "foreigners," that is, non-English speaking people.

I have no hesitancy in saying that had we been able to take these twelve from their surroundings, one-half of them could have been saved. The nurses report that in many cases the parents seemed too lazy to care for the ice boxes which were supplied free of cost.

When one remembers that only twenty-five per cent. of our population is "foreign," one can realize the enormous infantile death rate among these people, and realize also what a low infantile death rate we would have were it not for the "foreigner,"

The citizens generally, and some in particular, were of great assistance to us in this work. Special mention is due Mr. Frank Blain, the Relief Officer, for the assistance he always gave when food supplies were necessary.

The Metropolitan Life Insurance Company, through the local Superintendent, Mr. H. A. Miller, has furnished us with a large quantity of literature which has been very helpful.

In conclusion, I will say that the demonstrations of the proper preparation and care of milk for the infants are bound to be of service in increasing the knowledge and so help in lessening mortality next year.

REPORT OF SUPERINTENDENT OF ISOLATION HOSPITAL.

I beg to submit herewith the report of the Isolation Hospital for the year ending October 31st, 1914.

The following patients were admitted:

Scarlet fever	68
Scarlet fever (suspects)	2
Diphtheria	12
Diphtheria (suspects)	1
Measles	5

Total number of patients admitted

88

The number of nursing days was as follows:

Scarlet fever days	2,392
Scarlet fever (suspect days)	13
Diphtheria, days	128
Diphtheria (suspect, days)	6
Measles, days	40
Total number of hospital days	2,579
Antitoxin used	201,000 units

Operations.

Mastoidectomy	1
Intubation	3
Tympanectomy	3
Total number of operations	7

There were three deaths, two from scarlet fever and one from diphtheria. One of the patients that died from scarlet fever was the one on which the mastoidectomy had been performed. The child had been in but three days, having been ill at home some time previous. The patient that died from diphtheria was an adult, aged twenty years. She was admitted at noon in a collapsed condition. A tracheotomy was done, but she died in a few hours.

Respectfully submitted,

M. E. DUNCAN, *Supt.*

ISOLATION HOSPITAL ACCOUNTS.

Maintenance account	\$1,483 56
Salary of Superintendent	835 00
Salary of Assistant Nurses	513 96
Salary of Janitor	480 00
Laundry	120 00
Insurance	29 00
Antitoxin, etc.	173 05
	<hr/>
	\$3,634 57

Credits.

Total collection, Isolation Hospital:	
Accounts	\$465 55
Sundry Collections	12 60
	<hr/>
Total credits	\$478 15
	<hr/>
Net cost	\$3,156 42
Number of hospital days	2,579
Average cost per patient per day	\$1.41

VITAL STATISTICS.

November, 1913—October, 1914.

Estimated population	27,000
Death rate per 1,000 population (including 253 residents, 52 non-residents, and 49 still births)	13.11
Birth rate per 1,000 population (excluding still births)	34.96
Infant mortality rate per 1,000 births	116.80
Percentage of decedents under one year to total mortality (excluding still births)	29.96

RATES PER 100,000 POPULATION.

Typhoid fever	case rate	66.6
Typhoid fever	death rate†	14.8
Scarlet fever	case rate	385.0
Scarlet fever	death rate‡	7.4
Measles	case rate	1,003.3
Measles	death rate	3.7
Diphtheria	case rate	88.8
Diphtheria	death rate	7.4
Erysipelas	case rate	40.7
Erysipelas	death rate	14.8
Tuberculosis of the lungs	case rate	62.9
Tuberculosis of the lungs	death rate	40.7

† This does not include seventeen imported cases with one death.

‡ This does not include six imported cases with no deaths.

Births Registered in the City of Fort William for the Year ending October 31st, 1914.

—	Males.	Females.	Total.	Twins.
1913				
November	41	33	74	1
December	40	39	79	1
1914				
January	44	46	90	1
February	45	47	92	1
March	40	35	75	1
April	47	35	82	0
May	43	39	82	0
June	45	29	74	3
July	35	37	72	0
August	41	57	98	0
September	50	30	80	2
October	36	39	75	1
Total	507	486	993	11

Stillbirths.

—	Male.	Female.	Total.
1913			
November	2	1	3
December	2	0	2
1914			
January	5	0	5
February	1	3	4
March	2	1	3
April	5	1	6
May	4	0	4
June	3	1	4
July	3	1	4
August	2	0	2
September	3	2	5
October	4	3	7
Total	36	13	49

Rate per 1,000 births 49.46.

Infant Mortality Rate.

Month.	Death of Infants under one year.	Births.	Rate of Mortality.
1913			
November	8	74	108.10
December	5	75	66.66
1914			
January	3	90	38.33
February	6	92	65.20
March	7	95	72.61
April	5	84	59.55
May	12	87	134.20
June	5	92	45.60
July	15	97	154.63
August	19	98	193.87
September	7	80	87.50
October	9	75	120.00

CAUSES OF MORTALITY.

(Infants Under One Year.)

Causes.	
Enteritis and Diarrhœa	48
Congenital Debility	7
Other causes peculiar to early infancy	7
Pneumonia	6
Broncho-pneumonia	6
Convulsions of Infants	5
Simple Meningitis	4
Acute Bronchitis	2
Pleurisy	3
Erysipelas	2
Rickets	2
Bright's Disease	1
Asthma	1
Organic Diseases of the Heart.....	1
Diseases of the Stomach.....	1
Diseases of the Intestines	1
Acute Yellow Atrophy of the Liver.....	1
Intestinal obstruction	1
Whooping Cough	1
Cause of death not specified.....	1

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GUELPH.

DR. H. O. HOWITT, M.O.H.

This report of the year ending November 30th, 1914, is perhaps the most brief in our experience, to which I attribute the better state of our city's management in the past.

There were 257 births and 232 deaths during the year ending November 30th, 1914. The most important work of the year was the accomplishment of the sewer to *St. Patrick's Ward*, which will mean much in saving our main water supply from pollution and give the much-needed accommodation to that section of the city, with its growing factories.

Our water supply continues of the best, as is shown by only *six typhoid cases* in twelve months, a pleasant decrease from the old records before the installation of the new water system, but an increase of two over last year.

The Smallpox Hospital contained two patients at the commencement of the year. Both were well quarantined at the first sign of the trouble, and further cases prevented.

The Isolation Hospital is being used by the General Hospital during alterations, and St. Joseph's Hospital is looking after all our cases.

This year it has been the aim of the Board to act as economically as possible, as is shown by the non-use of upwards of one thousand dollars, which we are able to return to the Finance Committee.

Taking it all in all we have had perhaps the least number of complaints for five years.

Months.	Scarlet Fever.	Diphtheria.	Typhoid.	Chickenpox.	Measles.	Rothien.	Smallpox.	Tuberculosis.	Pertussis.	Remarks.
Dec. 1913.	1	1	.....	12	.....	.....	1	1	6	
Jan. 1914.	1	.....	.....	2	3	.....	.....	1	1	
Feb.	1	2	.....	1	.....	.....	.....	.....	.....
Mar. ....	.....	.....	.....	.....	.....	.....	.....	1	.....	1 died of Tuberculosis
April.	6	.....	1	3	.....	.....	.....	1	10	1 " "
May.	2	.....	.....	.....	.....	.....	.....	.....	3	
June.	2	.....	.....	2	.....	.....	.....	.....	.....
July.	1	.....	4	1	.....	.....	.....	1	.....
Aug.	3	.....	1	.....	1	.....	.....	1	2	1 " "
Sept.	4	1	.....	.....	1	.....	.....	2	.....	1 " "
Oct.	16	3	.....	1	1	.....	.....	1	.....	1 " "
Nov.	9	1	.....	.....	.....	6	.....	1	.....

HAMILTON.

DR. JAMES ROBERTS, M.O.H.

Below please find report of Medical Officer of Health for statistical year beginning November 1st, 1913, and ending October 31st, 1914.

VITAL STATISTICS.

	Births.	Deaths.
1913.		
November	247	107
December	210	99
1914.		
January	261	127
February	207	96
March	284	128
April	237	131
May	247	118
June	252	86
July	252	95
August	263	94
September	234	110
October	227	93

By reference to the tables it will be seen that during the year there were registered 2,921 births as compared with 2,734 for 1913, representing a birth rate of 28.92 as against 27.34 for 1913.

The deaths for the year numbered 1,284 as against 1,367 for 1913. Excluding still births we have a mortality of 1,109 and 1,161, or a death rate per thousand of 10.9 and 11.5 for these two years. By including in the total deaths those of 29 and 23 non-residents at the hospitals as will be done by the Provincial Registrar, we will have a death rate of 11.2 and 11.7.

COMMUNICABLE DISEASES.

Two thousand five hundred and seventy cases of communicable disease were reported as compared with 1,374 for 1913, the increase being due to the fact that the city was visited with epidemics of measles and whooping cough. The total deaths from this group of diseases numbered 154 in 1914 and 130 in 1913, or a rate per thousand of 1.53 and 1.30.

DIPHTHERIA.

Of diphtheria 194 cases were reported. Of these 16, or a percentage of 8.2, died. In 1913 there were 126 cases with 12 deaths, or a percentage of 9.5. Diphtheria of a rather virulent type has been more prevalent than for several years past, and the endeavour to control its spread by up to date methods requires the constant attention of this Department.

SCARLET FEVER.

Ninety-seven cases of scarlet fever were reported, being 64 cases less than the number reported in 1913. There were no deaths from this disease.

WHOOPIING COUGH AND MEASLES.

The epidemic of measles which began in March and died away in August threw a great deal of additional work on the Department, owing to the fact that this disease is now, by a regulation of the Provincial Board of Health, a quarantinable one and requires placarding. During the period mentioned, 1,083 cases were kept under surveillance. Whooping cough was prevalent during the same period, 613 cases being reported. The deaths from these two diseases combined numbered 26.

TYPHOID FEVER.

Thirty-two cases of typhoid fever were reported. A number of the persons who contracted this disease were out of the city at the time of being infected. Nine persons succumbed to this disease.

TUBERCULOSIS.

Eighty-nine persons died of tuberculosis of the lungs, and 6 persons succumbed to other forms of tuberculosis, making a total of 95 deaths, as compared with 91 in 1913.

In the following table deaths from tuberculosis are given as percentages of the total death rate for the years 1899 to 1914.

1898	13.5	1907	7.3
1899	12.5	1908	8.0
1900	13.8	1909	10.0
1901	10.3	1910	7.1
1902	13.0	1911	5.8
1903	8.4	1912	6.5
1904	9.9	1913	6.7
1905	7.7	1914	8.0
1906	8.1		

SMALLPOX.

During the year 47 cases of smallpox were reported. All necessary measures for the control of the disease were put into force with very little alarm, antagonism or disturbance of business, and at small financial outlay to the city as compared with the commotion and expense in connection with similar epidemics in municipalities both near and far from us.

INSPECTIONS, ETC.

The total inspections made by the sanitary inspectors were 19,469, among which were included 921 with reference to sewer connections, 3,657 for insistence on the proper recognition of quarantine and isolation; 449 visits to unemployed by request of the Board of Control for purpose of finding out financial circumstances; 462 regarding unsanitary garbage utensils; 554 for inspection of unsanitary or overcrowded houses; 389 in regard to accumulations of manure; 254 in answer to complaints respecting location and sanitary condition of stables; 207 visits to laundries.

Unsanitary collections of rubbish and refuse and various other nuisances to numerous to mention, together with the legal notices served for their abatement, were responsible for many hundreds of inspections.

Nearly all of the sewer connections ordered were in the far eastern portion of the city, but on account of lack of work and hard times, only about one-half of the notices could be complied with.

During 1911, 1912 and 1913 about 1,500 sewer connections were ordered in the older sections of the city, and as a result outdoor vaults in these parts are almost unknown.

Forty-one houses were temporarily or permanently closed pending necessary sanitary improvements; of these 26 were placarded as unfit for habitation; 11 unsanitary basements were ordered vacated by notice, which was complied with in every case.

The work of the Food Inspector has been highly commendable. In addition to supervising sanitary work, the Inspector made 5,000 inspections of markets, restaurants, butcher shops, bakeries, hotel kitchens, fruit stores, dairies, dairy farm cold storage plants, ice cream plants, etc. Two hundred and forty-eight dairy farms outside the city were visited by auto. A great improvement is being made year by year in the equipment of dairy farms and the sanitary handling of milk. Three hundred and twelve visits were made to milk shops and dairies in the city; 1,176 samples of milk were tested for butter fat; and 313 tested for dirt sediment. Nearly 6,000 lbs. of beef and 1,000 lbs. of pork were destroyed as unfit for food; also chickens, butter, sausage, veal, lard, eggs, etc., in small quantities. One hundred and sixty-eight gallons of milk were condemned, labelled and returned.

SUMMARY OF COMMUNICABLE DISEASES REPORTED FROM NOVEMBER 1, 1913, TO OCTOBER 31, 1914.

	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Smallpox.....	9	10	9	7	3	.....	.....	1	.....	3	3	2	47
Erysipelas.....	1	2	1	.....	.....	.....	1	.....	.....	1	.....	.....	6
Measles.....	2	6	4	2	18	42	267	473	220	33	12	4	1,083
Typhoid Fever.....	4	.....	.....	1	1	.....	1	.....	.....	9	5	11	32
Scarlet Fever.....	5	4	17	10	15	8	8	1	2	3	6	18	97
Whooping Cough.....	30	33	46	38	226	114	64	36	6	6	12	2	613
Diphtheria.....	26	21	16	16	9	6	10	4	19	27	13	27	194
Chickenpox.....	26	44	45	44	44	27	44	11	3	18	3	22	319
Mumps.....	2	1	.....	6	13	1	4	.....	1	.....	1	3	32
Poliomyelitis.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Tuberculosis.....	13	12	7	10	10	13	14	16	15	11	13	12	146
Totals.....	118	133	145	132	339	211	413	542	266	101	69	101	2,570

SUMMARY OF WORK DONE BY THE INSPECTORS IN QUARANTINE AND DISINFECTION.

Houses placarded for scarlet fever.....	92
“ “ diphtheria	184
“ “ measles	800
“ “ smallpox	30
“ “ poliomyelitis	1
Houses disinfected for scarlet fever—patients sent to C. H.	51
“ “ diphtheria—patients sent to C. H.	119
“ “ scarlet fever—cards removed	31
“ “ diphtheria—cards removed	65

Houses disinfected for smallpox—cards removed	30
“ “ typhoid fever	15
“ “ tuberculosis	58
“ “ erysipelas	10
“ “ poliomyelitis	1
“ “ measles	3
“ “ diphtheria, patients dead	5
Schools disinfected for diphtheria	3
“ “ smallpox	3
No. times clothing was disinfected for diphtheria	7
“ “ “ “ “ scarlet fever	1
“ “ “ “ “ smallpox	10
Measles cards removed	800
Visits <i>re</i> quar. and isolation	4,637

INSPECTORS' REPORT.

Total inspections	19,469
No. re-inspections	4,692
Transferred to Quarantine and Disinfection Report	3,687
“ “ Food Inspector's Report	1,492
Places found O.K. at time of inspection	762
Laundries inspected	287
Unsanitary and overcrowded houses inspected	554
Stables inspected	254
Boarding houses inspected	52
New stables located	8
Junk yards inspected	6
Ice houses and storage plants	29
Tailor shops and work rooms	13
Schools inspected	4
Unsanitary basements	29
Houses inspected for sewer connections	921
Inspections <i>re</i> accumulations of rubbish and refuse	1,210
“ “ choked and defective sewer connections	179
“ “ unsanitary and defective water closets	176
“ “ eave troughs not being connected	28
“ “ accumulations of manure	389
“ “ manure bins not being kept covered	140
“ “ offensive d. e. closets and privy vaults	349
“ “ depositing of waste water	46
“ “ stagnant water on lots	180
“ “ fowl on premises	167
“ “ fowl and animals in houses	11
“ “ hogs being kept on premises	6
“ “ cows being kept on premises	2
“ “ typhoid fever	26
“ “ offensive cess pools	4
“ “ water in cellars	26
“ “ disposing sewage into inlet	1
“ “ proper water supply for tenants	5
“ “ offensive garbage utensils	462
“ “ smoke nuisance	7
“ “ providing conveniences for workmen	3
“ “ running dye water in Bay	4
Closed premises placarded	26
Wrong numbers given, occupants not in when inspector called	231
Attendance at police court	13
Complaints unfounded	61
Water samples collected for examination	10
Visits to unemployed	449
Inspections of ice cutters' premises	39
Miscellaneous inspections	150
Notices were served as follows:	
To remove accumulations of rubbish and refuse	1,815
“ “ “ “ manure	390
“ connect eave trough conductor pipes	30
“ repair schools	3

To clean laundries	153
" repair laundries	3
" connect stables with sewer	84
" abolish or move stables required distance	50
" provide proper manure bins	61
" cover manure bins	240
Re stagnant water on lots	165
" unsanitary and defective water closets	223
" unsanitary and overcrowded houses	507
" nuisances caused by fowl on premises	180
" " offensive garbage utensils	495
" " water in cellars	22
" " animals on premises	9
" " hogs on premises	6
" " disposal of waste water	10
" " junk yards	6
" sleeping and cooking in one room	9
" running dye water into Bay	1
" offensive garbage dumps	2
" offensive hide houses	2
To stop offensive trade	1
" provide conveniences for workmen	2
" vacate unsanitary dwelling houses	11
" provide proper water supply for tenants	5
" cut off sink waste pipes	9
" connect sinks with sewer	7
" clean sinks	10
" remove beds from overcrowded premises	29
" abolish privy vaults and put in water closets	199
" clean tailor shops	4
" abolish old wells	3
" provide clean bed clothing	24
" stop offensive trade	1

FOOD AND DAIRY INSPECTOR'S REPORT YEAR OCTOBER 31ST, 1913, TO NOVEMBER 1ST, 1914.

Total inspections	4,884
No. inspections, central market	161
" " butcher shops	792
" " restaurants and lunch rooms	300
" " bake shops	210
" " sausage factories	1
" " hotel kitchens	10
" " hide houses	7
" " milk wagons	150
" " fruit stored in cellar	2
" " fish stores	72
" " Chinese tea stores	34
" " fruit stores	122
" " candy factories	53
" " grocery stores	37
" " butter and egg stores	26
" " poultry dealers' stores	2
" " filtering basins at beach	3
" " unsanitary barns	7
" " laundries	83
" " slaughter houses	12
" " house to house inspection	36
" " alleys	3
" " fish peddlers' carts	5
" " cattle sheds	2
" " city dumps	2
" " city schools	1
" " bottling works	8
" " confectionery stores	12
" " transferred to sanitary report	46
" " tailor shops	1

No. inspections, lodging houses	4
“ “ re food unfit	2
“ “ cold storage plants	1
“ “ bake wagons	4
“ “ cheese factories	1
“ “ ice cream factories	30
“ “ ice cream cabinets	9
“ “ ice cream peddlers' premises	198
“ “ ice cream parlors	200
“ “ city milk dealers' premises	312
“ “ dairy farms	248
“ “ milk dairies re disease	10
“ “ for milk license	53
“ “ where milk license was refused	11
“ visits to quarantined houses	68
“ “ isolation hospital	3
“ “ re complaints investigated	27
“ found selling milk without license	23
“ milk dairies ordered closed	5
“ milk temperatures taken	167
“ milk samples taken, and tested	1,176
“ milk samples tested and found to be below city standard	27
“ bacterial counts taken of milk	5
“ stable test taken	6
“ cream samples tested	17
“ sediment tests taken	313
“ times weighed butter	4
“ places bread weighed	18
“ butter samples collected	12
“ found selling light weight bread	2
“ schools visited re vaccination	5
“ factories visited re vaccination	26

Notices were served as follows:

Notice to clean barn yard	9
“ “ repair floor in cow stable	10
“ “ whitewash cow stable	76
“ “ remove hogs from stable	4
“ “ renew milk license	633
“ “ clean milk dairies	29
“ “ cover milk	2
“ “ remove manure from yard	7
“ “ clean milk cooler	3
“ “ ice milk	14
“ “ stop selling milk	2
“ “ clean ice cream cabinet	67
“ “ clean restaurants	42
“ “ clean butcher shops	28
“ “ clean bake shops	63
“ “ clean floors	49
“ “ clean sinks	5
“ “ clean milk wagons	28
“ “ clean ice boxes	16
“ “ clean candy factories	21
“ “ clean fish stores	11
“ “ clean laundries	20
“ “ clean ice cream premises	26
“ “ clean ice cream carts	30
“ in regard to sediment test	115
“ re sleeping in room where food is stored	2
“ to remove refuse	2
“ “ vacate stable	2
“ “ provide ice box for meat	5
“ “ provide towels and sink in factory	3
“ “ provide fly screens for foods	25
“ “ remove beds from cellar	3
“ “ cover fruit	94
“ “ remove fruit from dirty cellar	3

SEIZURES.

Lbs. of beef	5,341
“ “ veal	179
“ “ pork	737
“ “ lamb	20
“ “ cooked ham	40
“ “ lard	15
“ “ butter	7
“ “ sausages	20
No. dozen of eggs	30
“ gallons of oysters	2
“ gallons of milk	168
“ prs. chickens	6
“ prs. rabbits	2
“ loaves bread	20
“ boxes currants	6
“ boxes berries	30
“ lb. bacon	20

NUMBER SUMMONS ISSUED.

No. summons issued	9
“ times attended court	12

PROSECUTIONS FOR 1914.

No. charged with selling diseased meat	received sentence of 2 months
“ “ “ having unsanitary house	case adjourned
“ “ “ having dirty laundry	\$10 00
“ “ “ having dirty milk wagon	5 00
“ “ “ keeping unsanitary maternity home	20 00
“ “ “ not covering fruit	10 00
“ “ “ selling light weight bread	10 00
“ “ “ selling adulterated milk	100 00
“ “ “ re maple sugar adulterated	5 00
“ “ “ breaking measle regulations	5 00
Total amount of fines	\$165 00

KINGSTON.

DR. A. R. B. WILLIAMSON, M.O.H.

I beg to submit the following report for the year ending November 1st, 1914.

During the past year we have had fewer cases of infectious diseases originating within the city than we had in the previous year. Taking only the more serious of the infectious diseases into account there were reported to me for the past year 9 cases of scarlet fever, 5 of measles, 33 of diphtheria and 25 of typhoid fever, as compared with 18 cases of scarlet fever, 28 of measles, 56 of diphtheria and 28 of typhoid fever for the year ending November 1st, 1913. *In the case of measles, and to a greater extent of chicken pox and milder infections, there is both concealment and overlooking of cases.* Many never see the doctor unless complications arise, so that the report on these is necessarily incomplete, but as regards the other more serious infections I believe the reports are fairly accurate. It is particularly in these infectious cases that the *services of the school nurse have been of great value* to the local Health Department. Most cases of measles, scarlet fever and diphtheria are among school children, and the early recognition of cases and the exclusion from school of actual and suspected cases have no doubt assisted materially in diminishing the total number.

Some progress has been made recently in *matters of sanitation*, particularly in the extension of sewers to hitherto unsewered districts, in the removal of old stone sewers that had become inadequate, in the drainage of buildings not previously drained and in the installation of house sinks in many unprovided houses, so that the number of the latter remaining not equipped is small, and in the extension of the city water supply. This year the Local Board petitioned the Council to appoint a *permanent Sanitary Inspector*, and nominated Police Constable Timmerman as a suitable

appointee. The Police Commissioners released Mr. Timmerman from his regular police duties and allowed him to devote his whole time to sanitary inspection for a period of six months. The work accomplished has more than justified the plea of the Board of Health for the appointment of a uniformed official. Mr. Timmerman was kept busy every day, and often until late in the evening, attending to the various duties devolving on a Sanitary Inspector. He performed his duties with tact and without fear, favor or affection, and if the Board could have his services permanently there would soon be little cause for complaint regarding the sanitary condition of the city.

A year ago it looked as if we were going to have a housing problem on our hands, as all available houses were occupied and a number of people were housed in buildings or under conditions that were unsanitary. Owing to war conditions and depression generally this problem is not now pressing, but if with returning prosperity an attempt should be made to let for human habitation certain tumble-down and unsanitary buildings that are not fit for any person to live in the law regarding air space and overcrowding in buildings may have to be put in operation. At the same time it is often a difficult matter to arrive at an equitable decision in this matter. Some families with well-developed tendencies to cleanliness can live in perfect health in the most forbidding looking surroundings, while other people housed in modern, sanitary buildings soon render these unfit for habitation by their lack of cleanliness. The great necessity would seem to be the education of the individual in sanitary matters rather than interference with the type of building, except in those cases where through lack of light and air and through overcrowding distinctly unsanitary conditions are created.

In order to bring our local legislation up to date on the question of *milk supply* the Local Board of Health requested the City Council to cancel the present by-laws on this subject and to adopt a new by-law giving expression to the views that are now generally held in progressive communities regarding the necessity for a pure milk supply and the danger to life of an infected supply. The City Solicitor, after consultation with the Board of Health and a careful study of the Provincial Milk Act and the by-laws of other municipalities, drafted a bill which is now before the Council, and which in the interests of the public generally, and the children in particular, the Board of Health hopes to see adopted. There is nothing in this bill that has not been approved of and adopted in other municipalities in Ontario. It is not drastic in nature, and its adoption will not mean anything more than the fact that Kingston is trying to keep abreast with other progressive municipalities in this Province.

At times many complaints are received from people objecting to the *chlorination of the city water*. The only answer that can be made to these is that as long as untreated sewage is allowed to empty into the sources of our drinking water supply so long must that water be treated chemically to protect the community. It is useless to say let the people boil the water. Some no doubt would boil the water, but a large proportion would not do so, and to allow infected water to go untreated to everybody would be nothing short of homicide. Chlorination must be carried on until other more efficient and less offensive methods are found to deal with the situation.

The early establishment of an efficient civic *system of scavenging is an urgent necessity in Kingston*. It has been estimated that at the present time the householders of Kingston pay individually for irregular inferior private services more than sufficient to finance a thorough up-to-date, efficient bi- or tri-weekly collection of garbage, ashes, refuse, tin cans, paper, etc. It is the experience of large cities that a properly organized system of this kind is a revenue producer. In Kingston I believe it would at least pay for itself when the amount spent privately is taken into consideration.

NIAGARA FALLS.

DR. H. LOGAN, M.O.H.

I beg to submit a report for the Board of Health for the year 1914.

During the year 1914 there were 300 births and 152 deaths. In the same year we had the following contagious diseases:—Diphtheria, 16; scarlet fever, 13; smallpox, 8; measles, 15; typhoid fever, 10; tuberculosis, 15.

During the year 1914 we have had *no epidemics*. We began in the spring and made a thorough *cleaning up of the city*, instructed all householders to have their cellars and yards cleaned up and refuse destroyed. All public buildings were inspected, and where necessary ordered cleaned.

Until the year 1914 we have had numerous *outside closets*, which gave us a lot of trouble and annoyance. I had the Municipal Council pass a by-law that all outside closets must be removed and connections made with the sewers. This is being done, and in a short time we will have no privies or out-door closets.

We are also recommending a *trunk sewer to be built through the city to take the water from Muddy Run Creek and close up this creek. This eventually will be accomplished.*

Samples of river water I have frequently taken from the Niagara River, Chippewa Creek and taps throughout the city and analyzed by the Provincial authorities. *The water has been much better this year than heretofore, although it is none too good at any time.* We will never be safe from typhoid outbreaks until we have a good water supply and a disposal plant for our garbage and sewage, at the same time those towns above us putting in the same plant.

We have no trouble in *collection of garbage, this being done once a week in winter and twice in summer.* The bottles and cans collected monthly. I am having, where possible, all households and tenants use the galvanized covered can.

We have our restaurants under license and inspect them frequently.

We also have a competent *meat and dairy inspector, who frequently tests the milk from the waggons.*

OTTAWA.

DR. R. LAW, ACTING M.O.H.

Owing to the absence of Dr. T. A. Lomer, Medical Officer of Health, now on duty with the Canadian forces in the European war, I have the honor to submit to you the annual report of the Health Department for the year ending October 31st, 1914. This report includes the reports from the heads of the various sub-departments.

The estimated population is 101,795
Total number of births 2,537

Birth rate, 1914 24.92 per 1,000
Birth rate, 1913 26.33 per 1,000
Birth rate, 1912 23.98 per 1,000
Birth rate, 1911 22.83 per 1,000

Total deaths, 1914 1,868
Still-births 155
Deaths of non-residents 206
Corrected total deaths 1,585
Death rate 18.39 per 1,000
Corrected average death rate for 1914 15.26 per 1,000
Corrected average death rate for 1913 15.28 per 1,000
Corrected average death rate for 1912 14.14 per 1,000
Corrected average death rate for 1911 15.86 per 1,000

COMMUNICABLE DISEASES REPORTED DURING THE YEAR.

The total number of communicable diseases reported, and the deaths therefrom were as follows:

Diseases.	1913.		1914.										Cases.	Deaths.
	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.		
Typhoid fever....	7	1	1	0	0	3	0	9	8	10	13	67	119	13
Tuberculosis.....	9	9	12	17	16	19	10	5	1	16	12	11	107	137
Small-pox.....	10	9	9	9	1	3	3	0	1	0	0	0	45	0
Diphtheria.....	47	57	60	48	44	50	44	50	45	49	59	62	614	60
Whooping cough..	2	2	4	0	0	2	8	4	0	1	1	8	32	13
Chicken-pox.....	19	13	8	17	7	15	9	16	1	0	1	3	109	0
Measles.....	7	2	1	1	2	3	3	1	0	0	0	3	23	0
Scarlet fever....	62	40	42	49	51	28	19	12	10	6	5	10	334	29
Mumps.....	46	2	6	6	18	17	15	28	4	2	0	0	144	0
Erysipelas.....	0	0	0	1	0	0	2	1	0	0	0	0	4	7
Poliomyelitis.....	1	0	0	0	0	0	0	0	0	2	0	0	3	0

DEATHS FROM COMMUNICABLE DISEASES BY WARDS.

1914—Wards.	Small-pox.	Diphtheria.	Scarlet fever.	Whooping cough.	Measles.	Typhoid fever.	Chicken-pox.	Total.
Ottawa		8	6	4				18
By		5	3	3				11
Rideau		3	2					5
St. George		8	2			2		12
Wellington		10	5	3		4		22
Central		2	1	1		2		6
Capital		4	2	1		1		8
Dalhousie		14	7			3		24
Victoria		2		1		1		4
Outside		4	1					5
Totals		60	29	13		13		115

PULMONARY TUBERCULOSIS.

During the year there were 137 deaths from tuberculosis, 116 cases being pulmonary, and 21 other forms of tuberculosis. Of these, 40 deaths occurred at the Lady Grey Hospital.

It is to be regretted that the cases of tuberculosis are not being notified to the Department of Health as they should be. There were during the past year 30 more deaths reported from tuberculosis than cases notified.

DEATHS FROM TUBERCULOSIS.

Wards.	Pulmonary Tuberculosis.	Other cases.	Totals.
Ottawa	15	2	17
By	8	3	11
Rideau	3		3
St. George	10	2	12
Wellington	17	3	20
Central	11	2	13
Capital	5	2	7
Dalhousie	27	4	31
Victoria	6		6
Outside	14	3	17
Totals	116	21	137

The good work being done by the Lady Grey Hospital, the Anti-Tuberculosis Association and the May Court Club Dispensary is deserving of great praise, and merits the support of the citizens.

TYPHOID FEVER.

During the year there were reported 119 cases of typhoid fever, with 13 deaths, 4 being non-residents. During the past year typhoid fever has not occurred in anything approaching an epidemic form—a fact that is largely to be attributed to the hypochlorite treatment of the water supply and the numerous daily tests which have been made of the water. Figures for 1913 were 118 cases of typhoid fever reported, with 20 deaths.

SMALLPOX.

There were 45 cases reported during the year, with no deaths. The Hopewell Hospital has been closed since March 25th, 1914. Most of the cases have been of a mild type. The Hopewell Hospital has proved extremely useful and a very valuable means of checking the spread of the disease in the city.

DIPHTHERIA.

During the last three years the following number of cases of diphtheria have been reported, also the deaths therefrom:—

Year.	Cases.	Deaths.
1914	614	60
1913	378	40
1912	401	30
Total	1,393	130

This makes a total of nearly 1,400 cases, with 130 deaths in three years. This is a most regrettable condition of affairs, where we know that practically all of these cases dies owing to delay in calling for treatment. It cannot be too strongly impressed on the people that all cases of sore throats and croupy conditions should be seen by a physician without delay, both for themselves and the general public. Many cases are but slightly ill, and yet if untreated are capable of carrying the disease in a most malignant form to others. This is especially true of the form affecting the nose in which a discharge from the nose may be the only sign noticed. People should not delay in calling in a physician at once, and if they are unable to meet the expense the Health Department should be notified, and a physician will see the patient.

SCARLET FEVER.

Scarlet fever prevailed extensively during the first half of the year, and was of a very severe type. Some 334 cases were reported, with 29 deaths. There have been comparatively few cases in the latter part of this year.

INFANT MORTALITY.

Total deaths under 1 year for 1914 were	534
Total deaths for 1913 under 1 year	545

This infant mortality rate is still very high. It is partly accounted for by the size of the institutions caring for infants, which is very large in proportion to the population of the town. This means that a large number of infants are brought in from the surrounding country, and even from towns at a considerable distance. During the year of 1913 one of these large institutions which had a high mortality rate was found unsuitable for an infants' home and was closed. In order to efficiently control importation of infants from outside municipalities it would be necessary to have an official who could spend a considerable amount of his time in the supervision, admission, discharge and adoptions of such institutions.

The question of adopting out orphans, or abandoned infants, is very important, as many of these are sent to private homes where they are improperly cared for and afterwards are either returned to the institutions in a hopeless condition or die. We are at present co-operating with the Provincial Board of Health with a view to restricting these evils.

The work done by the infant milk stations, in charge of Miss Grace E. Moore, has done a great deal in assisting to keep down the infant mortality in the poorer sections of the city, and I hope to have this work continued and enlarged. The report of the work done by the infant milk stations will be incorporated in this report.

CIVIC LABORATORY.

The report of Mr. Jos. Race, City Bacteriologist, on the work done in the laboratory is herewith attached.

FOOD AND DAIRY INSPECTION.

The dairies supplying milk to Ottawa are in a very satisfactory condition, owing to the constant supervision and advice of Dr. J. B. Hollingsworth, the Chief Food Inspector.

In connection with the meat supply, I would emphasize the need for a municipal abattoir, without which no satisfactory inspection of meat can be made at the time of slaughter, and which is the only way diseased meat can be kept out of the city. The report of the Chief Food Inspector is attached.

SANITARY INSPECTION.

One of the chief difficulties of the sanitary inspection staff is in connection with the rapid building of small houses in unsewered areas. Many of these houses consist of one or two rooms, and are unfit to put improvements in after the sewer has been laid.

Good work has been done during the past year in effecting the removal of outside privies from sewered areas, and with the opening of the West End drainage system in June the number was greatly reduced.

I append the tables of mortality statistics for the year 1913.

All of which is respectfully submitted.

DEATHS BY NATIONALITIES.

Canadian	1,074
French-Canadian	512
Irish	74
Scotch	43
English	67
Italian	16
Jews	4
Poles	21
American	15
Others	42
Total	1,868

The mortality statistics of the different institutions in the city are as follows:

Institutions.	No. of Deaths.
Ottawa Maternity Hospital	16
Salvation Army Rescue Home	9
Lady Grey Hospital	40
County Carleton General Protestant Hospital	125
St. Luke's General Hospital	60
Water Street General Hospital	107
Misericordia Hospital	20
St. Patrick's Home	15
St. Charles' Home	33
Perley Home	4
Old Men's Home	10
Misericordia Infants' Home	122

DEATHS FOR THE YEAR BY WARDS.

November, 1913—October, 1914

Wards	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
Ottawa	26	19	26	28	20	34	22	18	23	22	14	14	266
By	13	10	20	17	13	7	15	8	16	25	16	6	166
Rideau	4	6	3	5	5	2	10	7	13	9	9	6	79
St. George	15	20	18	22	38	20	20	15	12	18	20	10	228
Wellington	13	23	24	23	30	24	29	22	30	29	20	17	284
Central	9	21	20	15	20	20	16	13	15	15	19	15	198
Capital	6	12	12	13	10	6	12	11	20	13	10	14	139
Dalhousie	22	30	20	25	32	18	23	22	30	32	21	27	302
Victoria	5	10	2	3	5	12	3	4	13	10	5	6	78
Outside	6	7	11	19	13	8	10	11	13	13	10	7	128
Total	119	158	156	170	186	151	160	131	185	186	144	122	1,868

NO. OF DEATHS BY MONTHS WITH AGES.

Ages.	1913		1914										Total
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.	Oct.	
Under 6 months..	19	26	27	34	46	28	39	24	55	53	39	35	425
6 months to 1 year	7	5	9	7	7	9	5	6	12	21	14	6	109
1-2 years.....	7	3	7	9	3	2	2	4	9	5	5	6	62
2-5 ".....	11	9	8	9	7	3	7	3	8	7	3	2	77
5-10 ".....	2	6	2	6	4	4	5	3	4	2	3	3	44
10-15 ".....	2	6	5	3	2	6	7	5	7	2	3	1	49
15-20 ".....	2	2	3	5	3	5	3	2	7	4	6	0	42
20-25 ".....	1	9	5	3	7	3	4	3	4	7	6	5	57
30-35 ".....	5	13	9	4	14	11	10	7	15	8	6	5	107
35-40 ".....	1	7	3	4	6	10	11	8	5	6	4	4	69
40-45 ".....	12	6	8	6	6	6	7	7	4	4	3	.....	69
45-50 ".....	2	4	7	4	4	3	5	5	7	4	5	1	51
50-55 ".....	6	7	10	4	4	6	6	4	3	3	3	5	61
55-60 ".....	6	7	6	6	6	8	5	2	2	5	1	7	61
60-65 ".....	5	7	5	7	9	4	7	4	8	5	12	4	77
65-70 ".....	9	10	5	7	15	8	9	9	6	6	5	3	92
70-75 ".....	5	9	10	9	11	5	4	7	4	6	1	7	78
80-90 ".....	6	8	14	14	17	11	10	10	11	16	15	12	144
90 up.....	3	2	2	.....	4	4	6	7	1	9	.....	1	39
Stillbirths.....	7	12	11	29	10	15	8	13	13	12	10	15	155
Totals.....	119	158	156	170	186	151	160	131	185	186	144	122	1,868

FOOD INSPECTION, OTTAWA.

J. B. HOLLINGSWORTH, CHIEF INSPECTOR.

I hereby beg to present my annual report for the year ending October 31st, 1914, covering work done in the food inspection branch of the Department.

There are about 245 dairy farms supplying milk to this city with an average of about twenty-four cows per dairy. Most of our supply is produced within a radius of twelve miles from the city. We have, however, a considerable quantity coming in from Carp, Kinburn, Russell, Vankleek Hill and Pendleton, and to cover this your inspectors are kept continuously on the work.

Our dairies are scored once a year. The method of scoring is explained, and the producer is shown how an increased rating can be secured. In this manner the dairyman is made to realize the actual conditions of his dairy. A standard of 60 per cent. of the total score on the score card must be obtained before the dairy is considered to be in a satisfactory sanitary condition. If this percentage is not reached on the first inspection the dairyman is advised to make certain improvements so as to bring his place up to a satisfactory standard before his license is granted. If on the second inspection no improvement is shown, and the score is still unsatisfactory, the sale of milk is prohibited.

All dairy cows are given a careful physical examination—particular attention being paid to the udders. We must insist upon the cows being kept clean, comfortably housed, and supplied with proper food. All utensils must be kept scrupulously clean. Anyone handling the milk must be personally clean and free from communicable disease. The milk must be immediately removed after milking to the milk house; to be strained and cooled in a clean, well-ventilated and drained room—used exclusively for the purpose—and where it is stored in ice water preparatory to shipment.

All milking stools have been carefully inspected, and as these utensils are the last to be touched by the hands of the milker before milking, we insist that they are kept clean.

Particular attention has been paid to the light and ventilation of our dairy stables. We are now insisting that at least two square feet of window glass be provided for each cow; also a proper system of ventilation, which will provide one square foot of inlet for each ten cows, and two square feet of outlet.

Samples of milk are collected every day on the streets from the different milk rigs, and are tested both chemically and bacteriologically at the Civic Laboratory.

The inspector, while collecting the sample, examines the milk cans and especially the covers, which we often find defective. He also is provided with a thermometer for taking the temperature of the milk. The dairymen are instructed that in order for their milk to keep sweet until it reaches the consumers' table, it must be immediately cooled after it is drawn from the cow, and kept at a low temperature thereafter. In order to accomplish this many of our dairymen pack ice around their cans in summertime while they are delivering in the city.

This year 2,415 samples of milk have been collected and tested, an increase of 891 over last year.

All places, where food is stored, consumed or retailed, are carefully inspected. We have under inspection 93 restaurants, 321 victualling houses, 20 slaughter-houses (only 2 are inside city limits), 89 butcher shops, 1 cold storage, and several wholesale plants.

The restaurants, butcher shops and victualling places have to get a certificate from this Department before they can obtain a license. This is a decided improvement, as it enables us to have all necessary changes made in proper time.

Our bakeshops and confectionery stores have been carefully and regularly inspected; also as to the weight of bread. There have been very few loaves confiscated this year, owing to the strict measures that have been taken, and to police court fines. We should, however, be given power to pass regulations covering the sanitary conditions of bake and confectionery shops, and each party should be compelled to take out a license to conduct such an important business each year. All bread that was confiscated was turned over to Mr. Keane, city charity officer, for distribution.

During the year there has been a considerable quantity of vegetables, fruit and meat confiscated.

There was 4,832 pounds of meat condemned, as well as 6 crates of peaches, 2 crates of pears, 4 crates of blueberries, 1 crate of plums, 430 water melons. Two carloads of cabbages were sent to the incinerator and burnt.

In conclusion, I wish to state that the inspectors under my branch of the Department have performed their duties conscientiously and energetically, with the interest of the Department at heart.

MODIFIED MILK DEPOTS, OTTAWA.

GRACE E. MOORE, R.N., SUPERVISOR.

I have the honour to submit the Fourth Annual Report of the Infant Milk Depots for the year ending October 31st, 1914.

The work which was started under the supervision of Dr. Shirreff at the Ottawa Dairy in 1910 has grown steadily, and this year, although the number of depots is the same as last year, the attendance has increased, and it has been found necessary to have an assistant at all the clinics.

The depots are viz.:

No. 1.—288 St. Patrick Street.

No. 2.—7 Irving Avenue.

No. 3.—298 Division Street.

No. 4.—138 Queen Street West.

On October 6th, 1913, No. 1 Milk Depot at 207 Church Street was moved to 288 St. Patrick Street, as the former house was too large and would be very expensive to heat during the winter months.

From October 1st, 1913, to May 1st, 1914, three depots were open, viz., Nos. 1, 3 and 4. From May 1st, 1914, No. 2, at 7 Irving Avenue, was reopened, and Miss Davidson transferred from No. 4 to No. 2, and a new nurse, Miss Leonard, placed in charge at No. 4. October 1st, 1914, No. 4 was closed, and as the lease for that house did not expire until May 1st, 1915, it was sublet for eight months.

During the winter months three depots will be open, Nos. 1, 2 and 3. This year it has been necessary to retain the services of the fifth nurse for two months to substitute while other nurses were absent on vacations, the four nurses remaining being unable to carry on the increased work at the depots.

The hours at the depots on week days are from 9 a.m. to 12 noon; during this time milk is dispensed and advice given by the nurse in charge. From 1 p.m. to 5 p.m. the homes are visited and general instructions given by the nurse as to the feeding and care of children. On Sundays milk is dispensed from 9 a.m. to 10 a.m., and the nurses are on call.

The milk comes from a selected herd at the Ottawa Dairy Farm and contains 4 per cent. cream. The average number of quarts dispensed daily is one hundred and seventeen in the summer months, and one hundred in the winter. The price is the

same as the ordinary milk supplied throughout the city. Those too poor to pay are, on certificate from Mr. Keane, the city charity officer, supplied with milk free for one month, and if necessary the certificate reissued.

Clinics are held weekly at the different depots with the exception of No. 1, where we have two a week, one French and one English. It is most encouraging to note that the efforts of the nurses in giving instructions to mothers regarding the feeding of their babies have resulted in an increasing number of mothers nursing their children.

An increase of one depot, to be opened in Ottawa East, is recommended. No. 4, now at 138 Queen Street-West, should be transferred to Lower Town for the summer of 1915; this arrangement will greatly facilitate the work.

Since the inception of the work in 1910 no increase of salaries has been granted the nurses. It is strongly recommended that some recognition be made in the way of an increase of pay.

I wish to thank Drs. Shirreff, Beroard, Tilly, and Valiquet, the nurses, and my assistant, for their co-operation and very efficient services during the past year.

The following statistical table and financial report will show the increased amount of work:—

Number of Depot.	Number of babies treated at clinics.	Number of babies seen by the nurse at Depot.	Number of visits made to babies at homes.	Number of quarts milk dispensed.	Number of deaths.
1.....	133	390	1,718	9,817	9 from Nov. 1, 1913, to Nov. 1, 1914.
2.....	201	545	650	5,861	8 from May 1, 1913, to Nov. 1, 1914.
3.....	510	1,330	1,840	12,866	7 from Nov. 1, 1913, to Nov. 1, 1914.
4.....	317	696	1,555	5,870	1 from May 1, 1913, to Oct. 1, 1913.
Total..	* 1,161	2,961	5,763	34,414	25 *

Cash to the City Hall	\$577.74
Milk sold daily	518.90
Extra milk sold	15.29
Barley flour sold at 10c. per lb.	30.20
Feeding bottles sold at 5c. each	13.35
Total	\$577.74

I have the honour to be, sir, your obedient servant,

GRACE E. MOORE, R.N.,
Supervisor of Modified Milk Depots.

*It is to be noted that this figure includes several appearances of the same baby. 2,557 births were registered in 1914 and 124 deaths from diarrhoea and enteritis, of which the 25 deaths reported by the modified milk depots form a very small portion. It would appear that very few of these cases are being reached. It would be advisable to report these deaths annually, by wards and months. An additional staff during June, July, August and September in certain sections should reduce this rate very materially. Added by Chief Officer of Health.

PETERBOROUGH.

DR. A. W. MCPHERSON, M.O.H.

I beg to submit my report of the sanitary conditions of the city, for the year ending November 30th, 1914.

It gives me pleasure to state that the general health of the citizens has been good. This is, no doubt, due to a number of conditions, such as climate, food and water, absence of dangerous or injurious occupations, proper sanitary facilities, and perhaps,

in a small degree, to the wise provisions for caring for the sick, and to the supervision over health matters as exercised by the Health Department. Some of these are beyond our control, and as such have only a passing interest; those that can be influenced by us must be carefully studied and supervised, so that the health of our citizens may be protected.

When we compare the health conditions of the different towns and cities in the province, as shown by the annual reports from the Provincial authorities, we have good reason for gratification. The following table shows the number of communicable diseases reported in, with the number of deaths.

	Cases.	Deaths.
Diphtheria	80	7
Scarlet fever	12	0
Measles	2	0
Typhoid	12	5
Tuberculosis	18	21
Smallpox	0	0

From the table it looks as if we had a small epidemic of diphtheria, and on account of some interesting features in connection with it, I would like to make a few remarks. The city has been comparatively free from *diphtheria* for the past twelve years. During December of 1913, a number of cases appeared, mostly in the western part of the city. In January and February, 1914, more were reported in from the northern part. From this time until the middle of summer an odd case was reported in from different parts. In August and early September, a number of cases were discovered in the south, just beyond the city limits. Whether the outbreak originated within or without the city it would be hard to say. Be this as it may, it was not long after school opened that three children attending the Sacred Heart school were taken down with the disease and one died. I went to the school and gave antitoxin to the two rooms from which the cases had come. The children were then examined, and all having any discharge from the nose were swabbed and sent home until a microscopical examination was made. Two of the cases were found to be positive. To confirm this and to strengthen my hand in the matter, I sent swabs of the positive cases to Toronto. The Provincial Laboratory confirmed my findings, and the houses were duly placarded, although very strenuous objections were made. A few more cases were reported in from among those attending the school. This had the tendency to alarm the parents and the school attendance fell away .75 per cent. At our request, the Separate School Board appointed a nurse to assist in controlling the outbreak. This was accomplished first by taking swabs from all suspicious cases and placing in quarantine any that were found to be positive; second, by following up absentees, and finally by giving antitoxin to every child in the school. After the antitoxin was given, we had no more cases. At the same time that this work was being done in the separate schools, a similar work was being done in two of the public schools, where a large number of positive cases was found.

By this means we located many children that were showing no symptoms of any diseased condition, except a discharging nose; but who, notwithstanding, would be able to communicate the disease in a severe form to others. In following up absentees, and by insisting on a swab of the nose and throat being taken for examination before a pupil was readmitted to school, we located a number of cases of clinical diphtheria that, from one cause or another had not been reported in.

During the year *eighty cases were reported in, but forty of these were showing no signs of illness, and were found through the work of the school nurses.* As a result we are again free from diphtheria. I just wish to take this opportunity to express my appreciation of the *good work done by the two school nurses,* and the active support received from those in authority in both the separate and public schools.

Typhoid has been light again this year, only twelve cases being reported in. Four of these had been living out of town prior to developing the disease and doubtless obtained the infection there. The other eight were using either well water exclusively or well and city water. The cases were scattered throughout the year. The number of deaths was five.

Measles and scarlet fever gave us no cause for worry, and *smallpox* did not make an appearance.

Before leaving this part of the report, I would like to call your attention to the number of deaths from *tuberculosis.* This year the number was twenty-one, as compared with 30 last year, or a decrease of 30 per cent. No doubt this is in a large measure due to the good work of the Peterboro Health Association. It is only two and a half years since the work began, but already the results are showing in the most

practical and in the most convincing form: the lowering of the death rate, or in other words in the saving of lives. How many will be saved from the ravages of the disease through a reduction in the number of cases and through education in prevention and spread of infection, among those suffering from the disease, or among those who may be exposed, be it at home or elsewhere or by caring for the delicate or poorly nourished children, only time will tell. In the meantime it is our duty to support the association in their good work in every way that may be necessary.

The sanitary work has been carried on as far as possible with the help available, and is dealt with in the Sanitary Inspector's report which is appended. There is very little beyond the usual routine to report. I might say that during the year the *bake shops and laundries were inspected* and regulations controlling each drawn up. It was decided to recommend to the council that the laundries be licensed, the issuance of the license being subject to the approval of the Sanitary Inspector. A marked improvement in the laundries has resulted therefrom. In this connection I would suggest that the bakers also be licensed only after the premises have been examined and found in accordance with the by-law. Licenses for butcher shops are issued by the police. It seems to me that they should be issued only after receiving a favorable report on the premises from the Sanitary Inspector.

The milk by-law should be amended so as to compel the milkmen to keep the Sanitary Inspector informed as to the sources of their milk supply.

We have received from the Provincial Board of Health copies of the rules and regulations governing slaughter house and manure heaps, and it will be our duty to see that they are enforced.

I have but few recommendations to make. Last year I suggested the advisability of an abattoir and a small smallpox hospital. In view of the hard times prevailing, it may be advisable to postpone consideration of these.

Before closing I would like to draw your attention to the fact that Peterboro is to be honored this year by being the first city outside of Toronto to have the Annual Convention of the Health Officers of the Province. The dates set for the meetings are May 25, 26, 27 and 28. When you consider that there are about 700 officers in Ontario, you will see that we will have a large number of guests to look after, and I ask your assistance in making it helpful and entertaining to them while in our city.

SANITARY INSPECTOR.

C. A. G. SPENCE.

I have much pleasure in submitting my third annual report for your consideration, containing a brief resumé of the work accomplished during the past year. The following table will show at a glance how part of my time has been expended.

Calls and inspections	3,850
Calls and inspections (by Mr. Miller)	300
Visits to dairy farms	105
Visits to slaughter houses	45
Notices issued	222
Complaints investigated	186
Samples of milk tested	184
Licenses granted after inspection since April 15th.:	
Restaurants	27
Laundries	12
Milk vendors	42
Scavengers	9

In addition to the foregoing figures a great proportion of my time has been occupied in superintending the *garbage collecting systems*, the working of the *incinerator* and other details of sanitary work. I received valuable assistance in the spring from Mr. Miller, who inspected the yards in east city; but the increased labours attached to his other offices curtailed this assistance later, and at the present time he has as much work in his own department as he can cope with.

MILK SUPPLY.

The following particulars relating to the milk supply of the city may be interesting. The daily average quantity of milk sold in Peterborough by the 55 licensed vendors is about 4,500 quarts. Thirty nine of these vendors procure their milk from 60

farms in the surrounding country, the remainder being persons who keep one or two cows and sell milk to their neighbours.

The quality of the milk is good, both as to fat per centage and cleanliness, the average test for the 184 samples being 3.59 per cent. fat; a slight increase over last year's record, and well above the standard required by the by-law, namely, 3 per cent. The highest individual average is 4.3 and the lowest 3.05; highest individual test 5.3, lowest 2.8. Eleven vendors show an average test between 3 and 3.5; twenty-four between 3.5 and 4, and four above 4 per cent.

A greater number of dairy farm visits than last year has been made and many improvements effected. Two new dairy barns and several milk houses have been erected as a direct result of these inspections. The water that the cows drink and that cans and utensils are washed in has been tested, and every effort has been made to secure the citizens wholesome, clean milk from the time it leaves the cow's udder until it enters the consumer's door.

SLAUGHTER HOUSE REGULATIONS.

The slaughter houses have been periodically visited, and on the whole conditions are as satisfactory as could be expected under present circumstances. The regulations of the Provincial Board of Health, however, passed two months ago and now in force, will compel the City Council in the near future to take up again *the question of a public abattoir* for this reason, there is not a slaughter house in the district that can comply with the rules. The enforcement of these regulations simply means that the slaughter houses now in use will have to be closed. The owners are, I believe, unanimous in their desire to see an abattoir erected, in fact, they have frankly admitted to me their inability to meet the requirements from a financial standpoint alone.

COMPLAINTS.

186 complaints have been received and investigated, as against 122 in 1913. Of this number 25 had reference to outside closets; 18 to food products; 14 to noxious odors; 13 to stables; 15 to defective plumbing; 13 to premises being left in dirty condition; 11 to nuisances from fowls, and 7 to water supply; 30 of the total number were either exaggerated or unjustified.

LICENSING OF LAUNDRIES AND EATING HOUSES.

As you are aware, by-laws were passed which came into effect on April 15th, 1914, providing for the licensing of laundries and eating houses. These licenses are not issued until the applications are favourably reported upon by me after inspection of the premises, and the result has been a radical change, especially in the Chinese laundries; all of which had to be remodelled or altered before the licenses were granted.

MARKET.

New market regulations relating to the selling of fowl by weight and the displaying of the names and addresses of the vendors came into force on May 1st of this year, and, as usual with legislative innovations, met with some opposition at first. This, however, soon subsided, and at the present time the market square and building is quite inadequate to accommodate in comfort those who resort there on market days. I regret that my proposition to have fowl dressed with the heart and liver attached was turned down. The result has been that the buying public has suffered thereby, fowl after being dressed at home often being found diseased. In connection with this it is significant to note that the local cold storage plant will only purchase turkeys that have been dressed.

YARDS.

There are yards in the business section that are a disgrace to a city of this size, and a positive menace to the health of those who unfortunately have to work near them. The difficulty of deciding the ownership of these places is an obstacle to their improvement. They should be paved and drained, and until this is done it will be impossible to keep them in a sanitary condition. I would suggest this question be taken up by the Board of Health with the City Council, with a view of ascertaining whether they could not assume control and effect this under "Local Improvement."

In conclusion I may say that the results achieved in every department of sanitary work show distinct progress, and though my duties are arduous and often unpleasant, there is a satisfaction in knowing that one is surely though slowly attaining the goal aimed at. The public are gradually awakening to the fact that the work of the Health Department for the prevention of disease is not simply a fad; but one that is deserving of consideration and support.

PORT ARTHUR.

DR. C. N. LAURIE, M.O.H.

I have the honor to present my report for the year 1914. We have been fairly fortunate during the year, having had no serious outbreak of disease of a dangerous character, although we had an unusually large number of cases of scarlatina and measles. The scarlatina made its appearance very early in the year, and it has seemed almost impossible to stamp it out. It is of such a mild type that in eighty per cent. of the cases no physician is called, as the children are only slightly ill, and the rash which is very light only lasts a few hours, or at the outside a couple of days. The majority of these cases are not reported, the parents looking upon the sickness as a slight cold, or in some cases keeping it quiet to escape quarantine. Most of the cases have been found by the school nurse or were reported to me by some neighbor. We have had to close rooms in the schools at different times during the year to help check the disease. At present it seems under control again, but as it is in the townships around as well as in different villages up and down the railway lines, we can never tell when we may have another outbreak. We also had a number of cases of measles during the months of May, June and July, but I am pleased to say that we have only had one case lately and that patient took ill a few days after arriving from Winnipeg, having doubtless contracted the disease there. There has been a decided improvement in our typhoid situation this year over other years. Since July 1st we have had twenty-three cases reported, of which eight were from the city, and fifteen from outside points. This is a very satisfactory condition, but we trust that even this good record by constant care may be surpassed, until the disease is entirely wiped out of our country. Of course we cannot as a city do this alone, but the care must be general all over the Province and the Dominion. Our Provincial Board of Health has taken a very decided interest in this, and, with their district officers, are doing everything in their power to stamp out all contagious and infectious diseases.

We had sixteen deaths during the year from tuberculosis. This is a very serious matter and some steps must be taken by our Council to provide a place for the treatment of these patients. At present they are treated in the general hospitals. These hospitals are small and often overcrowded, and it is an injustice to expose the other patients to so serious an infection in their weakened condition.

We had a nurse appointed early in the year to assist in the school work. She has done excellent work, and has been invaluable to me. She visits the schools daily, examines the pupils when necessary, gets the names of the absentees and calls at their homes to find out if they are absent through sickness. Since she started the work on March 10th last, she has examined 784 children in the schools, and made 1,810 calls at their homes. She reports all cases at my office daily, sends children suffering from disease to me for further examination and treatment, and, if necessary having me visit them at their homes. I have spent a great deal of time in this work visiting the schools and the homes to investigate cases of sickness. We have also examined over ninety school children for eye, ear, nose and throat troubles, and have operated on thirty-nine. I have also visited all homes quarantined. I have also personally supervised fumigating of these homes. With the sanitary and plumbing inspectors I visited all buildings reported as unsanitary. With the inspector I have visited yards and lanes all over the city to see that they were kept clean, also to see that the regulation garbage can was used. We have had sixteen persons in court for keeping dirty and unsanitary premises. We also had to summon a number of persons for failing to comply with the by-laws in regard to proper sewer connection. We have also had several cases before the Magistrate for breaking quarantine. We have kept a close watch on all, butcher shops 16, cold storage plants 2, restaurants 22, the market, laundries 15, livery stables 6, barber shops 18, bake shops 9, fruit stores, boarding houses, the C. N. R. bunk house, the theatres, slaughter houses, and dairies. The inspector has taken samples of milk from the wagons, all of which he brings to me for examination. I have found the milk generally up to the standard, occasionally we have found it necessary to warn some of the dealers. We have twenty-one licensed milk dealers and it takes a great deal of time visiting their dairies, as some live considerable distances out in the country. We have kept close watch on them, both the inspector and myself making repeated calls. The inspector has seized and destroyed a number of carcasses of meat, which was unfit for food.

In August we held a "Better Baby Contest," under the auspices of the Local Council of Women. We were assisted by the doctors and nurses of the two cities, and in the three days of the contest we examined about 250 babies, distributed literature instructing mothers in the proper feeding and care of babies, as well as giving personal advice. We have also addressed a number of mothers' meetings on the same subject, all of which we trust may help to reduce the great mortality amongst children. In this

connection it is interesting to note that out of 123 deaths amongst children in the city during the past year there were thirty-seven stillborn, which I think is an unnecessarily large number.

During the year we treated sixty-six cases in the Isolation Hospital, 45 of scarlet fever, 16 of measles, 2 diphtheria, 3 erysipelas, with two deaths, one being a case of scarlet fever and one diphtheria. I have received a number of reports from parents, whose children were treated there, speaking most highly of the care and attention received. I also wish to express my appreciation for the way in which the hospital is kept by the matron.

I have had a larger number of charity patients under my care this year principally on account of so many persons being out of work on account of the hard times. These patients were sent to me by the relief societies. I also had the usual number from the Police Court and Sailors' Institute.

During the year we finished the new water works intake pipe two miles below the site of the old intake, the water being turned on from this source in November last. Before the water was turned on it was carefully examined in a field laboratory of the Provincial Board of Health, which was sent up in charge of Mr. DeLaporte. The supply was almost absolutely sterile, assuring the citizens of an improved water supply.

All of which is respectfully submitted,

SAULT STE. MARIE.

DR. A. S. McCAIG, M.O.H.

I have the honour to submit my report of the sanitary condition of the City of Sault Ste. Marie for the year 1914.

VITAL STATISTICS.

During the year there were, up till September 30th, 205 births, 179 deaths. 121 marriages.

INFECTIOUS DISEASES.

1. Typhoid Fever.—During the year there were treated in the city 123 cases of this disease. From Sault Ste. Marie, 77 cases; Steelton, 23 cases; boats, camps and outside municipalities, 23 cases. There were nine deaths from this disease.

The outbreak of typhoid fever began in the latter part of June, and continued during July and August. The Provincial Board of Health conducted a very thorough investigation into the cause of the epidemic. It was clearly demonstrated by the investigation that the water supply was the source of infection, and that irregular administration of the hypochlorite to the water was responsible for the outbreak of the disease in Sault Ste. Marie and Steelton.

We have now had over a year of the sterilization of the water by chlorination and the results have not been as satisfactory as anticipated. No doubt we would have had a great deal more typhoid had the water not been chlorinated, but the knowledge that the water was being chlorinated gave a false sense of security, and the best method of sterilizing the water by boiling was neglected.

Chlorination is only a "stop-gap" method of treatment, and it is almost impossible to insure complete sterilization of the water at all times by this method. It must be looked upon only as a temporary expedient until more permanent measures of purification are installed, either a change in source of supply, intake, or filtration.

A great deal of complaint has been heard regarding the excessive amount of hypochlorite added during the summer. It is necessary to add the maximum dosage of hypochlorite all the time in order to take care of excessive pollution that may occasionally occur due to the congregation of a number of boats above the intake. Another reason for the taste being so perceptible in our water is that Lake Superior water is entirely free from vegetable and other impurities that abound in ordinary river water so that the material for oxidation by the hypochlorite is limited in Lake Superior water to the impurities furnished by navigation.

Even with all mistakes and accidents due to human indifference or carelessness and to uncertain mechanical contrivances designed for the administration of the hypochlorite eliminated, we are in constant danger. No system of chlorination, however carefully managed, can take care of the sudden gross contamination that our water is at any time exposed to during the season of navigation, and the only thing that saves us and has been our safety in the past is the immense volume of water that serves as a diluent

for the pollution. But in order to gather the pure concentrate of pollution into our water supply the intakes in both the ship and power canals are so placed in relation to the gates that the gates act as dams and the intakes readily gather in what the gates so effectively obstruct. A more dangerous scheme could not very well have been designed.

Now that the water system is under municipal control we look for immediate improvement in our water supply. During the year you had two reports upon the water supply, one from the Provincial Board of Health of Ontario, the other from Dr. Starkey, Professor of Hygiene in McGill University. Both reports condemned the source of our water supply as extremely dangerous and a menace to the public health. It should be the duty of the incoming council to deal with this important matter as early in the year as possible. I think it would be better to leave some of our streets unpaved for a few years and secure a pure water supply instead. A street is only bad for a very short time in the year and only to a very few citizens with carriages or automobiles, but a dangerous water supply is a menace to every inhabitant of the city and to every person whose business calls them to the city. With over 100 cases of typhoid in Sault Ste. Marie and Steelton this season directly traced to the water supply, and with 14 deaths from the disease in the two municipalities, and these deaths in young healthy adults, do not be surprised to receive any day a peremptory order from the Provincial Board of Health ordering you to clean up your whole water business.

2. Scarlet Fever.—We began the year with an epidemic of this disease. There were 36 cases of the disease. No deaths.

3. Diphtheria.—There were nine cases of this disease with one death. In 1912 we had 97 cases with 9 deaths, and in 1913 40 cases with 3 deaths. The benefit of the Isolation Hospital in controlling this disease is apparent. Before being released from quarantine every diphtheria patient must give two negative swabs from the throat. During the year I examined 23 swabs, seven gave a positive diagnosis of diphtheria and 16 a negative diagnosis.

4. Tuberculosis.—There were 16 deaths from this disease—13 pulmonary, 2 meningeal, and 1 peritoneal. This disease still maintains its place at the top of the death column. The educational campaign against this disease is still being carried on and though the results do not seem very encouraging just now, the rising generation is being educated along lines pertaining to the prevention and cure of the disease.

5. Measles were epidemic early in the year. There was one death as a result of this disease.

DAIRIES AND MILK SUPPLY.

The dairies were inspected during the year by the Sanitary Inspector and a committee from the Board of Health. In some cases the stables were found in a very dirty condition and the method of handling the milk was not satisfactory to the Board of Health. The owners were notified of the changes necessary before they would be allowed to sell milk in the city.

Milk is the most favourable agent for the spread of disease. The milk may be infected by coming from diseased cows or it may become contaminated by careless and dirty methods of handling.

Tuberculosis is conveyed by milk from cattle to man. It is with cattle, as with man, the most widespread of all infectious diseases. It is prevalent in the dairy herds of Canada, and examination of the cows in this district revealed the presence of the disease in some of the herds supplying milk in the city.

Bovine tuberculosis transmitted by milk shows itself most frequently in children in the form of enlarged glands in the neck, tuberculosis of the bones and joints, and meningitis. Probably 500 deaths in Canada each year are the result of infection with bovine tuberculosis. Pasteurization of all milk as at present furnished is a very safe measure to observe.

This coming year we intend taking advantage of the Order-in-Council passed last May by the Dominion Government regarding the testing of dairy herds for tuberculosis.

BUTCHER SHOPS.

These were frequently inspected during the year and were kept in good condition. The meat supplied by the butchers was clean and of good quality.

BAKERIES, HOTELS AND RESTAURANTS.

These were regularly inspected. Two bakeries were closed on account of insanitary premises, and one hotel proprietor was prosecuted for having his premises in an unsatisfactory condition. Restaurants were made comply with the regulations of the Board of Health.

A great many new sewer connections were made on order of the Medical Officer of Health and Sanitary Inspector. This good work was somewhat interrupted when the war broke out, but we hope soon to resume this part of our work again so that in a short time there will not be a house on a street where there is a sewer which is not connected with it.

The work of the Sanitary Committee in the collection of garbage was well done. It will be much easier for the men on the carts when every householder is compelled to get a garbage can. The new incinerator has taken care of all the garbage that could be taken to it.

The duties of the Sanitary Inspector were diligently and efficiently performed.

Sanitary conditions in the city are improving every year, and Dr. R. E. Wodehouse, Provincial Medical Officer of Health for this district, on his official visits to the city has expressed himself as well satisfied with the work that is being done in the interests of the public health.

STRATFORD.

DR. J. C. ROBERTSON, M.O.H.

In accordance with the requirements of the Public Health Act, I have the honour of again submitting to you my annual report of the health of the city for the past year ending October 31st.

It will no doubt be gratifying to the Board to know that during that time the health of the city has been exceptionally good. We have had no epidemics of the so-called preventable disease. There were *seventeen cases of diphtheria* with two deaths; eleven of these cases were treated in the Isolation hospital. There were eight cases of scarlet fever with no deaths. *Seventeen cases of measles* were reported, all recovered. There were only *six cases of typhoid fever* reported, with one death. It strikes me *the profession is negligent in its duty in not reporting promptly cases of this kind coming under its care*, although circulars have been sent them requesting them to do so. There were seven deaths from tuberculosis recorded—notification of tubercular cases seem to have been neglected. Such notification is not for the purpose of isolating the patient, but the Provincial Board of Health demands it, so that it may be able to forward to the patient such literature as it has formulated for his or her benefit and for the protection of the public. We had *one case of smallpox*, but by vigilance, carefully quarantining and vaccinating all exposed persons, no other case occurred. Three cases of infantile paralysis were reported, no deaths.

Of the preventable diseases, measles and whooping cough are the hardest to control. When it becomes known to the public that either of these diseases is prevalent in the city, they abstain from sending for medical aid, and consequently no report is made and the children are allowed to mingle with others long before the requirements of quarantine expire, thereby spreading the disease. Section 53 of the Public Health enacts that "whenever any householder knows or has reason to suspect that any person within his family or household, or boarding or lodging with him, has any communicable disease, he shall within twelve hours thereof give notice thereof to the Secretary of the Board or to the Medical Officer of Health. Failure to do so renders him liable to a fine."

There were in all 139 marriages, 384 births, and 186 deaths registered in the city.

We find that from child-birth to ten years of age there were sixty deaths; between ten and twenty, six; between twenty and forty, twenty-two; between forty and sixty, twenty-six; over sixty, forty-three; accidents, three. Ages not given and premature births make up the total.

There were seven meetings of the Board during the year, although only four are required by the Health Act.

I must congratulate the members of the Board in the interest they have taken in sanitary matters, as has been evidenced by their regular attendance at the meetings and their rational and interesting discussion of matters brought before them.

One sad feature during the year was the loss of a valuable and esteemed member of the Board, in the passing to the great beyond of Mr. Frank Pratt. He never missed a meeting, and his counsel and advice were always worthy of consideration. His mantle has fallen upon one of the medical profession, and we look forward with the hope that no errors or omissions will lower the standard of that of his worthy predecessor.

This year the Board has accomplished a long needed necessity, which I have been agitating for years, in their having *established a garbage collection and disposal system*. By the conjoined efforts of the Board and a special committee of the council, the necessary by-law for same was prepared and finally passed by the council. Too much thanks cannot be given to the chairman and members of this special committee for the interest and efforts they took in having this matter successfully carried out.

Much sanitary work has been done this year, as will be observed by the attached report of the Sanitary Inspector.

SANITARY INSPECTOR'S REPORT.

THOS. DUNSEITH.

In presenting my annual report I am pleased to be able to state that we have had a very favourable year.

I used every precaution where communicable disease was known to exist, and was extremely careful in disinfecting houses and schools, and any other places frequented by patients prior to being quarantined.

A case of smallpox broke out in the General Hospital, and by order of the District Medical Officer of Health we had the patient removed to the Isolation Hospital, and there was no further spread of the disease.

As to the sanitary conditions of the city, I think it will compare favourably with any city of like size in Ontario; and we look for still better conditions now that we have the long wished for *system of garbage removal and disposal*.

This system, although in its infancy, is giving the greatest satisfaction to the citizens in general.

Another great factor in the better sanitation of the city was the *covering of Romeo and Erie Creeks, now completed*.

We inspected the *slaughter houses* and found them unsatisfactory. Their owners were given notice to vacate their present buildings and erect modern slaughter houses, according to the specifications of the Provincial Board of Health.

I also inspected the livery and feed stables many times during the year and found them all kept clean and sanitary, the owners complying with the sanitary regulations.

I inspected the restaurants regularly all summer and found them generally in good condition. The bake shops also were usually found clean and wholesome.

I think we should have a by-law to enforce the wrapping of each loaf of bread for delivery. It would be much more sanitary than the present method of handling.

In my frequent inspections of groceries and confectioneries I found in nearly every case the owners adhered closely to the letter of the law.

Almost every day during the year I have made sanitary inspections in some part of the city, and am pleased to say that conditions are improving, as people are becoming more alive to the fact that the health of themselves and their neighbours depends on the care they take of their premises and the disposal of all refuse.

In the matter of our *milk supply*. I made weekly tests during the summer of samples taken from the various milk vendors, and found it to be up to the standard. Also, in company with the Medical Officer of Health and the chairman, we inspected the dairies from which our milk supply is obtained, and with one exception found the stables and milk cooling places in satisfactory condition.

The District Medical Officer of Health was very favourably impressed with the dairy farms, and remarked that they would compare creditably with any in Ontario.

I inspected the butcher shops frequently and found them well kept.

The laundries were frequently visited and found well cared for.

I frequently tested water from wells in all parts of the city and found about 35 per cent of it unfit for use.

I had some difficulty in enforcing the *by-law abolishing outside closets*. Some of the houses are not built in such a way that the closets might be installed. Others are old and owners are not in financial position to make the improvements, but we have had about 130 comply with the by-law this season.

ST. CATHARINES.

Dr. F. KING, M.O.H.

I beg to submit the annual report of the sanitary and other conditions relating to the public health of the city for the past year.

As the Secretary will present a full record on "Vital Statistics," it will not be necessary to make an extended reference thereto.

Generally speaking, the health of the city has been very satisfactory and death rate lower.

There were recorded 265 deaths from all causes, as compared with 242 last year; of these 39 were premature and still births, as compared with 21 recorded last year.

Of children under one year of age, there were 44 deaths as compared with 54 last year, which is an encouraging reduction when we consider the increase in population and the increased birth rate (504).

SANITATION.

A large amount of sanitary work has been done. The Sanitary Inspector has made 1,600 inspections of premises during the twelve months; 42 homes were placarded for contagious diseases, and 75 houses were fumigated.

Early in the summer the City Council enacted a *by-law prohibiting the use of outside closets within a defined area*, but as the time allowed to make sewer connections was extended to September, the good effect of this by-law has not been apparent, but many of these places have been closed and many others are now being done away with. The garbage dump is still a prolific cause of complaint. It has, however, been kept in as fair a condition as possible, and pending the erection of a public incinerator this or some equally objectionable ground must be used.

MILK.

During the past year several unsanitary dairy farms have been excluded and three applications for licenses to vend milk refused; 232 inspections and tests of milk for butter fat have been made. The supervision of this important article of the food supply is a matter of "eternal vigilance."

WATER.

During the year seventy-five samples of the city water were sent to the Provincial Laboratories, Toronto, for analysis. A chlorinating plant has been installed by the Water Commission, and arrangements have been made for a direct pipe-line from Lake Erie, which should settle any doubts respecting the purity of the water supply.

GENERAL.

It is worthy of notice that there were twenty-two deaths due to pneumonia, the highest mortality recorded from any single disease. Many of these may be attributed, in part, to faulty ventilation in the homes; therefore, for this and other reasons, the appointment of a qualified plumbing inspector would be in the interest of the public health.

The necessity of an experienced inspector of meat, poultry, and fish has again been fully demonstrated by the experience of the past year.

In conclusion I beg to recommend:—

1. The extension of the area for garbage collection.
 2. The adoption of a by-law requiring all householders to provide proper covered fly-proof and waterproof metal receptacles for house refuse.
 3. The extension of the area in which outside closets shall be prohibited, said area to include all streets provided with sewers.
 4. The adoption of a by-law providing that where circumstances require the use of outside closets they shall be properly screened from flies.
 5. The appointment of an experienced plumbing inspector.
 6. The providing of an efficient home for contagious diseases, with modern equipments and trained assistance.
 7. The providing of grounds for receiving and destroying general refuse.
- All of which is respectfully submitted.

REPORT OF THE SECRETARY, J. A. PAY.

I beg to submit herewith my annual report from November 15th, 1913, to November 15th, 1914, inclusive.

Attached to the report is a list of all deaths and their causes during the year, as returned by the medical attendants; also a summary of their ages at the time of death.

The diseases classed as contagious were very few, as shown below:—

Diphtheria	20 cases.
Scarlet fever	17 "
Tuberculosis	6 "
Chickenpox	4 "
Typhoid fever	2 "
Erysipelas	1 "
Measles	1 "
Whooping cough	1 "
	—
Total	52 "
Last year	115 "

514 births were reported, being an increase of 99 over last year.
 236 marriages, being an increase of 35 over last year.
 276 deaths, being an increase of 17 over last year.

AGES AT TIME OF DEATH.

Still born and premature	39
Under 1 month	15
1 month to 6 months	22
6 months to 1 year	9
1 year to 2 years	5
2 years to 5 years	6
5 years to 10 years	3
10 years to 20 years	8
20 years to 30 years	22
30 years to 40 years	24
40 years to 50 years	18
50 years to 60 years	32
60 years to 70 years	33
70 years to 80 years	22
80 years to 90 years	18
	276

The population last year as returned by the assessors was 16,025, and this year 17,296, being an increase of 1,271.

In proportion to the population the death rate is low, being 15.95 per thousand, which will compare very favourably with any city of our size in the Dominion.

The garbage collection is giving very good satisfaction, very few complaints being received, and in most cases the fault is more the householder than the collector. All houses should have proper receptacles. The amount of garbage taken from the city daily is no doubt a factor in the health of the city.

During the past year a large area of the city has been supplied with good sewers and a large number of outside vaults have been removed.

The sewers laid and sizes are as follows:—

17,545 feet of 10 in., 5,917 feet of 12 in., 3,374 feet of 15 in., 2,976 feet of 18 in., 398 feet of 20 in., 308 feet of 24 in., 746 feet of 30 in., 375 feet of 12 in. cast iron, making a total of 31,639 feet, or 6 miles.

WINDSOR.

DR. G. R. CRUICKSHANK, M.O.H.

I have the honour to present the annual report of the M.O.H. I beg to thank the Board for the hearty support it has given the M.O.H. in his endeavors to carry out its direction.

As one of the principal duties assigned to the M.O.H. was re-organization of the department, he begs to report upon this, and afterwards in detail upon the care of communicable diseases under the following heads:

(1) Programme of Work. (2) Machinery and Officials. (3) Inspectors and their duties. (4) Smallpox. (5) Diphtheria. (6) Scarlet Fever. (7) Tuberculosis. (8) Typhoid. (9) Other Communicable Diseases. (10) Education of the Public. (11) Recommendations.

PROGRAMME OF WORK.

Our chief duty is to prevent the spread of disease (1) by quarantining those infected and giving off contagion; (2) by limiting and destroying contagions such as is contained in tubercular sputum and typhoid excreta and by increasing the immunity to special disease as is done for smallpox; (3) by vaccination, and for diphtheria; (4) by antitoxin and by increasing the immunity of the race by (a) adding to their vitality and vigor with pure air, pure food and sane ideas of living by aid of (5) plumbing (b) food inspection, and (7) sanitary education.

At the commencement of the year we had one somewhat antiquated smallpox hospital without water or sewer, one sanitary inspector under our direction and one plumbing inspector nominally directed by us. Our garbage was dumped by the

Board of Works on vacant lots back of the city. It was at once directed to burn all garbage in an incinerator and while this was being built the Walkerville incinerator took care of our garbage. The *Windsor incinerator*, built at a cost of \$24,000, was finished August 1st. In October 853 loads of garbage were disposed of, as well as horses and cows. This is under the management of the Board of Works, whose alley inspector has charge of ten wagons, and is doing a very efficient work. We had no office nor records except those in the office of the city clerk, who acted as secretary of the Board, and these consisted of minutes of the B.O.H. meetings and the contagious disease book. Mayor Howe'll placed at our disposal his room in the City Hall, where we meet inquirers, and keep records of all inspections. As many health regulations had been violated for years, such as the use of privy vaults on sewered streets, it was decided to add another inspector to look after matters of this kind, also to appoint a meat and milk inspector.

INSPECTORS AND THEIR DUTIES.

Our four inspectors with the M.O.H. meet in the City Hall every morning from 9 to 10 to hand in reports in writing of all work done by them on the preceding day and to plan work for the coming one. A map of the city is kept on the wall with colored pins indicating the number and places of contagious disease.

The Inspector of Quarantine in receipt of a notice of contagious disease at once establishes a quarantine strictly according to regulations, enquires carefully as to the source of contagion, inspects the premises, plumbing, closets, yards, and alleys, enquires where their milk is procured. This report is made in writing and is filed in our office. The milk record is entered in the card index to assist in tracing the source of contagion. If the milk is suspected the vendor must furnish a certificate of health from the M.O.H. where the dairy is situated. His duty is also to disinfect as directed by the M.O.H.

It is legally enjoined upon the Board of Health to supply necessaries for quarantined families in cases of poverty. In order that charity may not be duplicated or wasted in addition to our own investigation the president of the Home of the Friendless is communicated with. No charity is dispensed without her approval.

The Sanitary Inspector of nuisances investigates all complaints and reports in writing. This is entered in a card index so that at any minute we can turn to the inspection of any premises. He enforces the law as directed, condemns houses, causes delinquents to appear in court. All complaints are strictly confidential; all are fully investigated, the reports made in writing and the names of the complainants kept absolutely secret.

This sanitary inspector made a *sanitary survey of the city, especially with reference to privy vaults and stable manure.* There were at the beginning of the year 176 houses on sewered streets not connected with the sewer, and 46 where no sewer exists. In all these cases open vaults were used. So far 99 have been forced to connect with the sewer and 14 have been made to substitute dry earth closets. Seventy-six open vaults still remain on sewered streets. This is due to the extension of sewers on streets where old houses used vaults and owing to poverty and hard times we were unable to compel the improvement so far. As to manure piles about 125 exist, and not one was fly proof. We have difficulty in disposing of this, as farmers do not seem to want it and our incinerator is overtaxed. Much improvement has been brought about. We have asked the Teamsters' Union to allow us to talk the matter over with them. These two inspectors are permanent and are liable for any duties that may arise.

The Plumbing Inspector is a practical plumber, who insists upon plans and specifications of all drains and plumbing, issues permits and thoroughly inspects the work. These plans are filed and make valuable records as to the position of drains, traps and pipes. One instance will show the necessity of this work. A child died of tuberculosis in a fine looking house on one of our best streets. A sanitary inspector, in his line of duty, inspected the premises and disinfected. He reported an unsanitary basement and notified the owner. After two weeks another inspection showed that nothing effective had been done, and a third inspection had a like result. The inspector then advised that the house be condemned as unfit for habitation. Before taking such a serious step the Plumbing Inspector, the Sanitary Inspector and the M.O.H. went together to suggest a remedy. The owner did not build the place and he told us that three firms of plumbers had already tried in vain to remedy it. No one could find out if there were pipes or traps or where they were. In the future no such contingency can arise in any place newly constructed or repaired.

The Meat and Milk Inspector inspects all meat shops at least once a week, criticizes the stores, condemns and sends unfit pieces to the incinerator, and brings delinquents before the police court. He also, with the Sanitary Inspector, examines

and condemns on the market and in stores all unfit goods, such as fruit, vegetables and eggs, and sends them to the incinerator. All criticisms and actions are reported in writing and filed in the city hall. All milk is analyzed and reported upon at least once a month. When our new milk by-law becomes law more stringent regulations will apply to all dairies and milkmen will be advised about the keep of their milk and cows, and advice as to feed, based upon analysis of the milk, will be given.

SMALLPOX.

There is no smallpox in Windsor to-day, but we had our isolation hospital occupied almost continuously from March 23 to September 11. In all 19 cases there were no deaths. This has been a very expensive item, as it is difficult to secure a caretaker and nurses to be locked in for an indefinite period, especially as there is neither sewer, water, nor gas in the building. During the early months our help cost us \$15.00 a day; later other help quite as good was secured for \$6.00 a day. Water is hauled at \$5.00 a load. Patients are not willing to go to this hospital, but we promise them every comfort and no expense and keep our word. Formerly we furnished groceries and medical aid to families quarantined. We still furnish this if asked, but collect afterwards every cent expended if the families are able to pay. This necessitates a better system of checking expenditure. Sewer, water and gas are promised us this fall.

The source of contagions was in most cases unknown but one, a very severe case, thought he caught it from some South American gypsies detained by the Emigration authorities. The M.O.H. of Rochester township directed us to a family exposed in that township. The children in the family should attend St. Alphonsus school. Fortunately they had not been attending, for on inquiring we found there 186 unvaccinated children. I examined all the children in the school and went from house to house to examine absentees and found none infected.

VACCINATION.

Our rule requiring *all children to be vaccinated* before entering school had not being rigidly enforced. The Board of Health published a notice insisting upon this requirement and appointing time and place for public vaccination for those who did not wish to employ their family physician. *This required six Saturday mornings, and 733 were vaccinated successfully, only seven failures occurred and there were very few sore arms.* This work was done with very great care to ensure asepsis and to educate the children why and how to get it. It was impressed upon them that vaccination would not cause a sore arm if other germs did not get into the abrasion.

Five amateur nurses were selected among them, showing how to sterilize their hands, and each appointed to a station and a duty. The Truant Officer admitted the patients at the door with arms bared. The first nurse washed with soap and water, the second with clean water, the third dried with clean cotton and the Sanitary Inspector scarified with a newly boiled needle. The M.O.H. applied the vaccine, the fourth nurse applied an antiseptic bunion plaster as a vaccine shield, the fifth fastened it on with a strip of adhesive. The shield to be removed in three days. No water, cotton, needle, vaccine or anything that touched one patient was allowed to touch another and the result was very satisfactory. Next Saturday certificates were issued. No vaccinated child ever had smallpox in Windsor.

DIPHTHERIA.

During the past year 96 cases of diphtheria occurred and six deaths, and sixteen cases are quarantined at present.

A rumor that there were some suspicious sore throats in the Mercer Street School was confirmed when one of the teachers became infected. *An investigation was made and swabs taken from all suspicious throats in the school and neighborhood and sent to the government laboratory in London.*

One family across from the school thought they had a common sore throat, but it was diphtheria and in the school four pupils apparently in the best of health were found to be diphtheria carriers. Similar investigations were made in the Collegiate and in Park Street School and no carriers found. A child with a suspicious sore throat is sent to the M.O.H. by the teacher, a swab is made and sent to the laboratory for a report. This means the child is detained from school three or four days. These investigations take a great deal of the M.O.H.'s time and should be done by a nurse. Diphtheria and scarlet fever are usually spread by those so mildly sick that they do not know they have it. We should have a laboratory of our own and get results in one day.

We have made liberal use of the antitoxin purchased through the Provincial Board. We furnish the 1,000 units packages free and to date have given \$30 worth and have sold \$30 worth besides. The antitoxin is very satisfactory and effective.

SCARLET FEVER.

During the past year 52 cases were reported; no deaths, and there are four cases quarantined at present.

As there is no laboratory diagnosis for scarlet fever the *M. O. H.* insists upon *teachers sending all pupils with sore throats to him for examination.* In June last so many cases occurred in the east end of the city that the *M. O. H.* got a list of all absentees from school, made a house to house examination, and discovered two unrecognized cases. The inconvenience of quarantine induces people to conceal their cases. If we had a scarlet fever hospital this could often be avoided. For instance a family with a small store can hardly be condemned for avoiding a placard on their door.

TUBERCULOSIS.

Only twelve cases have been reported and thirteen deaths.

Improved conditions of living and a better knowledge of contagion are helping.

The Daughters of the Empire have established a sanitarium at Union-on-the-Lake that is doing much to prevent tuberculosis as well as cure it.

TYPHOID FEVER.

Eighty-one cases were reported; eighteen from other municipalities; five deaths; and twelve at present.

The water is chlorinated as directed by the Provincial Board. There is apparently at times carelessness with this and an occasional excess of chlorine results.

If all typhoid excreta were disinfected according to regulations the international waterways would not be typhoid bearing, granting no carriers escape detection.

OTHER INFECTIOUS DISEASES.

No Leprosy, Bubonic Plague, Cholera, Anterior Polio-Myelitis, Cerebro Spinal Meningitis, Glanders, Anthrax, or Rabies occurred the past year. A few cases of Measles were reported, but no other of the communicable diseases, except those above mentioned.

It seems difficult to get physicians to report in writing, so that we are receiving reports over the telephone.

SANITARY EDUCATION.

The Board of Health has been issuing a Health Bulletin, edited by Dr. McCabe, which is doing much to increase public interest and knowledge in these matters.

The *M. O. H.* and Sanitary Inspector spend much time in explaining the reasons for our work to school children and others.

Addresses are given where opportunity occurs and the local papers are always willing to publish helpful items.

RECOMMENDATIONS.

1. The smallpox hospital should be furnished with water, sewer, and gas.
2. Isolation hospitals for scarlet fever and diphtheria should be provided.
3. A local laboratory for the examination of diphtheria swabs, tubercle bacilla and milk should be established.
4. A school nurse should be appointed.
5. It must be impressed upon property owners that before any drainage or plumbing is done a permit must be secured.
6. The Garbage Department should be under the direction of the Board of Health.

WOODSTOCK.

DR. C. M. MacKAY, M.O.H.

I herewith submit the Annual Report of the Health Department for the year ending November 15th, 1914.

There were 216 births registered in the city during the year.

There were 124 deaths (exclusive of still-births), which gives us a mortality rate of 11.9 per thousand population as compared with 13.6 per thousand for 1913. Excluding non-residents of the city, who came here for treatment, and whose deaths are included in the foregoing, the rate for the city would be 11 per thousand.

Deaths were due to the following causes:

Convulsions	2	Acute Bright's Disease	5
Chronic Bright's Disease	6	Pernicious Anemia	3
Phthisis	3	Premature Birth	3
Cancer	10	Meningitis	2
Abdominal Tumors	2	Railway Accident	2
Pneumonia	11	Bronchial Asthma	2
Arterio Sclerosis	23	Erysipelas	2
Septicaemia	5	Gall Stones	2
Heart Disease	11	Gangrene	2
Cerebral Hemorrhage	6		

One from each of the following causes, i.e., inflammatory rheumatism, angina pectoris, appendicitis, laryngitis, tubercular peritonitis, atelectasis, intestinal obstruction, cerebro-spinal meningitis, septic meningitis, paralysis of heart, leukemia, perforation of stomach, haemophilia, intussusception, eclampsia, acute alcoholism, senile dementia, chronic bronchitis, cholera morbus, malnutrition, and suicide.

The deaths occurred between the following ages:

Still-born	11	From 40 to 50 years	9
Premature	3	From 50 to 60 years	15
Under 1 year	6	From 60 to 70 years	25
From 1 to 5 years	4	From 70 to 80 years	20
From 5 to 10 years	2	From 80 to 90 years	18
From 10 to 20 years	6	From 90 to 100 years	2
From 20 to 30 years	5		
From 30 to 40 years	9		135

It is gratifying to report that the mortality during infancy and early childhood has decreased considerably, i.e., from 22 in 1913 to 10 for this year.

COMMUNICABLE DISEASES FOR 1914.

Disease	Nov. 1913	Dec. 1913	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Whooping Cough	1	3	1	...	3	...	...	...	...	1	...	...	...	...	9
Scarlet Fever	1	1	1	6	1	1	...	...	...	...	...	...	...	...	11
Typhoid	1	...	...	...	...	...	...	...	1	...	...	1	1	...	4
Measles . . . . .	...	...	2	...	...	...	...	...	...	...	...	1	...	...	3
Erysipelas . . . . .	...	...	...	...	...	...	2	...	1	...	...	...	...	...	3
Mumps . . . . .	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
	3	4	4	6	4	1	2	...	2	1	1	2	1	...	31

Of this class of disease I am pleased to report that we have had a decided decrease over the preceding year, viz., 31 cases, as compared with 109 for the preceding year.

There is still a *laxity*, I believe, in the reporting of communicable diseases, whooping cough and measles particularly, being neglected; the cases being so mild they are cared for by the mothers. This is, I believe, a great mistake, for, though the epidemic may be mild, the complications that so frequently follow are often serious and lead to dangerous results. I, therefore, as a matter of warning, wish to state that although a physician may not be called, the householder is equally responsible for reporting the case, and, according to the Act, should, within twelve hours of the occurrence of the

disease in his house, report the existence of the same to the Medical Officer of Health. I hope that this intimation will be sufficient notice that all future cases will be promptly reported, and thus we will be able to deal with any mild outbreaks before they become of any magnitude.

SANITATION.

Several new sewers and extensions have been made this year and a lane in the business district has been drained and paved, materially improving sanitary conditions in that neighborhood.

The garbage system introduced last year is working very well, but will not be entirely satisfactory until an incinerator plant is installed. The present dumping grounds are a cause of more or less complaint in the localities in which they are situated, and I would suggest that, if an incinerator is not contemplated within the near future, the City Council secure a more suitable location for the garbage dumps.

The Sanitary Inspector reports that there are 1,300 outside closets in the city, a number of them in the congested parts. This is too large a number, and I would recommend that the local Board make an effort to have outside closets prohibited where sewer connections are available.

Two houses have been closed during the year as unfit for habitation.

I would again call your attention to the request made in the report of 1913, i.e., that provision should be made for the *inspection of plumbing*.

I am pleased to report that a start has been made in installing hygienic drinking fountains, and would again direct your attention to the need of a public lavatory.

The Sanitary Inspector has not made a report as required by the Act, but a report of a partial inspection of some of the business places was submitted on April 4th, and a report on July 4th *re* some complaints made to him. I would recommend that frequent inspections should be made of premises where foodstuffs are handled and sold.

Dairies were inspected and reported on by our Veterinary Inspector as satisfactory. The milk has been tested monthly and the reports published.

MEAT SUPPLY.

In the absence of Dr. Bentley, Dr. McNally, D.O.H., District No. 2, made an inspection of the slaughter houses from which meat is supplied to the City of Woodstock. Conditions were unsatisfactory in many instances, and in such cases the owners were ordered to clean up immediately. All vendors were given until May 1st, 1915, to comply with the Regulations of the Provincial Board, a copy of which will be placed in the hands of the parties interested, so that I hope by the time warm weather comes again we will have all slaughter-houses supplying the local trade in a fit and sanitary condition. Dr. McNally also suggested that to prevent the sale of diseased meat the head and hide of all animals not inspected at the time of killing should be submitted to examination by a competent person, before the meat is sold.

In conclusion, I wish to thank the members of the Board of Health for their co-operation in dealing with matters of public health.

BARRIE.

DR. A. T. LITTLE, M.O.H.

I hereby present to your Board my report for the year 1914:—

Contagious diseases reported to your secretary are as follows:

Scarlet Fever—47 cases; no deaths.

Typhoid Fever—7 cases; no deaths.

Smallpox—4 cases; no deaths.

Chickenpox—22 cases; no deaths.

Diphtheria—19 cases; 2 deaths.

Tuberculosis—4 cases; 8 deaths.

Mumps—9 cases.

Whooping Cough—5 cases.

All cases of mumps and whooping cough have not been reported to our secretary; so also tuberculosis.

Owing to the recent outbreak of diphtheria in the Sixth Ward among the school children, we deemed it necessary to close the school for a short period. The cases were of a mild type, and no deaths occurred.

Garbage collection has been carried out in a satisfactory manner; so also the other duties performed by Mr. Johnston and his men.

Our Sanitary Inspector, Mr. Hagart, has from time to time made careful inspection of our dairies, including the cow byres, the bottling kitchen, etc. He has had made milk tests from all the milk dealers in the municipality, and with few exceptions the tests came up to the standard.

A marked improvement is to be seen in the care of the slaughter-houses and also in the marketing of the meat, both by the large and small dealers.

The refuse matter from our tannery has at last been taken care of. A sedimentation tank has been installed, which we hope will do away with our water pollutions from that source.

I would like to impress on your Board the necessity of a regularly appointed medical inspection of our schools, as recommended and carried out by many of our cities and towns. It would be of great service in stamping out outbreaks of disease, and also for the parents' knowledge of minor ailments from which the children may be suffering, as defects of vision, presence of adenoids, enlarged tonsils. A graduate nurse could be employed at a moderate salary to perform this work.

BRAMPTON.

DR. W. D. SHARPE, M.O.H.

There have been during the year reported to me:—

Three cases diphtheria; all recovered.

Two cases scarlet fever; both recovered.

Nearly 200 cases measles and no deaths.

Twenty-five cases chickenpox, no deaths; and numerous cases of mumps.

It was necessary to close schools in June and disinfect for measles and require certificates from all pupils as to freedom from contagion.

At Christmas Holidays the Public and High Schools were cleansed and disinfected.

The milk supply of the town and its handling is not as it should be owing to the lack of a special milk by-law. I had one prepared, but it has not as yet been finally passed by the Council. I had some of the milk tested several times and it was only fair.

The water supply from the springs continues excellent according to Government official analysis of the samples sent down often. I had a number of wells tested and found them all contaminated. The slaughter-houses are not up to Government standard and will require looking after.

CHESLEY.

DR. J. J. B. DOWNING, M.O.H.

I had my report prepared to November 15th, when unfortunately an outbreak of diphtheria occurred on November 8th, so I thought it better to rewrite my report and include in it the measures undertaken to combat the outbreak. I shall first deal with the period from November 15th, 1913, to November 15th, 1914, and then give in detail an account of the diphtheria outbreak from November 8th, 1914, to the present date.

1. From November 15th, 1913, to November 15th, 1914, there were reported:

13 cases of diphtheria.

1 case of tuberculosis (new).

1 case of measles.

1 case of typhoid fever.

During the same period there were 2 deaths from diphtheria, 2 from tuberculosis, and 1 from typhoid, or 5 deaths, altogether from communicable diseases. Taking the population as 2,000 this represents 1 death to every 400 of population from communicable disease— $\frac{1}{4}$ per cent. Two deaths occurred from diphtheria, no doubt owing to delay in calling assistance and having antitoxin administered promptly.

I am glad to say that tuberculosis is on the decline in Chesley. From 1912 to 1913 there were 10 cases reported, against 1 case only from November 15th, 1913, to 1914. During the year 1914 not a single case of tuberculosis has been reported. No doubt this is due to better sanitary conditions in the town and better care in handling of food. From May to November, 1913, there were no contagious or infectious diseases reported, with the exception of one isolated case of diphtheria, which fortunately recovered. A couple of suspicious cases occurred, which at first appeared to be typhoid but

were not. These were caused by bad water from wells, which I ordered closed up and town water installed in their place.

I should like to see the waterworks extended next summer so that everyone in town may have the use of the town water, which is of excellent quality.

In the spring Dr. McNally, the District Officer of Health, in company with Dr. Houston, M.O.H., of Elderslie Township, and the members of the Elderslie Board of Health, made an inspection of the creamery and slaughter houses, as these are in the township, and therefore under the direct jurisdiction of the Elderslie Board, although I have power to see that they are kept in a proper condition. I was present when they made their inspection. The creamery was first visited and permission granted to Mr. Lackner to remain in his present position after complying with certain conditions. Mr. Lacker agreed to make certain alterations if he were allowed to remain for this season. However, Dr. McNally allowed him the privilege for this season, on condition that next year he will change the location to a higher and drier place.

The slaughter houses were then inspected. They were found in a fairly sanitary condition, with the exception of having the place where their hides are kept communicating with the interior where slaughtered beasts are hanging; also a few fly screens were necessary. These defects have since been remedied and our slaughter houses are now in a satisfactory sanitary condition. I think our butchers are very careful now in the handling of the meat. From the time an animal is slaughtered now until it reaches the butcher shop every care is taken. The slaughter houses are fly-proof, screens being on all the windows. Then the meat is wrapped up and brought to the butcher shop, where there are screen doors.

This is quite a different condition from a few years ago, when no screens on doors or windows existed, and no care was taken by wrapping the meat to keep dust and flies out.

I wish the bakers would be more careful in handling their bread. If the bread were wrapped in paper it would be a good measure.

I have asked the Council to pass a Milk By-law, as recommended by Dr. McNally. I wish you would attend to this if you have not already done so.

Your Council brought before my notice the fact that the Grand Trunk Railway was keeping a nuisance at the station, which they had promised to remedy. The Council had sent several letters to the Grand Trunk Railway which the latter had never answered. You asked me to take the matter up, which I did. I received two or three evasive replies from them also, when I wrote to Dr. McNally, District Officer of Health.

As a result they removed the nuisance and installed water supply and sanitary closets at the station. They did not put in the wash basins this year owing to the financial stringency, but have promised to do so when times are better. However, the water supply, etc., are the most important, both for their own employees and the travelling public.

I am glad that this Council was able to negotiate the purchase of land suitable for a dumping ground. Several preceding Councils had attempted this, but people who owned ground suitable refused to sell or asked too much for it. The property you were able to get this summer is well suited at the bottom for a dumping ground to which you have made a road, while the hill is full of rock, which will be fine to put through the crusher to be used on the streets, so that you can put your purchase to two good uses; namely as a dumping ground and to get material with which to fix the streets. Moreover, as it is on the outskirts of the town it does not offend the eye, as in the past when garbage was dumped on the river bank.

On the whole, gentlemen, there is a marked improvement in the town this year. In some respects there is room for improvement. For example, the sewers might be flushed out oftener to prevent disagreeable odors, and householders should burn papers, etc., instead of having them flying around their yards and on the streets. The Council should see this is done. However, this Council has done well this year, and I trust next year's Council will aid me as much in carrying out provisions for sanitation.

This is the report I had ready on the 15th of November, when I thought it better to wait and include in it the measures undertaken to combat the outbreak of diphtheria.

2. On November 8th I discovered a case of diphtheria and quarantined it. I then asked the Principal of the Public School to report to me each day the names of all those who were absent for two days or over and insist on such absentees coming to me for examination. In case everything was satisfactory I gave them a certificate permitting them to return; if not, I sent them home. This was done and is still being carried out thoroughly. On November 10th another case occurred, and on the 16th of November another, and on November 20th two more cases broke out, when I deemed it advisable to close the public school in order to have it thoroughly fumigated and cleansed.

A meeting of the Board of Health was called to discuss the matter and the Board unanimously endorsed the measures I had taken and passed a motion to employ two women to thoroughly scrub and cleanse the school with antiseptic solutions, and also another motion was passed to employ a nurse in the school and visit the homes of the absentees as soon as school was reopened. I kept school closed from November 20th to November 30th, when no new cases having broken out since November 24th I thought it would be safe to let the school reopen. During the epidemic the Sunday schools were also closed.

On November 30th school was reopened with Miss Vanatter in charge, since which time no new cases have occurred, and the school is now going very well and large numbers of the pupils have returned to school. Every pupil who has been away has to be examined by me before returning. The work done by the nurse is excellent, and her report is very interesting as regards the condition of the mouths, noses and throats of the pupils. Adenoids, enlarged tonsils and defective teeth are common, as I have found out in examining their throats and mouths. Miss Vanatter's report goes over it very thoroughly and is of great value to me as Medical Officer of Health. I wish the School Board could see its way clear to employ a school nurse, as the efficiency of the teaching staff would be increased. During the last month or more the attendance has been about one-half and the teachers have to mark time so as not to get too far ahead lest those who have been away for some time may be unable to catch up with their studies. Miss Vanatter's report sets forth the conditions existing among the pupils, and it is the duty of the parents to see that defects in the noses, throats and mouths of their children be corrected. Children with defective teeth and enlarged tonsils and adenoids are not only a menace to themselves but to other scholars, owing to the liability to contract communicable diseases. I spoke to our dentists, who have consented to give clinics on the care of the teeth. I trust, therefore, that the School Board will take up this matter at their next meeting. At the same time, I would like to draw the attention of the Board to the condition of the school. On several occasions when I have been there I have found the lavatories in a dirty condition, and also some other parts of the school. The basins and closets should be kept in a more sanitary state. I wish the School Board to see that the existing conditions are remedied. Trusting the Council, through its Secretary, will draw the attention of the School Board to this matter, I herewith close this report.

COCHRANE.

DR. E. G. VERNON, M.O.H.

There occurred in the Town of Cochrane, during the year ending November 15, 1914, 25 deaths. This is a decided improvement over last year's list of 41. Dividing the deaths into groups according to the ages, we find that 6 were premature births, 5 stillbirths, 9 under the age of two years, and only 5 over the age of two. It will be seen that the greater number of deaths occurred before the second year of life.

During the year there was one death directly due to tuberculosis, while last year there were four. This is very encouraging, as we are all glad to see a decreasing number claimed by the white plague. Pneumonia following measles claimed two deaths, while pneumonia without complications was one. Marasmus and ilio-colitis four, convulsions one, heart failure two, one of which was a blue baby; pyosalpinx one, accident one, and pericarditis one.

There were reported during the year 171 cases of measles with three deaths. In each case pneumonia was the complication. One case of typhoid was reported but was very mild. We are all very glad to know that typhoid was not so prevalent as last year. Four cases of erysipelas reported, no deaths. No cases of scarlet fever were reported. Two authentic cases of diphtheria appeared in the town and suspected cases which were placed under quarantine until definite returns from the Provincial Board of Health, Toronto, could be received. The local Board of Health of the town had a sufficient stock of diphtheria anti-toxin purchased for the citizens of the town in case of a severe outbreak of the same. We are very glad to see the care that separate individuals of the town have taken on their own account to protect themselves and prevent the spread of the disease.

The purity of the town water supply during the late summer months was not up to the mark, as several samples taken from Spring Lake showed the presence of bacteria of intestinal origin. That taken directly from the springs being up to the mark in every test. This goes to show that the town should in future take steps to have their full supply from the springs alone, as I understand, that if properly tapped, they will supply water in abundance for the town's use. Cows that occasionally strayed on the slopes leading down to Spring Lake were thought to be the cause of the contamination found in the water, a result of the heavy rains washing down the intestinal material into the lake. Warnings were issued, through the kindness of the press and also by cards placed

at the water taps, to boil the water. The intestinal bacteria which were found in the water was the cause of these notices. We hope that this contamination is not partly due to the sewage from the town sewer; if from it we should have expected more than on case of typhoid fever in the town. Last year we hoped that ample fresh spring water would be supplied when the large points were driven at the springs, but the same condition still exists.

Several samples of milk were tested and proved very satisfactory, all containing more than the required percentage of butter fat.

The scavenger system for this year has been worked in a different way, each citizen being responsible for himself. We will yet have to see the success of the same when next spring comes. A proper enclosed wagon should be employed for the removal of residue from closets and that at night time.

Rigid orders were again enforced this year by Dr. George, the District Medical Health Officer, during his spring inspection of all foreign boarding houses of the town. The work was very effective and the sanitary condition was much improved by reducing the overcrowding which is so prevalent among the foreign element.

The changing of the dumping ground was a good move towards the protection of the springs in that area, as they are part of the system from which the town spring water is derived. The extension of the sewer would further protect the same chain of springs and also prevent sewage contamination of the present water supply. The level of the water in Spring Lake from which part of the town's supply is taken is five feet lower than the small lake into which the sewer empties, with but a narrow ridge of land between. In the last four or five months water samples have been sent to Toronto at short intervals, and all the later tests have shown the water of Spring Lake to be contaminated with bacteria of intestinal origin. There must be an underground current through this ridge of land between the two lakes, which is more than likely, as the water is five feet higher in the infected lake. If the sewer was extended it would carry the sewage far below the level of the water in Spring Lake and thus protect the town's source of supply. According to the arrangement with the Provincial Board of Health, the town, when allowed to take water from the springs and Spring Lake, promised to extend the sewer to Marshy Lake as a protection to the present springs.

During the year there were 142 births in and about the Town of Cochrane, as compared with 86 last year and 106 the year before. There were 11 marriages, as compared with 15 last year.

I wish to thank the other members of the local Board of Health for their kind assistance in matters concerning the health and welfare of the town.

REPORT OF THE SECRETARY, H. J. BROWN.

Report of the Secretary of Cochrane Local Board of Health. Proceedings and work of the Board to be submitted along with the Medical Officer of Health's report to the Secretary of the Provincial Board:—

At the beginning of the year 1914 the following persons were identified with the Board: W. J. Bauldry, Chairman; Dr. E. G. Vernon, M.O.H.; Albert Taylor, Mayor; Thos. Portland, Sanitary Inspector. Owing to the resignation of W. J. Bauldry, the Chairman, during the forepart of the year, Mr. D. Kertzer was appointed by Council to the vacancy.

Seven meetings of the Board were held during the year, and in addition to these several committee meetings.

The prevalence of measles in the town the first part of the year was responsible for a good number of the committee meetings. The advice of the Board on certain cases was sought at different times in this regard. The general sanitary condition of the town was always a matter which was spoken of at the Board meetings and through instruction to the Sanitary Inspector as well as personal inspections of the Board and the assistance of the District Health Officer, Dr. George, conditions were kept as well as could be expected considering that there was a large foreign element in the town.

Attention of the Board was given particularly to the dairies and bakeries, the different concerns were ordered to use a different system of tickets, which no doubt had its good effect, and a strict watch was kept as to their cleanliness.

Reports of the town water were submitted by the M.O.H. to the Board regularly. During the summer the members of the Board made an inspection of the town's water supply and through representations of the Board to the Town Council certain improvements were made to Spring Lake and surroundings, which now make matters much more sanitary.

The disbursements in connection with the Board of Health for the year amounted to \$255.60 in addition to the M.O.H.'s salary, \$200.00. Considerable of this expense was due to the cost of supplies needed for fumigations of the numerous measles cases.

The last part of the year saw two or three cases of diphtheria in town, but owing to the prompt action of the Board the same was not allowed to spread, and the town has

now no such cases. Through the efforts of the Board quantities of serum were secured for use in case of a general outbreak, and same could be supplied to parties requiring it at first cost.

In every case where it was possible the members of the Board were always in regular attendance at the meetings and where matters affecting the health of the town were before the meetings a keen interest was taken.

FORT FRANCES.

DR. HUGH W. JOHNSTON, M.O.H.

During the year just passed the Local Board of Health have had to meet two serious outbreaks of smallpox, and one minor outbreak of scarlet fever.

The first outbreak of smallpox occurred during the months of December, 1913, and January and February, 1914. This outbreak was confined to fourteen cases, and that it was so confined was due to the efforts of local health authorities, aided very materially by the presence and advice of Dr. Wodehouse, Provincial Medical Health Inspector of District No. 7.

It was found necessary during this outbreak to close the schools and several places of amusement and enforce a general system of vaccination.

The second outbreak occurred during the months of October and November, 1914, and was confined almost without exception to children of the separate school, or to those who came in contact with them. None of those who were attacked by this disease at this time had been vaccinated in the early part of the year. The number of cases was nineteen.

During the month of June, an outbreak of scarlet fever numbering five cases occurred.

Outside of these outbreaks the general health of the community during the year has been very good. The efforts of the Local Board to keep the town in a sanitary condition have met with a very fair measure of success.

Perhaps the greatest difficulty encountered by the health authorities during previous years has been the disposal of garbage. The Local Board of 1914 met with the same trouble during the spring of the year. It is now confidently anticipated that this difficulty has been overcome by the construction of an incinerator during the fall of this year by the Municipal Council. No less than five horses have already been consumed in this incinerator, and the work was done in such a thorough manner and at such a trifling cost as to warrant the statement that no difficulty should be encountered in the future in the matter of garbage disposal.

During the early months of the year, an effort was made to have sewer and water installation adopted entirely within that portion of the town served by these systems. This effort was only partially successful owing to two causes:

1. A number of houses were in such a condition as not to warrant the installation of water closets.
2. The financial stringency, aggravated by war conditions, made it impossible to force the installation.

Tests of milk furnished to the residents of the town by the dairies have been made from time to time, both for sediment and butter fat. With one exception the tests prove the milk of good quality and free from sediment. The tests for butter fat ranging from 3.1 to 4.2. Tuberculin tests of the cattle from which the milk was obtained were also made, all being reported healthy.

Following are the vital statistics report for the year:—

Quarter.	Births.	Marriages.	Deaths.	Total.
First	21	10	12	43
Second	26	18	19	63
Third	46	11	9	66
Fourth	23	15	15	53
Totals	116	54	55	225

Contagious Diseases reported during the year:—

Typhoid	1
Smallpox	26
Scarlet Fever	7
Diphtheria	1

OUTBREAK OF SMALLPOX AT FORT FRANCES, ONT., 1914.

Name of Patient.	Age.	Sex.	Residence.	Disease.	Date of appearance of rash.	Date of probable exposure.	Where exposed.	No. of inmates.	Inmates attending school.	Method of Quarantine.	Name of Physician attending.	Remarks.
Chas. Carlson	14	M	509 Movat.	Typhoid	13-10-14	Sept. 20-25th	Winnipeg	10	3	Quarantine by placard.	H. W. Johnston	Placed in care of Mrs. Currie, 327½ Second St. E.
Leblanc, Orris	9	F	233 Sinclair	Small-pox	14-10-14							
Leblanc, Isabel	9	F	233 Sinclair	Small-pox	14-10-14							
Currie, Donald	12	M	327½ Second.		8-10-10	Sept. 24th	Separate school.	6	1		H. W. Johnston	
Dwyer, J. J.	12	M	526 1st St. E.		7-10-14	Sept. 23rd		3	0		H. W. Johnston	
Cousineau, Dora	11	F	Scott St.		14-10-14	Oct. 1st		5	2		D. C. McKenzie	
Cousineau, Harold	9	M	Scott St.		14-10-14	Oct. 1st		5	2		D. C. McKenzie	
Collins, C.	25	M	Monarch Htl.	Typhoid			Winnipeg or W. farm				H. W. Johnston	Patient sent to Winnipeg General Hospital-indigent.
Boileau, Leo	14	M	Third St. E.	Small-pox	16-10-14	Oct. 2nd		8	3		D. C. McKenzie	Placed in care of Mrs. Currie.
Haley, John	28	M	Portage Ave.		21-10-14	Oct. 4th						Placed in the Pest House.
Gagne	10	F	Nelson St.		10-10-14		Separate school	5	3		H. W. Johnston	
Boulanger, Baby	14 m	F	410 Mosher					6				
Currie, Ed.	16	M	Second St.		30-10-14	Oct. 12th	Sleeping with brot'r	5	1			Care of mother.
Dwyer, John	40	M	First St.		1-11-14	Oct. 11th	Son previously removed	3	1			
Boileau, (3 children)	3, 5, 16	F, F, M	Second St.		not exactly known		From brot'r her (above)	8	3			Cases discovered late.
Grimsell, J.	40	M	Butler		about			7	3			
Cyr, Inez	4	F	625 Scott St.	Scarlet-fever	9-15-14			4	0			
Pellitier, J.	28	M	Scott St.	Small-pox	5-11-14			0	0			
Robin, Mrs. L.		F	518 Nelson				Probably at brot'r-in-law's	0	0		D. C. McKenzie	In care of Mrs. Currie.
Stewart, Richmond	16	M	1018 Scott		28-11-14	Nov. 14		3	1		Robt. Moore	
											H. W. Johnston	

HANOVER.

DR. E. T. EEDE, M.O.H.

The sanitary condition of the town in general continues to be satisfactory. No epidemics (except 15 cases typhoid) have occurred during the year. Inspection of the slaughter houses shows that considerable improvement has been made since the definitely traced; but is suspected to be the *river water*, which is known to be polluted dairies and herds are properly kept; but a portion of the milk delivered by the dealers is collected from different farms not under public supervision.

The school buildings were inspected and found to be neat and clean, and the ventilating system in good order.

Improvement has been made in conditions along the stream through the town; but there is still something to be done to bring the sewage disposal arrangements of some of the adjacent houses up to the requirements of the by-law.

Fifteen cases of typhoid fever have been reported during the year, with *two deaths*. The cases were distributed fairly evenly over the town, except the southwest quarter, and throughout the whole course of the year. The source of infection has not been definitely traced; but is suspected to be the *river water* which is known to be polluted and which is carelessly used for washing cups and utensils, and occasionally for drinking purposes, in spite of frequent warnings.

The water from different wells has been tested and found free from bacteria.

NORTH BAY.

DR. EDGAR BRANDON, M.O.H.

I have the honor herewith to make my second annual report as your permanent Health Officer. In doing so I am pleased to report one of the healthiest years, in so far as the number of communicable diseases reported to my department. They are as follows:—

Diphtheria	10
Scarlet fever	44
Typhoid fever	3
Measles	12
Mumps	1
Chickenpox	7
Tuberculosis	4
	81

Most of these cases occurred in the first few months of the year, so the most of the year the town has been free from contagious diseases.

WATER.

During the year repeated examination of the town's water supply has shown the excellence of quality and freedom from contamination by bacteria of intestinal origin. This is further carried out by the record so far as typhoid fever is concerned—only three cases to our knowledge, and none being traceable to water infection. I wish, however, to warn the municipality that more and more each year Trout lake is becoming a health resort and a place for summer cottages situated along its shores, and this leaves our water supply more and more liable to sewage and out-house drainage and contamination. The vacant land along the shores should be bought up by the municipality to prevent such contamination and conservation for the town in future. If this land were now secured, which it could be at a low cost, we should then be in control of the shores and greater security and safety to our water supply would be ensured. The town should purchase a strip at least sixty-six (66) feet wide around the shore for a distance of at least three miles in order to gain absolute control. Our neighboring town of Sudbury is this year paying the penalty for neglecting to secure the land around its water supply. Some forty cases of typhoid occurred there this year due to contamination of their water supply at Ramsay Lake by summer tourists and cottagers living along its shores and adjacent lands. They are now considering

the expenditure of \$100,000 to secure a pure water supply. A somewhat similar occurrence took place at Timmins and Cochrane. Pure water is absolutely the first necessity, and essential to a town, and we have now one of the best in the Province, which can be very easily kept pure by judiciously expending a few thousand dollars in buying up the shore line for a few miles.

SEWERS.

During the year some advance has been made in the laying of needed sewers, but a great many districts still remain unsupplied, necessitating the use of outside closets and cesspools, which are always a source of possible infection.

We are still of the opinion that a trunk sewer is an urgent necessity to the town. Beginning at Regina Street, where there is a two-ft. sewer, we would suggest going along Oak Street to Sherbrooke Street and tap the present Oak Street sewer, which would relieve the urgent troubles and blocking of cellars to the business and hotel sections. Then going up Sherbrooke to Worthington and along Worthington Street to Wyld Street and along Wyld to the corner of Second Avenue where the present storm sewer could be tapped. The present storm sewer from there on could be connected into a sanitary sewer. This would supply an immense area to the north and northwest sections. Laterals along many streets could be constructed to empty into this trunk sewer. Another portion of this trunk sewer should be carried along First Avenue to Fisher Street and out Fisher Street to Chippewa Creek, whence all that section could be made to drain as the fall all gravitates towards that point.

A two-foot trunk sewer would take care of a population of 50,000 people, hence the east and northeastern sections would be given ample sewage outlet.

The construction of the Fourth Avenue sewer to Cassels Street from near Fraser Street was a much needed piece of work and will relieve a very unsanitary state. More sewers are needed in the foreign boarding house sections, as our experience of last winter and previous times teaches; in that they have a total disregard for sanitation and an outhouse or closet, by reason of the large numbers using, rapidly becomes a serious menace to the community. Repeated court proceedings and fines do not seem to influence their ideas and habits as to proper sanitary measures, and we are of the opinion that the foreign boarding house should be run under a license system; a license to be granted only after proper plumbing; lavatories and water closets are installed, these places to be under our supervision and license to be cancelled if sanitary conditions are not preserved and maintained.

GARBAGE AND NIGHT-SOIL.

The collection of garbage and night-soil has been well carried out during the year. The town dump has been kept in as good shape as is possible without a man being kept there constantly, which should be done so that the refuse and garbage could be kept fired and smoldering constantly. Under my instructions the Sanitary Inspector has kept the excreta covered with earth to prevent fly infection; but it must be admitted our method of disposal is very crude and quite unsanitary. An incinerator is urgently needed, particularly for this purpose as well as for garbage disposal. As an alternative, until such is obtained, in summer, at least, some arrangement might be made by which the excreta could be turned into a properly constructed man-hole and flushed into the sewers, which could be constructed at certain well selected points in the town and the work could be facilitated and the danger lessened in summer by reason of fly transmission. There is no doubt but that our open method of disposal of excreta leaves us open to a serious outbreak of typhoid in summer as fly infection of food so easily follows. Sewers are very urgently needed on Jane Street West, to supply a rapidly filling district.

MILK INSPECTION.

The by-law passed by 1913 council gave us a very effective weapon which has conduced to much better surroundings and conditions for the production, care and disposal of milk in the town. Sixteen (16) dairymen registered with the town as being desirous of taking out a license. Five (5) only were deemed sufficiently up to requirements to be granted licenses. These were G. C. Smythe, Chas. Johnston of this town; and T. K. Purdon, Jno. Hogan and W. F. Clark of Powassan. The other applicants, notably three with large clienteles, are improving their dairy barns and have constructed milk houses to meet the by-law. Next year, if they do what they have agreed to do, they may be granted licenses; but failing to come up to the requirements they will be stopped from vending milk and prosecuted.

According to the statements made by applicants for license, they are supplying our town daily with about 2,500 quarts of milk. This does not take into account the

great number of smaller vendors who have but one or two cows and who do not register with the department. So it is easily seen why such an important food supply should be kept clean and wholesome. I have made repeated inspections of these plants along with Mr. White, and I must say that there is great room for improvement. One large producer and dairyman had a particularly unsanitary plant, and on both visits it was swarming with flies. This dairyman is under a signed undertaking with us to build an up-to-date dairy barn, capable of housing 100 head of cattle under the most improved conditions, with concrete floors, iron stanchions, and with good light and ventilation. Also to construct a new milk-house, which I am pleased to state he has completed and is now using.

We must proceed slowly, necessarily so, because the putting into shape of these plants requires money and time; and if shut off, a hardship would be imposed both upon the vendor and consumer alike. Nevertheless great improvement has resulted this year, and we expect still further in 1915.

Only one herd is tuberculin tested, and it is a source of regret that the producers do not resort to this procedure, as statistics go to show that from 20 to 40 per cent. of all cattle are tubercular. An important test made this year in the city of Edinburgh disclosed the fact that 20 per cent. of all milk supplied that city was definitely tubercular. Dr. Hastings, M.O.H. of the city of Toronto, is authority for the statement that 40 per cent. of the producers' cows are tubercular. Yet this is a staple food and the only article of diet for a child during the first year and most of the second year. Do you wonder at the city of Toronto making it compulsory for dairymen to pasteurize all their milk before being allowed to dispose of it to private customers? The death rate in infants from intestinal troubles, in summer chiefly, reached terrible figures. In the District of Nipissing last year, according to the report of the Registrar General just to hand, there were 66 deaths due to diseases of the digestive tract; 46 of which were two years of age or under, and due to diarrhoea and enteritis. In the same group in the city of Toronto there were 958 deaths, of which 558 were due to diarrhoea and enteritis. In Port Arthur, 31 out of 59. Hence our desire to obtain a pure milk supply.

During the year we have examined samples of milk taken from the dairymen, and we found all more or less dirty. Filter discs disclosed manure, hair and filth to a surprising extent, showing great carelessness in milking, straining, handling and cleaning of utensils. These discs are kept on file at our office in the City Hall and any citizen is at liberty to see for himself. The butter-fat tests were all up to requirements. Bacteria counts were made by the Provincial Laboratory, the counts varying from 24,500 to 340,000 Bacteria per cc. Some of these were much too high, but others were quite low in counts. Only one dairyman was prosecuted, Geo. Thorn. The Magistrate took a lenient view of the case, stating that while he couldn't see how evidence could be brought to controvert the sworn evidence to the effect that his milk was dirty and produced under very dirty and filthy conditions, yet he thought it wiser to give the defendant a chance to improve conditions before closing him up. We are, therefore, looking for much-needed and necessary improvement in his product before taking further drastic measures.

We have the beginnings of a Laboratory in the City Hall, but its equipment is very meagre, and we are inclined to the view that the council and citizens, too, are not sufficiently alive to the importance of the Health Department. The City of Toronto spends \$100,000 per year on its Health Department and is glad to do so. Towns our size are spending two and three times as much as we do. The cities Fort William and Port Arthur have each a fully equipped Department with the Health Officer giving all his time to the work. Mr. White has done splendid work as Sanitary Inspector, but has too much work to do along with his duties as Plumbing Inspector. Heretofore, the citizens have been at the mercy of the plumbers, with no competent authority to check them up and see that the work is done according to the by-law and in accordance with modern, sanitary ideas. Mr. White has been most zealous in correcting these mistakes, and I am certain the citizens are reaping good health and saving money by his inspections and supervision of plumbing. We propose to have the plumbing by-law changed so that a plan of all plumbing and proposed sewage disposal be submitted to our Department before being passed and sewer connection allowed or cesspool constructed. These would be on record at our office and always obtainable in future years if anything goes wrong or some change is desired. Another reason for this change is the fact that there is a disposition to use the storm sewers as sanitary sewers, which is distinctly against the laws of the Province and the town's by-laws. Sometimes the citizens are aided and abetted by the plumbers themselves, who know it is wrong and illegal. This could be prevented by a better system. To carry this out, Mr. White should be given an Assistant Inspector and stenographer part of the time at least. We are desirous of increasing the efficiency of the Health Department, and it cannot be obtained without more help and increased expenditure.

ORANGEVILLE.

DR. T. H. HENRY, M.O.H.

I beg leave to lay before you the following report on sanitary conditions in the town for the year 1914.

There have been very few cases of contagious and infectious diseases, except at the beginning of the year. These, under careful inspection, isolation and disinfection were prevented from spreading, and in consequence we have had a year practically free from disease.

Following are cases reported: Typhoid fever, 2 cases in January, 1914; scarlet fever, 3 cases in February, 1914; chickenpox, 2 cases in January and February, 1914; diphtheria, 2 cases in September, 1914; tuberculosis, 1 case in March, 1914. All made a good recovery, except latter, and this case has improved.

The annual complaints regarding disposal of sewage on our streets and private property were very much in evidence. A petition has been circulated, asking the Town Council to take some action along this line, which is the only way such conditions can be remedied.

A complaint regarding the sanitary conditions of Booth's and Queen's Hotels was investigated in the early summer. This was attended to in a satisfactory manner.

OWEN SOUND.

DR. H. G. MURRAY, M.O.H.

I beg leave to submit my annual report for the year ending December 10th, being a brief résumé of the work done during the year, and a few suggestions for the future. Accompanying is a tabulated statement of the milk testing done during the year, Dr. Norton's report of the condition of dairies and producers' premises, and a table showing the number and kind of the infectious diseases prevalent in town during the year.

It is now possible, as the result of a year's experience, to estimate the value of the services Miss Wilson, the school nurse, is rendering to the Board of Health. Her report is attached and speaks for itself, but I wish to place on record my conviction that the nurse's work is invaluable to us, and to state that her duties are being most satisfactorily performed.

The work of the garbage collectors has been systematized, and I think I am safe in stating that there is practically no complaint whatever. I advise that the collection of ashes be continued during the winter, as only in this way can the sanitary condition of the dump be maintained. I was fortunate in securing from Miss Stephens her property on 1st Avenue East for the purpose of a dump. Sufficient space has been secured for at least two years. No expense is entailed, but at the same time a marshy and unsightly piece of land is made of some value to the owner. I believe that it does not constitute a nuisance to the property owners in the neighborhood.

Our Milk By-law is working smoothly, and I believe the quality of the milk sold is on the whole excellent. Slowly but progressively the premises of the producers supplying the dairies are improving, and it is now a matter of common knowledge among the farmers in the district exactly what we require, and a genuine desire is apparent to comply. Dr. Norton, the Dairy Inspector, is doing excellent work, as his attached report will show.

The record of the cases of infectious disease this year is fairly large. Fortunately the cases were of a mild nature and no deaths resulted. As I have mentioned in previous reports, our main difficulty in dealing with these diseases is the absence of an isolation hospital. Much as we need this, I see no immediate prospect of it being provided, and I feel that under present conditions it is the part of wisdom not to ask for it. It will do no harm, however, to keep the need of one before the public and to educate our citizens to the value of one. Scarlet fever was the most prevalent of the infectious diseases, and I regret to state that a large number of the public have not yet fully realized their duty in the matter of reporting such cases.

The sanitary conditions of the town are better than at any previous time. The experiment of placing boxes at prominent points for the deposit of rubbish has proved most successful, and next year I hope to be provided with a number of garbage cans, placed throughout the main streets of the town, for the deposit of rubbish of all kinds. Mr. King has been most active in his work and is at the present time occupied with a sanitary survey of the town for the provincial authorities, a summary of which will be found at the end of this report. Acting on instructions of the Provincial Board of Health, a commencement has been made regarding the more sanitary keeping of stables in town. Manure must now be kept in flyproof and waterproof receptacles, built, in

preference, of cement. Practically all livery stables in town are now equipped, and next summer all private stables, at least those likely to become a nuisance, will be notified to provide them also.

A survey of the waterworks system has been made this summer by Dr. Amyot, Provincial Bacteriologist, accompanied by Dr. McNally and myself. Dr. Amyot expressed himself as well satisfied with what he saw, but suggested that more efficient protection be given to our springs. Steps will be taken to bring this matter before your Board in the spring, to be dealt with in some manner.

New regulations issued by the Provincial Board of Health regarding the keeping of slaughter-houses are most stringent. The slaughter-houses used by the local butchers will require extensive alteration before they will measure up to the standard set by the Provincial authorities. Personally, I am in active sympathy with the desire to make every producer of foods have the equipment necessary to insure an absolutely clean product. For this reason I trust the local Board will agree with me that next spring these new regulations shall be enforced in their entirety, and at the earliest possible moment.

Under the direction of Mr Chas. J. Pratt, the Plumbing Inspector, a large number of sanitary conveniences are being placed in houses previously without them. This is a very satisfactory method of improving the sanitary condition of the town. The amount of work done during the last few years in this department is readily shown by reference to the number of dry closets returned as cleaned by the scavengers. This year, although times were unusually hard, twenty-five owners were compelled to provide water closets on their premises. The total number of dry closets in town at present is 787, whereas three years ago the number was 933. This is a most satisfactory record. The work of the scavengers is done well; the numerous complaints heard at first are heard no longer.

I wish again to express to the members of the Board my appreciation of the value of their hearty co-operation in our work, and my thanks for their kindness in assisting me in various ways.

CASES OF CONTAGIOUS DISEASES.

Months.	Scarlet Fever.	Diphtheria.	Measles.	Chicken-pox.	Typhoid Fever.	Whooping Cough.	Mumps.	Totals.
January	15	1	.....	2	.....	1	1	20
February	6	1	1	.....	1	1	.....	10
March	8	.....	2	1	.....	.....	.....	11
April	6	.....	.....	.....	1	1	.....	8
May	1	.....	.....	.....	.....	.....	.....	1
June	2	1	1	.....	.....	.....	.....	4
July	3	.....	2	.....	6	.....	.....	11
August .....	.....	.....	.....	.....	.....	.....	.....	.....
September .....	.....	.....	.....	.....	.....	.....	.....	.....
October	2	.....	.....	.....	.....	.....	.....	2
November	3	.....	.....	.....	.....	.....	.....	3
December	7	.....	1	.....	1	2	.....	11
Totals	53	3	7	3	9	5	1	81

DEPARTMENT OF MEDICAL SCHOOL INSPECTION REPORT FOR THE YEAR ENDING DECEMBER 1, 1914.

KATE M. WILSON, S.N.

Number of inspections made	10,689
Number of throats corrected	77
Number of pairs of glasses fitted	53
Number of complete fillings teeth	56
Number of home calls made	256

List of Infectious Diseases.

Scarlet fever cases	35
Diphtheria	2
Scabies	12
Impetigo	13
Measles	4

Whooping-cough	36
Ringworm	5
Mumps	11
Eczema	3
Chickenpox	9
Pediculosis	22

In connection with the medical school inspection work for the year just closing, I might say the response of the parents has been far beyond our anticipation. A large number of children have been referred to and examined by their family physician. It has not been found necessary in all cases to operate or even give treatment, but where it has been, the work has been done in nearly every case. Where defective vision has been found glasses have been fitted, and at the close of the year a marked improvement can be seen in the condition of the children, especially in the teeth. A large number have been looked after, fillings and extractions have been done, leaving the mouths in a healthy condition, with little fear of tubercular glands or stomach troubles resulting from unhealthy, decayed teeth.

In conclusion, I wish to thank the teaching staff of the Board of Education, also the opticians and medical men of the town who have so kindly given me their assistance during the past year.

REPORT OF DAIRY INSPECTOR, R. J. NORTON.

Enclosed is the dairy report for the year 1914.

My inspection in the spring covered 43 places and 285 cows. This last month I have inspected 51 premises and 345 cows.

Regarding the condition of these several places I am pleased to report very favorably. I consider 90 per cent. of the places which have been under inspection are good, while 50 per cent. of the new places which have not been under inspection are poor. Some, as you are aware, were considered unfit and the delivery of milk was suspended. A great many of the poorer places I visited the second time in an endeavor to get them up to the standard and in this I succeeded fairly well. The mailing of those letters, as you did, had a good effect, as it reminded the people of cleaning up for the winter.

REPORT ON DAIRIES.

Dairy.	Lactometer Reading.	Fat.	Solids not fat.	Total solids.
		%	%	%
Owen Sound Dairy Co.....	29.68	4.	8.22	12.22
	29.68	4.	8.22	12.22
	27.44	3.6	7.58	11.18
	30.8	4.2	8.54	12.74
Purity Dairy Co	30.8	4.2	8.54	12.74
	29.	3.6	7.97	11.57
	29.58	3.5	8.09	11.59
	30.74	3.4	8.36	11.76
Mr. Kivell.....	29.68	5.2	8.46	13.66
	29.	4.	8.55	12.55
Mr. Barber.....	29.58	4.2	8.24	12.24
	29.	4.	8.05	12.05
	29.	3.8	8.01	11.81
Mr. Johnston	29.	3.6	7.97	11.57
	28.52	4.6	8.05	12.65
	29.	4.	8.05	12.05
Mr. Walters.....	30.74	4.	8.48	12.48
	27.55	4.4	7.76	12.16

There have been a few new stables built this summer and a few new floors put in. I would suggest that retailers be not allowed to buy milk from places not under inspection without first having your permission.

RENFREW.

DR. JAMES T. McCANN, M.O.H.

I have the honour to submit to you the report of the sanitary condition of the town and the Health Department for the year 1914.

There have been 12 cases of diphtheria, with one death; 1 case of chickenpox; 1 case of measles; 5 cases of scarlet fever; 5 cases of typhoid fever and 3 cases of tuberculosis.

It is a matter for congratulation that the past year has been so free from epidemics of infectious diseases. This is in no small degree due to the promptness with which these cases have been reported both by teachers and the profession. In this way unnecessary exposure at the schools is materially lessened, and as a result the number of children of school age absent from their classes on account of sickness is greatly decreased.

Your Board has adopted the plan recommended by the Provincial Board of Health, and now followed throughout the Province, whereby all places in which there have been communicable diseases are fumigated *under the supervision of the Medical Officer of Health and at the expense of the municipality*. This is a step in the right direction, as it encourages more prompt reporting of all infectious cases, thus giving the Board a chance for closer supervision and the prevention of the spread of any such cases. During the year 22 places have been fumigated.

Your Board has undertaken the furnishing of the isolation hospital. It is now well equipped and has served a long-felt need, and no doubt has been a factor in the lessening of the spread of infectious diseases. By an arrangement with Victoria Hospital, that institution has taken over the nursing of all cases in the isolation hospital.

By arrangement with the Provincial Board of Health, your Board and local druggists are able to procure diphtheria antitoxin at greatly reduced prices; for instance, 5,000 units, which formerly cost \$7.50, can now be purchased for \$1.80. This is done, not only to reduce the cost, but also to encourage more prompt reporting of all suspicious cases of sore throat; and it cannot be too strongly impressed on the people that all cases of sore throat and croupy conditions should be seen by a physician without delay. Many cases are but slightly ill, and yet if untreated are capable of carrying the disease in its most malignant form to others. People should not delay in calling a physician, and if they are unable to meet the expense, the Board of Health should be notified and a physician will be sent to see the patient.

Periodic analysis of the water supply has been made and, although at present it is not as free from infection as is usual, there is no cause for alarm. Of the five cases of typhoid at present one is non-resident, and the causation of none of the others can be directly traced to the water supply.

There have been six complaints *re* nuisances and unsanitary conditions, all of which have been investigated and remedied. One cesspool has been ordered to be done away with.

The number of births during the year have been 93, compared with 110 last year; deaths, 54, compared with 65 last year; three deaths have been from tuberculosis.

There is need for further sewer extension, especially in those districts adjacent to the water supply, as water closets are very often a source of contamination.

The lack of system for the collection and disposal of garbage manifests itself in no uncertain manner in many parts of the town; at times the refuse being simply buried in shallow pits at the rear of the lot, soon decaying and becoming a breeding place for flies and diseases of various kinds. Especially is this to be deprecated in localities where by its presence our water supply may be endangered. On the whole, however, the town is in good sanitary condition.

My sincere thanks are due to the members of the Board of Health for the assistance they have been to me during the past year, and I commend the work of the Sanitary Inspector.

STIRLING.

DR. JAMES McC. POTTS, M.O.H.

December 18th, 1914.

Herewith I beg to present my report for the year 1914.

In its freedom from communicable diseases Stirling has again been fortunate.

Two cases of measles in one family (that of Walter Mitchell) were reported to me. I quarantined the family and disinfected the house, with the result that no further cases developed.

A man (Horton) was reported as keeping his premises in an unsanitary condition. On inspection, his house and person were found to be inconceivably filthy, and as he refused to abate the nuisance, this Board took the matter in hand and had the man and his premises cleaned up.

I have had considerable trouble with the condition of the mill pond, Mr. Kingston, the owner of the water-power, persisting in running off the water to such an extent that the decaying vegetation exposed by the low water became a public nuisance. After repeated visits, and finally a threat of legal procedure, the nuisance was abated, and I do not think it will be repeated next year.

In conclusion, I feel that we may congratulate ourselves on the general sanitary conditions of the village.

STRATHROY.

DR. O. L. BERDAN, M.O.H.

I have the honour to present for your information the annual report of the Board of Health of the town of Strathroy during the past year.

It is matter of gratification that the town has been particularly free from any epidemic of contagious diseases during the year, there having been only ten cases reported, with two deaths, resulting from tuberculosis. The slaughter-houses, dairies, schools and factories have been duly inspected, and will compare favorably with those in other towns of this size.

I would suggest that provision be made if possible for school children to wash their hands at school. Particularly is this necessary for those who take their dinner to school.

I would also suggest that the schools be inspected once a month, and that suitable cards be printed and registers kept of all pupils requiring special attention, and that the nurses at the hospital assist at these inspections in order to receive a training in this work.

STATISTICS.

Contagious Diseases.

Diphtheria	5
Scarlet Fever	1
Typhoid Fever	1
Tuberculosis	3
Total	10
Total, 1913	26

Milk (Average for twelve months).

1. Mr. Inch	3.9%	10. — Pearson	3.3%
2. Mr. Plaxton	3.7%	11. Mrs. Kerr	3.3%
3. Wm. Lindsay	3.5%	12. — Weeks	3.3%
4. Jas. Buttery	3.5%	13. — Steele	3.3%
5. Jno. Herdman	3.4%	14. F. Avery	3.2%
6. D. Brown	3.4%	15. — Black	3.2%
7. — Soper	3.4%	16. L. Fortner	2.9%
8. E. Hunter	3.3%	17. Mrs. Graham	2.9%
9. — Craig	3.3%	18. R. Nicholson	2.8%

Population	2,994
Population, 1913	3,100
Decrease	106
Number of families	800
Number of families, 1913	816
Decrease	16

No. of Stores	68	No. of Mills	7
“ Churches	6	“ Liveries	3
“ Hotels	4	“ Laundries	2
“ Schools	3	“ Pool rooms	2
“ Teachers	15	“ Barber shops	4
“ Factories	7		

Total expenses of this department, \$765.80.

I have reason to believe that some closets are connected to the sewers, and I would recommend the inspector to locate these if possible and prevent the use of them, as the same water is pumped up again. I hope any citizens who have their closets or cesspools connected to sewers will see the necessity of stopping their use at once.

I would also suggest that the lanes behind the stores be inspected once a week, and that a clinic be held once a week at the hospital for the treatment of children unable to pay.

WHITBY.

DR. CHAS. F. MCGILLIVRAY, M.O.H.

I have the honour to present my report as Medical Officer of Health of the town of Whitby for the year 1914.

At the first of the year the local Board of Health was reorganized as required by statute, the following being the members thereof: J. E. Willis, the Mayor, Mr. C. A. Goodfellow, and Dr. Chas. F. McGillivray.

The following cases of communicable diseases were reported to me during the year, with no deaths. The case of tuberculosis left town, and I lost track of the patient.

Scarlet Fever	5
Measles	1
Diphtheria	2
Typhoid Fever	1
Tuberculosis	1

No regular and systematic method of testing the quality and the cleanliness of milk, nor of inspecting the dairies, has hitherto been adopted in Whitby, but rather the custom has been an occasional testing or inspection according as public criticism of the milk supply has become more or less acute. I am glad to report that during the year the town council passed a milk by-law, which for its enforcement merely awaits the approval of the Provincial Board of Health.

The water supply of the town is all that could be desired. We have a waterworks system here, with water taken from Lake Ontario, through a "filtering well." Twice during the year Dr. Amyot's department examined specimens of water from tap, and in each instance his department reported the water as almost absolutely pure.

We have had the pleasure during the year of several visits from our district Medical Officer of Health, Dr. Clinton, of Belleville. His visits are always helpful.

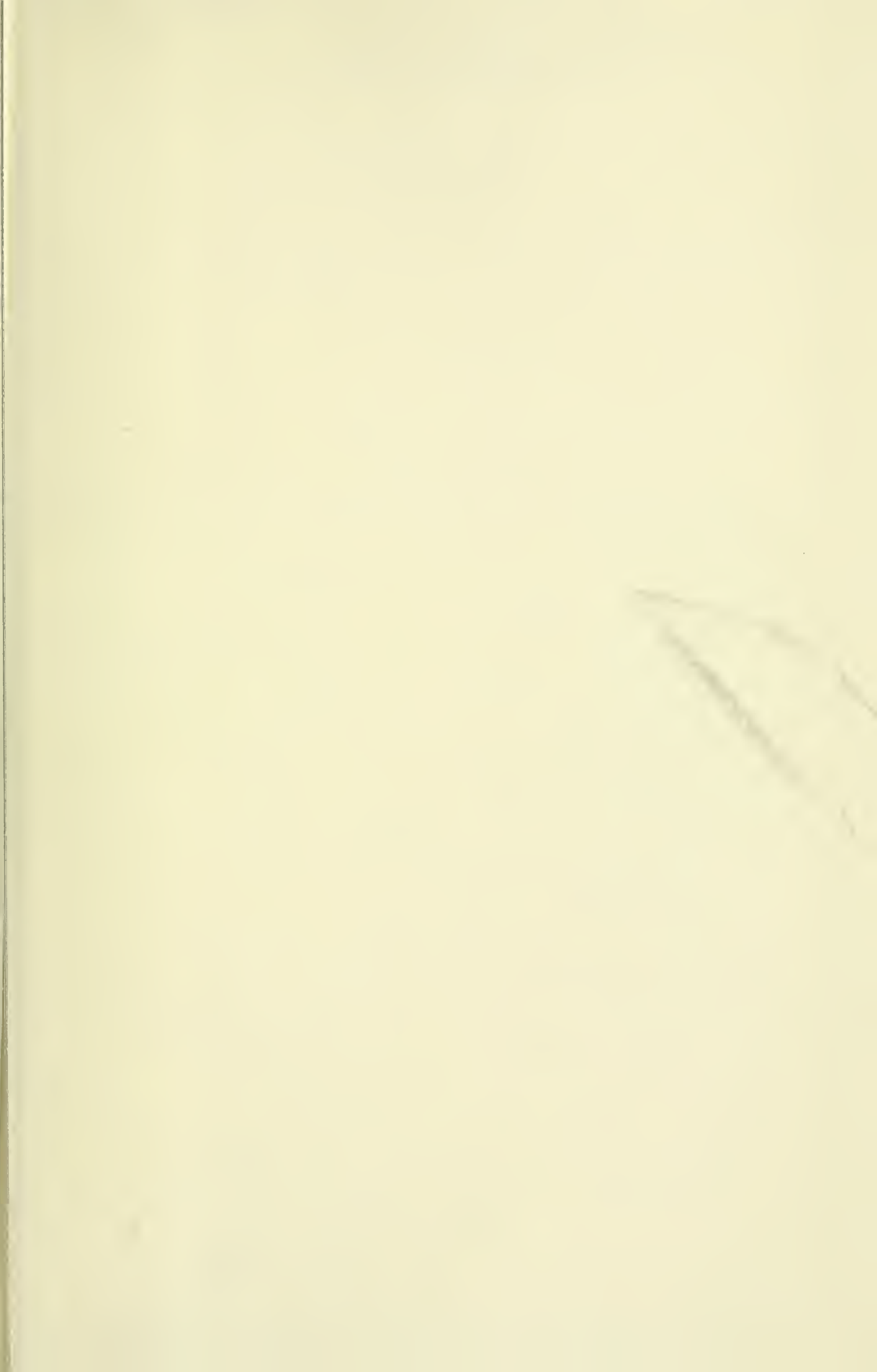
From a sanitary standpoint the greatest nuisance in Whitby for years has been the creek which runs one or two blocks east of Brock Street, the whole length of the town, from the north to the lake. This creek has not only been the natural water-run for some low-lying land in the north and east sections of the town, but town drains and an ever increasing number of cesspools have been drained into it, so that it was ever becoming a greater and greater menace to the health of this community. For many years the question of what was best to be done about this creek has been the "bête noir" of each successive town council. The installation of a sewerage system last year will prove the solution of this vexed problem.

During the year a sewerage and a sewage disposal plant system were installed at a cost of about \$120,000. The sewerage system covers the business portion and largely the residential portion of the town. About ten and one-half miles of sewers have been laid and private drain connections are now being made. The sewage disposal plant, consisting of a sprinkler filtering system and a chlorine house, has been erected at the south end of the town, and is quite sufficiently large to dispose of all the sewage of Whitby, even though the town grew to be twice its present size.

The citizens of the town, especially the property owners, whilst satisfied that a complete and satisfactory sewerage and sewage disposal system had been installed, have been and still are highly indignant to think that a public utility, costing \$120,000, could be imposed upon this or any other community without asking the consent of those entitled to vote on a money by-law, and that, too, on the mandatory order or *ipse dixit* of the Provincial Board of Health or its chief.







BINDING SECT. AUG 25 1967

